

## APPENDICES

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### Founding Chair/Center Director Biography

Dr. Terry Magnuson was recruited to UNC-Chapel Hill in 2000 as founding Chair of the Department of Genetics and Director of the Carolina Center for Genome Sciences (CCGS). He joined the UNC Lineberger Comprehensive Cancer Center upon his arrival at UNC-Chapel Hill; and in 2001, he worked with the UNC LCCC program planning committee to create the Cancer Genetics Program. Dr. Magnuson received his Ph.D. in Developmental Biology from the Sloan-Kettering Division of the Cornell Graduate School of Biomedical Sciences. His postdoctoral work was with Drs. Charles Epstein and Gail Martin at UCSF. It was here that he conducted analyses of several developmental mutants in mouse and he also created the first mutant embryonic stem cell line. Dr. Magnuson was then appointed as an Assistant Professor of Genetics at Case Western Reserve University. He rose through the ranks to Professor and also served as Director of the Developmental Biology Center and a member of the Case Western Comprehensive Cancer Center before moving to UNC-Chapel Hill.

Dr. Magnuson was a founding member of the International Mammalian Genome Society and he served for three years as an elected member of the Secretariat of this Society. He also was co-chair of the mouse Chromosome 7 committee and served for three years on the external advisory committee for the Mouse Genome Database at the Jackson Laboratory. In addition, he sits on a similar steering committee for the ENU developmental mutagenesis centers funded by NICHD. Dr. Magnuson was chair of the Genetic Basis of Disease Review Committee for the NIH. He is currently serving as an elected member of the Board of Directors of the Society for Developmental Biology and is also a Director of the Genetics Society of America. He also is a member of the Board of Directors of PPD, Inc., a publicly held CRO/Pharmaceutical company and is a member of the Scientific Advisory Board of ProNAi, a privately held biotech company. Dr. Magnuson was appointed last year as a member of the Board of Scientific Overseers of the Jackson Laboratory. In addition, he serves on the editorial advisory board of *Development* and of *Mammalian Genome*, and is co-editor-in-chief of *Genesis*. Dr. Magnuson also served as co-director of the Cold Spring Harbor summer course known as the Molecular Embryology of the Mouse and he is currently serving a four-year term on the organizing committee for the Mouse Molecular Genetics meetings held in alternate years at Cold Spring Harbor and the EMBL labs in Heidelberg. He was recently appointed by the National Academy of Sciences (NAS) to a NAS-sponsored committee to establish guidelines for work with human embryonic stem cells. This committee has become an important focal point for the various stem cell initiatives throughout the country and they expect to finish their work with a set of recommendations by spring of 2005. Dr. Magnuson's laboratory is funded by 3 R01s and a project that is part of an NIH STAART Center. He is also PI on one of four Mouse Mutant Regional Resource Centers and is PI on a Developmental Biology Training grant that will be funded July, 2005.

The work in the Magnuson lab focuses on the role of mammalian polycomb-group proteins in unique epigenetic phenomena such as genomic imprinting and X-chromosome inactivation. In addition, the lab works on the tumor suppressor role of mammalian SWI/SNF complexes, which displace nucleosomes from promoter regions of target

genes. To facilitate functional genomic analyses, the lab has developed a genome-wide mutagenesis strategy. Mutagenesis has long been a fundamental tool for the genetic analysis of experimentally tractable organisms such as yeast, fruit flies, and nematodes. However, despite the long history of the mouse as a model system for mammalian genetics, as well as a decade of gene targeting experiments, mutations exist for only a small percentage of its genes. The lab has overcome the limitations of mutagenesis in the mouse by developing methods capable of systematically generating mutations in all genes of totipotent embryonic stem (ES) cells. A mutagenized library of clonal ES lines has been created from which 15-25 alleles of any gene can be isolated. Mice can then be derived from the mutagenized cells carrying any one of the alleles. The goal is to create a comprehensive collection of variant alleles for all genes in the mouse.

**Curriculum Vitae**

**Terry Magnuson**

Sarah Graham Kenan Professor and Chair  
Department of Genetics

Director, Carolina Center for Genome Sciences

Program Director, Cancer Genetics, Lineberger Comprehensive Cancer Center

Campus Box 7264  
University of North Carolina at Chapel Hill  
103 Mason Farm Road  
Chapel Hill, NC 27599-7264

Telephone: (919) 845-6475

Fax: (919) 845-6365

Email: trm4@med.unc.edu

**Education:**

1978-1982: University of California, San Francisco, Postgraduate work.

Advisor: Dr. C. J. Epstein

1972-1978: Sloan-Kettering Division, Cornell Graduate School of Medical Sciences,

N.Y. Degree: Ph.D., Advisors: Drs. C. Stackpole, & D. Bennett

1968-1972: University of Redlands, Redlands California, Degree: B.S.

**Appointments:**

*University of North Carolina at Chapel Hill*

2000 – date: Sarah Graham Kenan Professor & Chair, Department of Genetics, School of  
Medicine

2001 – date: Director, Carolina Center for Genome Sciences

2001 – date: Program Director & Member, Cancer Genetics, Lineberger Comprehensive Cancer  
Center

*Case Western Reserve University*

1998-2000: Director, Center for Developmental Biology

1996-2000: Professor, Department of Genetics, School of Medicine

1988-1996: Associate Professor, Department of Genetics (Acting Chairman, 1990-1992)

1984-1988: Assistant Professor, Department of Genetics, School of Medicine

*University of California, San Francisco*

1982-1984: Assistant Research Geneticist, Department of Pediatrics

**Awards:**

1999: MERIT Award, NIH

1999: CWRU School of Medicine Dean's Recognition: Million Dollar Professor

1995 & 1999: Outstanding Graduate Student Mentor by vote of Genetics Graduate Students

1985-1989: Pew Scholar in the Biomedical Sciences, Pew Memorial Trust

1984-1987: Basil O'Connor Award, March of Dimes



1982-1985: New Investigator Award, NIH  
1979-1982: National Research Service Award, NIH  
1978-1979: Postdoctoral Fellowship, National Science Foundation  
1972-1978: Predoctoral Fellowship, Memorial Sloan-Kettering Cancer Center

**Societies:**

AAAS, Genetics Society of America, Society for Developmental Biology, International  
Mammalian Genome Society (Founding Member)

**Professional Service outside University:**

2004-date: National Academies Committee on Guidelines for Human Embryonic Stem Cell  
Research  
2004-date: Scientific Advisory Board, Pleiades Promoter Project, University of British Columbia  
2004-date: Scientific Advisory Board, ProNAi, Inc.  
2004-date: Advisory Board for the Induced Mutant Resource of the Jackson Laboratory  
2003-date: Board of Scientific Overseers, The Jackson Laboratory  
2003-date: Elected member of the Board of Directors, The Genetics Society of America  
2002-date: Organizing Committee for Mouse Molecular Genetics Meetings, alternating between  
Cold Spring Harbor and Heidelberg  
2002-2003: North Carolina Department of Health and Human Services task force on Genomics  
and Public Health  
2001-2004: Mouse Genome Database oversight committee  
2001-date: Board of Directors, PPD Inc.  
2001-date: Internal Coordinating Committee, NIH Mouse Mutant Regional Resource Centers  
2000- date: NIH External Advisory panel for NICHD Mouse Mutagenesis Programs  
2000- date: Elected Member of the Board of Directors, The Society for Developmental Biology  
2000, 2001: Ad Hoc Member of Council, National Institute of Child Health and Human  
Development  
2000: External Advisor for Developmental Biology Program at Children's Hospital of  
Philadelphia  
1999-2001: Elected Member of the Secretariat of the International Mammalian Genome Society  
1999: Scientific Advisor: UCSF/UC Berkeley mutagenesis program  
1998: Scientific Advisor, Moffitt Cancer Center, Tampa, Florida  
1998-1999: External Advisory Committee, Roswell Park Cancer Center  
1998: External Advisor, Genetics Program, Northwestern University Medical School  
1997-1998: co-Director, Cold Spring Harbor course *Molecular Embryology of the Mouse*  
1995-1996: co-Instructor, Cold Spring Harbor course *Molecular Embryology of the Mouse*  
1995-2000: External Advisory Committee, Reproductive Center, University of Kansas Medical  
Center  
1994-2000: Member, Research Allocations Committee, American Heart Association, Ohio  
Affiliate  
1993- 1998: External Advisory Committee, Gene Therapy Center, University of  
California, San Francisco, P.I.: Y.W. Kan  
1991-1993: Mouse Chromosome 7 Committee (co-chair, 1992-1993)  
1989: NIH Advisory Committee: Mouse Genome Initiative

**Review Panels**

NIH site visit team, Wistar Inst. Program Project Grant "Controlling mechanisms in mammalian  
reproduction & early development", April 22-24, 1987.

## Appendix 1.2

### Magnuson, Terry

NIH Study Section: RFA on Genetic Approaches for Studying Gametogenesis, October 22-23, 1987.

NIH Study Section: RFA on Genetics of Cell Lineages during Mammalian Development, November 21, 1988.

NIH site visit team, Princeton Program Project Grant "Molecular Genetics of Gametogenesis and Embryogenesis", April 5-7, 1989.

NIH site visit team, University of California, San Francisco Program Project Grant "Biology of the Implanting Embryo", November 3-4, 1989.

NIH site visit team, University of Connecticut Health Center Program Project Grant "Crainiofacial Development: Genetic Regulation", January 29-30, 1990.

NIH Study Section: RFA on Role of Proto-oncogenes in Mammalian Develop, February 6, 1990.

NIH Study Section: Ad Hoc Member, Mammalian Genetics, 6/14-6/16, 1990.

NIH Site visit team, University of Wisconsin Reproductive Biology Center, November 1-2, 1990.

NIH Study Section: Ad Hoc Member, Population Research Council, March 7-8, 1991.

NIH Study Section: RFA entitled "Predoctoral fellowships for minority graduate students", July 15-17, 1991

NIH Director's Meeting with IRG Chairpersons, invited participant, Bethesda, January 17, 1991

NIH site visit team, Thomas Jefferson Cancer Institute Program Project Virology and Cancer Genetics, July 22-24, 1992

NIH review team, Controlling Mechanisms in Mammalian Reproduction, Wistar Inst. & Univ. of Pennsylvania, Sept. 29, 1993

NIH Study Section: "Predoctoral fellowships for minority graduate students", July 7-9, 1993

DOE external review team: Genomic Instability Program, Laboratory of Radiobiology, University of California, San Francisco, March 13, 1995

NIH Study Section: Genetic Basis of Disease 1990-1995 Chairman, June 1993 to June 1995

Study section for predoctoral/postdoctoral training grants in genetics. The study section met three times a year in Bethesda. In addition, some programs were site visited. The site visits in which I was involved:

- University of Wisconsin, Predoctoral, 5/90
- University of California, San Francisco, Predoctoral, 9/90
- University of Washington, Seattle, Postdoctoral, 5/91
- University of Wisconsin, Postdoctoral, 5/91
- North Carolina State University, Predoctoral, 9/91, Chairman
- University of Minnesota, Predoctoral, 10/91, Chairman
- University of Michigan, Predoctoral, 5/91, Chairman
- Rockefeller University, Predoctoral, 10/92
- Washington University, Predoctoral, 10/92, Chairman
- Harvard University, Postdoctoral, 6/93, Chairman
- Stanford University, Predoctoral, 10/93, Chairman
- University of California, Irvine, Predoctoral, 5/94
- University of California, Berkeley, 5/94, Chairman
- Cornell University, Ithaca, Predoctoral, 9/94
- University of Colorado, Boulder, Predoctoral, 9/94, Chairman
- University of Wisconsin, Predoctoral, 5/95
- Yale University, Postdoctoral, 10/97

Intramural review, National Institute of Mental Health, Unit on Neurogenetics, February 27, 1996

Ad Hoc reviewer for March of Dimes, National Science Foundation, Medical Research Council of Canada, Human Frontier Science Program, Netherlands Research Council, Wellcome Trust, BBS Research Council-United Kingdom

### **Editorial Boards**

co-Editor-in-Chief, *-genesis: The Journal of Genetics and Development*

*Mammalian Genome*, 1995-present

*Development*, 1986-1993, 1999-date

Guest Editor: "Vertebrate Gastrulation & Axial Patterning", *Develop Genetics*, July, 1995

CRC Yearbook in Developmental Biology, 1987-1991

### **Ad Hoc reviewer:**

Nature, Science, Development, Nature Genetics, Proceedings of the National Academy of Sciences, Cell, Genes and Development, Genetics, EMBO Journal, Human Molecular Genetics, Developmental Biology, Biology of Reproduction, Genomics, Developmental Dynamics, Developmental Genetics, BioEssays, Gene

### **Conference Organizer**

"Model Systems for Studying Development", Markey Center for Developmental Genetics

Symposium, Case Western Reserve University, October, 5-7, 1989.

"Development of Transgenic Animal Resources", NIH, Bethesda, MD, November 13-14, 1990.

Pew Scholars Alumni Meeting, Puerto Rico, March 15-20, 1995

Developmental Biology Retreat, Case Western Reserve University, 1998, 1999

Pew Scholars Alumni Meeting, Puerto Vallarta, Mexico, January 2, 2000

50 year celebration of the UNC-Medical Center, April, 2002

2001 UNC Faculty Retreat: Computational meets Experimental Science

Society for Developmental Biology Southeast meeting, May 23-25, 2001

2002 UNC Faculty Retreat: Social Genomics

Mouse Molecular Genetics:

Cold Spring Harbor Laboratory, August 2002

EMBL, Heidelberg September 2003

Cold Spring Harbor Laboratory, September 2004

EMBL, Heidelberg, September 2005

Frontiers in Genetics and Medicine, UNC, December 2004

Genetics Society of America, "Model Systems and Human Disease" 2006

### **Departmental/University Service**

#### **Case Western Reserve University**

Genetics Graduate Committee, 1984 -1990 (chairman, 1988-1990), 1992-1994, 1996-1998

Subject Committee Chairperson, Cell and Developmental Biology Committee, Medical

School, 1985-1992, 1999-present

Year I Comprehensive Exam Committee: Cell & Develop. Biol. 1985-1993

Biomedical Scientist Training Program Committee, Member of Planning Committee,

Genetics Representative on Admissions Committee, 1988 – 1990, 1992 - 1998

University Animal Users Committee, 1989-2000.

University Lecture Committee, 1988-1992.

Departmental Committee on Equity in Professional Affairs, 1989-1992.

School of Medicine Committee: Equity in Professional Affairs, 1990-1991.

Developmental Biology Training Grant Steering Committee, 1990-2000.

Cell and Molec. Biol. Training Grant Steering Committee, 1990-2000.

Organizer, Genetics Department Retreats: 1985, 1986, 1991.

Organizer, Genetics Department Seminars: 1986-1988.

Director, Genetics Transgenic Facility, 1988-2000.

## **Appendix 1.2**

### **Magnuson, Terry**

Advisory Committee, Center for Inherited Disorders of Energy Metabolism, 1990-1992  
Search Committee for Genetics Chairperson: 1990-1992  
Acting Chairman, Department of Genetics: 1990-1992  
Genetics Tenure and Promotions Committee: 1990-1994  
University Review Committee for Pew Scholars Candidate: 1991, 1992  
University Review Committee for Searles Scholars Candidate: 1992  
Member of Pharmacology Training Program, 1992-2000  
Committee to review MS program in Biomedical Ethics: March, 1994  
CWRU/CCF joint committee to review incorporation of Cleveland Clinic Faculty into the  
BSTP graduate program: Spring, 1994  
Chair, Search Committee for Mouse Developmental Geneticist, Spring, 1994  
Department of Genetics Second Year Graduate Review Committee, Fall, 1994.  
Department of Genetics Steering Committee, 1994-2000  
Genetics Training Grant, Ghost writer, May, 1995  
Genetics Training Grant Steering Committee, 1996-2000  
Committee to review MS program in Genetic Counseling, December, 1997  
School of Medicine, Promotion and Tenure Committee, 1996-1999.  
Chair, Search Committee for Developmental Geneticist, Fall, 1998  
Search Committee for Vice Chair for Research, Pediatrics, CWRU. Spring, 1999  
Search Committee for Director, Animal Resource Center, CWRU, Spring, 2000

### **University of North Carolina**

Member of Internal Advisory Board for Center of Excellence in Gene Therapy for Pulmonary  
and Hematologic Disorders, July, 2000 to date.  
Member of Internal Advisory Board for the North Carolina Mental Retardation and  
Developmental Disabilities Research Center, July, 2000 to date  
Member, Cardiovascular Search Committee, Department of Medicine, Fall, 2000  
MSTP Admissions Committee, 2000-date.  
Member of Internal Advisory Board for “CF Therapeutic Targets Program” 2001 to date  
Member of Genomics faculty search committees: 2000 - 2004  
Chair of Genetics faculty search committee: 2000 – 2005  
Oversite committee for Microarray facility and Sequencing facility 2000 to date  
Faculty Director, Animal Models Core facility, 2001-2002  
Oversight committee for NIH Mouse Mutant Resource facility, 2000 to date  
Member of Search committee for Director of the Division of Laboratory Animal Medicine,  
2001, 2003  
Committee to select School of Medicine’s nominations for University Distinguished  
Professorships, Fall, 2001  
Member, Five-year review committee for UNC Gene Therapy Center, 2/2002  
Member, Task Force Committee for UNC-CH/NC State joint Department for  
Biomedical Engineering, Spring, 2002  
Judge, John B. Graham Student Research Day, January 29, 2003  
Member, Advisory Committee to develop initial plans for Carolina North (UNC’s new  
northern campus)  
Member, Advisory Board: Center for Complementary and Alternative Medicine, UNC –  
Chapel Hill, 2003-date  
Member, President’s Search committee for Dean School of Medicine, CEO UNC  
Health Care, and Vice Chancellor for Medical Affairs 2003-2004  
Planning Committee for new Genetic Medicine Building, School of Medicine 2002-present

Planning Committee for new Genome Sciences Building, College of Arts and Sciences,  
2004-present

Five-year review of Neuroscience Center, Summer 2004

Dean's committee on 1% withhold, 2004-2005

Judge, John B. Graham Student Research Day, January 25, 2005

### **Teaching Responsibilities**

Developmental Genetics (Graduate School)

Core Curriculum in Molecular Biology (Graduate School)

Genetics (Medical School)

Embryology (Medical School)

Histology Labs (Medical School)

### **Postdoctoral Fellows**

1. 1984-1987: Wendy Golden, Ph.D., Medical College of Virginia. Present position: Professor of Pediatrics & Director, Cytogenetics Lab, University of Virginia
2. 1985: Sylvain Debrot, Ph.D., University of Fribourg, Postdoctoral Fellow. Present Position, Professor, Institute of Zoology, University of Fribourg, Switzerland.
3. 1988-1989: Carol Lin, Ph.D., Case Western Reserve University. Present Position: Director, Biotechnology Program, Columbia University
4. 1989-1994: Bernadette Holdener-Kenny, Ph.D., University of Illinois. Present Position, Associate Professor, Depart of Biochemistry, State University of New York, Stony Brook.
5. 1989- 1994: Henry Tomasiewicz, Ph.D., University of Colorado. Present Position: Molecular Biology Facility Manager, MFG Sciences Center, University of Wisconsin
6. 1990- 1996: David Threadgill, Ph.D., Texas A & M, Present Position: Assistant Professor, Department of Genetics, UNC
7. 1994-1996: Shukti Chakravarti, Ph.D., University of Pittsburgh, Present Position: Associate Professor, Department of Medicine, Johns Hopkins University
8. 1992-1997: Armin Schumacher, M.D., Rheinisch-Wesfälischen Technischen Hochschule, Aachen, FRG. Present Position: Assistant Professor, Department of Molecular and Human Genetics, Baylor College of Medicine, Houston, Texas
9. 1992-1998: Cindy Faust, Ph.D., Baylor College of Med, Present Position, At hom parent
10. 1996-2001: Patricia Green, Ph.D. UCLA, Present Position: Scientific writer
11. 1995-2000: Susan Kendall, Ph.D., University of Michigan, Present position: Health Sciences Librarian, Michigan State University.
12. 1995-2002: Scott Bultman, Ph.D., Oak Ridge National Labs, Present position: Assistant Professor, University of North Carolina
13. 1997-2003: Elizabeth Morin-Kensicki, Ph.D., University of Oregon, present position: Research Associate, Dept. Cell Biology, UNC
14. 1999-2004: Jay Vivian, Ph.D., U. of Texas, MD Anderson, present position: Maternal Fetal Institute, University of Kansas Medical Center
15. 1999-2004: Yijing Chen, Ph.D., University of Wisconsin, Madison, present position: Assistant Professor, University of North Carolina
16. 1997-date: Jaimie Rivera-Pérez, Ph.D., University of Texas, MD Anderson
17. 2001-date: Jessica Nadler, Ph.D., Univ. of Washington
18. 2001-date: Courtney Griffin, Ph.D., University of California, San Francisco
19. 2002-date: Sundeep Kalantry, Ph.D., Cornell University
20. 2003-date: Jennifer Brenman, Ph.D., Duke University
21. 2003-date: Stormy Chamberlain, Ph.D., University of Florida

22. 2005-date: Shinjiro Hino, Ph.D., Kyoto University

### **Graduate Students**

#### *A. Ph.D. Students*

1. 1986-1989: Lee Niswander, Ph.D. Present position: Professor, Colorado Health Sciences Center and Assistant Member, Howard Hughes Medical Institute.
2. 1986-1991: Lea Hiraoka, Ph.D. Present position: At home parent
3. 1989-1992: Shyam Sharan, Ph.D., Present position: Assistant Professor, National Cancer Institute, Frederick Facility.
4. 1990-1995: Joe Rabinowitz, Ph.D., Present position: Assistant Professor, Thomas Jefferson University
5. 1992-1997: Jim Thomas, Ph.D. Present position: Assistant Professor, Department of Genetics, Emory University
6. 1992-1994: Andy Weng, Visiting Student from University of Chicago, Present Position, Assistant Professor, Brigham Women's Hospital, Boston
7. 1996-2000: Jianbo Wang, Present position: Postdoctoral Fellow with Dr. Tony Winshaw-Boris at UCSD.
8. 1998-2002: Dana Schwarz, M.D., Ph.D., present position: Resident in Pediatrics, University of Chicago
9. 1998-2002: Tom Gebuhr, Ph.D., present position-Postdoctoral Fellow, Novartis
10. 1999-2003: Jesse Mager, Ph.D. present position-Postdoctoral Fellow with Dr. Marisa Bartolomei, The University of Pennsylvania
11. 2002-date: Nathan Montgomery

#### *B. Undergraduate Students*

Ryan Barbaro, Kyle Mills, Justin Barbaro, Michael Pennink, Sapana Vora, Sonya Purushothaman, Andrew Chen

#### *C. Thesis Committees*

**CWRU:** Su Qian, Genetics, Jane Petscheck, Genetics, Sam Del Rio, Molecular Biology, Neil Simonsen, Molecular Biology, Lee Niswander, Genetics, Lea Hiraoka, Genetics, Sharon Persinger, Biology, Dan Bullard, Genetics, Shyam Sharon, Genetics, Grace Wei, Genetics, Mark Johnson, Genetics, Isiah Wexler, Biochemistry, Alfredo Ramos, Genetics, Barbara z Joe Rabinowitz, Genetics, Jim Thomas, Genetics, Feng He, Molecular Biology, Misha Angrist, Genetics, Karen Mroz, Genetics, Tracy Mourtou, Biology (MS), H.K. Hong, Genetics, Stacy Bolk, Genetics, Jamie Gabriel, Genetics, Robert Plenge, Genetics, Kristen Correia, Genetics, David LePage, Genetics, Take Furuyama, Genetics, Theresa Zwingman, Neurosciences, Ken Henry, Genetics, Shama Mohammed, Genetics, Jianbo Wang, Genetics, Emily Hoeger, Genetics, Crystal Robaugh, Genetics, Karen Tucker, Genetics, Dana Schwartz, Genetics, Jeanette Hayes, Neurosciences **UNC:** Tom Gebuhr, Genetics, Jesse Mager, Genetics, Bryan Betz, Pathology, Naina Bhasin, Cell Biology, Neil Coffield, Genetics, Chris Bradfield, Toxicology, Nate Montgomery, Genetics, Jan Denofrio, Genetics, Heather Doherty, Genetics, Tang-Chen Lee, Genetics

### **Faculty Mentoring Committees**

**CWRU:** Cindy Marino, M.D., Pediatrics, Katherine Dell, M.D., Pediatrics, Nora Singer, M.D., Pediatrics, Ashraf El-Meanawy, Medicine

**UNC:** Shawn Ahmed, Frank Conlon, Fernando Pardo Manuel, Chuck Perou, Larysa Pevny, Karen Mohlke, Debbie Threadgill. Ethan Lange, Leslie Lange

**Professional Meetings/Invited Seminars**

**1984**

Gordon Research Conference, August 20-24, Invited speaker.

European Develop. Biol. Congress, September, 2-7, Invited speaker.

**1985**

NIH Workshop: Genetics of Mammalian Embryogenesis, April 25-27, Invited Speaker.

Midwest Regional Develop. Biol. Conf., May 16-18, Invited Speaker.

In vitro Fertilization & Embryo Culture, Univ. of Wisconsin, August 20-24, Invited speaker.

University of Cincinnati, November 12-13.

Amer. Soc. Cell Biol., Atlanta, Workshop: Biology of Preimplantation Development,  
November, Invited speaker.

**1986**

Case Western Reserve University, Dept. Biol., February 20.

Pew Scholars Meeting, March 12-15, Phoenix, Invited speaker.

March of Dimes Symposium, St. Petersburg, May 1-2, Invited speaker.

Gordon Research Conference, August, Poster Presentation.

University of Wyoming, December 5-8.

**1987**

Northwestern University, February 19-20.

Great Lakes Mammalian Development Conference, Toronto, March 7-8, Invited speaker.

Pew Scholars Meeting, March 9-13, 1987, Tampa, Florida, Invited speaker.

Ludwig Institute for Cancer Research, Montreal, April 9-10.

Case Western Reserve University, Dept. Microbiology and Molecular Biology, Nov. 11.

Amer. Soc. Cell Biol., St. Louis, Workshop: Mammalian Development, Nov. 16-20, Invited  
Speaker.

**1988**

Cold Spring Harbor Winter Symposium, "Molecular Analysis of Mouse Development", Feb.  
28-29, Invited Speaker.

Pew Scholars Meeting, March 7-10, San Francisco, Invited speaker

Great Lakes Mammalian Development Conference, Toronto, March 26-27, Invited Speaker

CWRU Cancer Center Retreat, Invited Speaker, May 9.

Frederick Cancer Research Facility, National Cancer Inst. May 17.

Ontario Cancer Research Institute, Toronto, June 16.

Gordon Research Conference, July, 1988, Poster presentation.

Cold Spring Harbor, "Molecular Biology of the Mouse," August, poster presentation.

Department of Pediatrics, Grand Rounds, CWRU, October 6.

Metro General Hospital, Cleveland, Topics in Basic Biological Sciences, December 7.

**1989**

UCLA Symposium, Transgenic Animals in Medicine & Agriculture, Taos, NM, January, 28-  
February, 3, invited speaker

Pew Scholars Meeting, March 6-9, Ixtapa, Mexico, invited speaker

Edison Animal Biotechnology Center, Ohio University, April.

Great Lakes Mammalian Develop Conference, Toronto, May 5-7, invited speaker

Jackson Labs., "Mouse Develop. Genetics", Keynote speaker, Bar Harbor, September 14-17.

Session Chair: Markey Symposium: Frontiers in Developmental Genetics, Sept. 10.

Institute for Developmental Research, Children's Hospital, Cincinnati, Nov. 19.

**1990**

Great Lakes Mammalian Development Conference, Toronto, April, invited speaker

Case Western Reserve University, Dept. Pharmacology, April 27

University of Minnesota, Institute of Human Genetics, May 3.

## Appendix 1.2

### Magnuson, Terry

Gordon Conf.: Mammal. Gametogenesis & Embryogen., July, 29- August, Invited speaker  
Cold Spring Harbor: Molecular Biology of the Mouse, Sept., Poster presentation  
NIH meeting "Transgenic Animal Model Resources", November, 13-14, Invited speaker.

#### 1991

Upjohn, Kalamazoo, Michigan, Feb. 18.  
Case Western Reserve University, Dept. Pathology, Feb. 22.  
Great Lakes Mammalian Development Conference, Toronto, March 22-24, invited speaker  
Edison Animal Biotechnology Center, Ohio University, March 26.  
Pew Alumni Meeting, Grand Cayman Islands, 4/5-9/91, invited speaker  
NIH Perinatal Emphasis Res. Centers Annual Meeting, Cleveland, April 22, invited speaker  
Case Western Reserve University, Dept. Biochemistry, May 3.  
Cornell University, Ithaca, May 6.  
Seron International Symposium "Preimplantation Embryo Development", Boston, August 15-18, Invited speaker and Chair of Session entitled 'Genetics of Embryo Development'.  
Fifth International Workshop on Mouse Genome Mapping, The Netherlands Cancer Institute, Amsterdam, October 14-18.  
University of Arizona, Tucson, Department of Cell and Molecular Biology, October 28-29.  
Eli Lilly Co., Indianapolis, November 22.

#### 1992

Great Lakes Mammalian Development Conference, Toronto, March, (invited speaker)  
Cell and Molecular Biology Training Program, CWRU, April 15.  
Roche Institute for Molecular Biology, April 22.  
8th Workshop on Molecular Genetics of the Mouse, Dourdan, France, September 7-11.  
Sixth International Workshop on Mouse Genome Mapping, Buffalo, October 11-15.

#### 1993

University of Chicago, Dept. Molecular Genetics and Cell Biology, Jan. 28-29.  
Great Lakes Mammalian Development Conference, Toronto, 3/26-3/28/93  
University of Colorado, Dept. Cell, Molecular and Develop. Biology  
April 29: "Genetics of Early Embryo Survival in the Mouse"  
April 30: "Recent Advances in Mouse Developmental Genetics"  
The Jackson Labs: June 15.  
Oak Ridge National Labs, August 23.  
University of Kansas Medical Center, October 11.

#### 1994

University of Michigan, January 24.  
Cell and Molecular Biology, CWRU, January 26.  
Department of Energy, February 23.  
Cleveland Clinic Research Foundation: March 18.  
American Cytogenetics Conference, Wintergreen, VA: April 17-23, Keynote speaker.  
Digestive Disease Week, Symposium: Regulation of Signal Transduction by Tyrosine Kinases, Invited Speaker, New Orleans, May 15-18.  
Teratology Society, Symposium: Molecular and Cellular Processes of the Pregastrulation Embryo, Invited Speaker, Puerto Rico, June 25-30.  
Serrono Symposium on Implantation, Boston, July 13-18, Invited speaker.  
Gordon Research Conference: Mammalian Gametogenesis and Embryogenesis, July 30 - August 5, Invited speaker  
Vanderbilt University, November 14.  
Columbia University, College of Physicians & Surgeons, Dec. 7.  
Cleveland Clinic Research Foundation, December 13.

#### 1995



## Appendix 1.2

### Magnuson, Terry

Stanford University Medical Center, January 26.  
University of Pennsylvania, Department of Biology, Feb. 2.  
University of Western Ontario, Molec. Biology Program, Feb. 9.  
Cornell University Medical College, Cell Biology Program, March 6.  
Pew Scholars Reunion Meeting, San Juan Puerto Rico, March 15-19.  
Richard Akeson Memorial Lecture, University of Cincinnati, June 2.  
Ninth International Workshop on the Mouse Genome, Ann Arbor, MI, November 12-15.  
Samuel Lunenfeld Research Institute, Mount Sinai Hospital, Toronto, November 29.  
State University of New York at Stony Brook, December 7.  
Children's Hospital Research Foundation, Cincinnati, December 13.  
University of California, San Francisco, December 18.

#### 1996

National Institutes of Health (NIDDK), January 18.  
Cell and Molecular Biology, Case Western Reserve University, January 24.  
Keystone Symposium: Vertebrate Embryogenesis, Hilton Head, Feb. 8-11.  
Great Lakes Mammalian Development Conference, Toronto, April 12-14.  
Cold Spring Harbor Laboratory, June 15.  
American Society for Reproductive Immunology, Plenary speaker, June 27-30.  
Society for Study of Reproduction, Knoxville, Invited speaker, July 27-30.  
North Carolina Workshop on Embryonic Stem Cells, Invited speaker, August 8.  
Banff 96: The 13th Rochester Trophoblast Conference and the Thomas G. Egmann Memorial Symposium on Reproductive Immunology, Invited speaker, September 8-12.  
Sunflower Develop. Genetics Symposium, Kansas City. September 28-29, Invited speaker.  
University of Pittsburgh, Department of Biological Sciences, October 14.  
Cancer Center, Case Western Reserve University, October 18.  
American Society of Nephrology conference on Renal Developmental Biology, November 6-9, New Orleans. Keynote speaker "Frontiers in Developmental Biology"  
Baton Rouge, LA Jr High School Students, "On Becoming a Scientist", November 10.  
Skin Disease Research Symposium, Case Western Reserve University, November 15.  
Baylor College of Medicine, Department of Human and Molecular Genetics, November 26.  
Department of Pharmacology, Case Western Reserve University, December 10.  
Department of Pathology, Case Western Reserve University, December 16.

#### 1997

Princeton University, Department of Molecular Biology, January 30.  
Duke University, Department of Genetics, February 11.  
Hospital for Sick Children, Toronto, Developmental Biology Program, February 24.  
Molec. Medicine Series, Depart. of Medicine, Case Western Reserve University, March 7.  
Department of Molecular Genetics and Cell Biology, University of Chicago, April 10-12.  
Great Lakes Mammalian Development Meeting, Toronto, Canada, April 10-13.  
Pfizer lecture, Institute Research Clinical Medicine, University of Montreal, April 13-14.  
European Science Foundation: Workshop on "The Genetic Control of Vertebrate Development", Villefrance-sur-mer, France, April 29-May 4. Invited speaker.  
Cold Spring Harbor Laboratory, June 14.  
M.D. Anderson Cancer Center, Houston, July 9.  
NIDDK PKD Workshop, September 10-11, 1997, Arlington, VA, Invited speaker  
Duke University, Department of Genetics, September 17-18.  
Weizmann Institute, Gene Targeting Workshop, Invited speaker, September 20-24.  
Washington University, St. Louis, Donald Shreffler Memorial Lecture, October 9-10.  
Oak Ridge National Labs, Symposium in honor of 50 years of work by the Russell's, November 7, Invited speaker.

## Appendix 1.2

### Magnuson, Terry

University of Washington, Seattle, Department of Genetics, November 12-13.

Roswell Park, Institute Seminar, November 19-20.

Cornell University, Ithaca, Department of Genetics, December 8-9.

#### 1998

Case Western Reserve University, Department of Pharmacology, January 13.

Case Western Reserve University, Cell and Molecular Biology, January 14.

University of Chicago, Department of Human Genetics, January 26.

Rammelkamp Research Institute, MetroHealth Systems, Cleveland, February 17.

Case Western Reserve University, Department of Genetics, February 23.

Cornell University Genomics Initiative, March 12.

Mayo Clinic, Department of Biochemistry and Molecular Biology, March 24.

Keystone Conf, Vertebrate Develop. Invited speaker & session chair. Steamboat Springs, April 3-8.

Great Lakes Mammalian Development Meeting, Toronto, Canada, April 18-20.

Amgen, Thousand Oaks, CA. April 30-May 1.

Cornell University Medical College, New York City, May 15.

Parke-Davis Pharmaceuticals, Ann Arbor, Michigan, June 4.

Cold Spring Harbor, New York, June 13.

Mouse Molec. Genetics, Cold Spring Harbor, Invited Speaker and Session Chair, September 2-6.

Moffitt Cancer Center, Tampa Florida, September 23.

Parke Davis Laboratory for Molecular Genetics, Alameda, CA, October 30.

Wexner Research Institute, Ohio State University, November 19.

#### 1999

The Carnegie Institute of Embryology, Baltimore, MD., January 11.

University of California, San Francisco, University-wide seminar, January 20.

University of Florida, Center for Mammalian Genetics, Gainesville, March 17.

Great Lakes Mammalian Development Conference, April 9-11.

Vanderbilt University School of Medicine, May 3-4.

Director's Distinguished Scientist Seminar, The Jackson Laboratory, June 3.

Society for Developmental Biology, Charlottesville, VA. Invited speaker, June 13-17.

Cold Spring Harbor Laboratory Mouse Course, June 25.

PPars meeting, Villar, Switzerland, Invited speaker, July 20-22.

Incyte, Palo Alto, CA, September 10.

National Cancer Institute, Frederick Facility, September 10.

University of North Carolina, Chapel Hill, September 20.

University of Minnesota Medical Center, September 25.

Case Western Reserve University, Department of Biology, September 27.

International Mammalian Genome Society, Invited Symp. Chair on Develop. Genetics, October 31-November 3.

National Institute of Child Health and Human Development, NIH November 29.

#### 2000

Pew Scholars Meeting, Puerto Vallarta, January 8-13.

Children's Hospital of Philadelphia, March 8-9.

ASPET Functional Genomics Symposium, Boston, June 4, Invited speaker

Cold Spring Harbor Mouse Course, June 21-25.

Animal Genomics Symposium, N.C. State, Raleigh, August 17-18, Invited speaker.

UNC-Chapel Hill Perinatal Basic Science Symposium, September 6, Invited speaker.

Mutagenesis of the Mouse Genome, Athens, GA, Sept 6-9, Invited speaker.

Rotary Club of Greensboro, NC. October 18,. Invited speaker.

Controversies in Science: A Symposium for Journalism, North Carolina Association for Biomedical Research, Invited Panelist, October 26.

## Appendix 1.2

### Magnuson, Terry

International Mamm Genome Society, Narita, Japan, Invited Session Chair, Nov. 4-10.  
Department of Biology, UNC at Chapel Hill, November 13.  
Kimmel Cancer Center, Jefferson University, November 20.  
NIEHS, December 15.

#### 2001

Duke University, June 20.  
Mini-Medical School presentation for the general public, UNC, March 15.  
North Carolina Biotechnology Center, Research Triangle Park, March 26.  
Department of Cell Biology, UNC at Chapel Hill, March 28.  
Lineberger Comprehensive Cancer Symposium, Session Chair, Cancer Genetics, April 9-10.  
Genomics Symposium: Genes to Drugs for the 21<sup>st</sup>...or...22<sup>nd</sup>? Century, Invited speaker, Research Triangle Park, NC. April 12.  
Center for Research on Chronic Illness, UNC-Chapel Hill, April 16.  
Center for Gastrointestinal Biology and Disease Retreat, April 21.  
Albert Einstein College of Medicine, April 24.  
Grand Rounds, Depart. of Pathology & Laboratory Medicine, UNC-Chapel Hill, May 3.  
Society for Develop. Biology, Southeast meeting, invited speaker and session chair, May 23-25.  
The Stuart Stone Memorial Lecture, FASEB Conference on Thrombin and Vascular Medicine, Whitefish, Montana, June 9-14.  
Drug Development in a Genetically Informed Environment, Research Triangle Park, Conference Chair, June 15.  
Workshop: Genes underlying ENU mutagenesis phenotypes, Great Falls, Montana, Invited speaker, July 12-15.  
Society for Developmental Biology 60<sup>th</sup> Annual Meeting, Seattle, WA, Board of Trustees, July 20-23.  
Mouse Models, Jackson Laboratory, Bar Harbor, Invited Speaker, August 1-5.  
North Carolina Medical Genetics Association Annual Meeting, Invited speaker, September 28.  
University of Illinois at Chicago, November 20.

#### 2002

Department of Medicine Retreat, UNC-Chapel Hill, January 8.  
Memorial Sloan-Kettering Cancer Center, January 11.  
Cancer Genetics Program, UNC-Chapel Hill, January 22.  
University of Pennsylvania, Cell and Developmental Biology, February 11.  
University of Tennessee, Genome Sciences Program, February 13.  
Lineberger Cancer Symposium: Development and Cancer, Invited Speaker, March 27-28.  
UCLA, Molecular, Cell and Developmental Biology, April 5.  
Carolina Center for Genome Sciences, Inaugural Seminar Series, April 19.  
Columbia University, May 6.  
Cold Spring Harbor Mouse Course, June 22.  
Women in Science Panel Discussion, UNC-Chapel Hill, October 9.  
Case Western Reserve, PKD meeting, Oct. 24-25.  
Yale University, November 19.  
University of Georgia, December 4.  
University of Alabama at Birmingham, December 12.

#### 2003

Fred Hutchinson Cancer Center, Seattle, January 13.  
Stowers Research Institute, Kansas City, June 8.  
Society for Developmental Biology, Board of Trustees organizer, July 30-Aug 3.  
Mouse Molecular Genetics, EMBL Heidelberg, Conference Organizer Sept. 3-7.  
Banbury Conf.: Functional Annotation of the Mouse Genome, Session Chair, September 30-Oct 1.  
UNC Genetics/Duke Cell Biology Joint Faculty Retreat, Pinehurst, NC, Oct 10-12.

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### Magnuson, Terry

Advances in Nanostructural Genomics, Jackson Labs, Oct. 15-18, invited speaker  
Carolina Living Legends, invited speaker, November 10.  
Emory University, Department of Human Genetics, November 17.  
Molecular Biology Society of Japan, Kobe, invited speaker, December 10-14.

#### 2004

University of Oregon Health Sciences University, January 5.  
Board of Scientific Overseers seminar, The Jackson Laboratory, February 12.  
Cell and Dev. Biology Program, University of Colorado Health Sciences Center, February 18.  
Genome Sciences Program, The University of Tennessee Health Sciences Center, Memphis, March 1.  
MMRRC meeting, Bethesda, March 31-April 1, 2004  
Lineberger Comprehensive Cancer Symposium on Epigenetics, Session Chair, April 20, 2004.  
Nathans McCusick Institute for Human Genetics, Johns Hopkins University, May 3, 2004  
Cold Spring Harbor Mouse Course, June 20-24, 2004  
American Heart Meeting, Stevenson Washington, invited speaker, July 16-18, 2004  
Cold Spring Harbor Mouse Molecular Genetics, September 1-5, 2004  
University of Pittsburgh, Department of Biology, October 5, 2004  
International Mouse Genome Meeting, Seattle, October 18-21, 2004

#### 2005

25<sup>th</sup> Great Lakes Mammalian Development meeting, Toronto, Invited Speaker, March 6-7  
NIH Mouse mutation project, Bethesda, Invited participant, March 24-25

#### Patents

US Patent Number 6080910  
Issue date: June 27, 2000  
Transgenic knockout animals lacking IgG3

US Patent Number 6835867  
Issue date: December 28, 2004  
Allelic series of genomic modifications in cells

#### Funding

A. *Present Funding* (Direct costs listed)

**R37-HD24462** (Merit Award), years 16-20, Magnuson (PI)

Project Dates: 12/01/04 – 11/30/09

Agency: NICHD \$268,239 Current year Direct Costs

Title: Albino Deletion Complex and Early Mouse Development

The major goals of this project are the analysis of the *eed* gene. We positionally cloned this gene based on deletion phenotypes and have made use of chemically induced alleles to define functions during gastrulation, X-inactivation, autosomal imprinting, placental development, regulation of *Hox* genes and hematopoiesis.

**R01-HD36655**, years 4-9, Magnuson (PI)

Project Dates: 07/01/02 – 06/30/07

Agency: NICHD \$225,000 Current year Direct Costs

Title: Developmental Gene Regulation through Chromatin Remodeling

The major goals of this project are to understand the essential function of the mammalian *Swi/Snf* homologue known as *Brg1*.

**R01-HD41383** years 1-5, Magnuson (PI)

Project Dates: 01/01/02 – 12/30/06

Agency: NICHD \$225,000 Current year direct costs

Title: Allelic Series of Genomic Modifications in ES Cells

## Appendix 1.2 Magnuson, Terry

The major goals of this project are to produce an allelic series of mutations in the Smads of the Tgf $\beta$  signaling pathway.

**RR14817** years 1-5, Magnuson (PI)

Project Dates: 09/30/99 – 02/28/05

Agency: NCRR \$737,870 Current year direct costs

A Carolina Center to Characterize and Maintain Mutant Mice

The major goal of this project is to import, phenotype and archive mutant mice produced throughout the country.

**U54 MH66418** years 1-5, Magnuson (PI project IV)

Project Dates: 10/1/02-9/30/07

Agency: NIMH \$200,659 Current year direct costs for project IV

Center Title: Gene-Brain-Behavior Relationships in Autism

Project IV Title: Gene Dissection of Autism-Related Behaviors in Mice

The major goals of this project are to model autism in mice

*B. Pending*

**NIH T32** Magnuson (PI)

Project Dates: 07/01/05 – 06/30/10

Agency: NICHD \$321,444 Current year Direct Costs

Title: UNC Developmental Biology Training Program

This is a pre and postdoctoral training grant.

Priority Score: 146 (awaiting notice of funding)

**RR14817** years 6-10, Magnuson (PI)

Project Dates: 03/01/05 – 02/28/09

Agency: NCRR \$850,000 Current year direct costs

A Carolina Center to Characterize and Maintain Mutant Mice

The major goal of this project is to import, phenotype and archive mutant mice produced throughout the country.

Priority Score: 170 (will be funded)

### *C. Past Funding* (Direct costs listed)

NIH, New Investigator Award, \$107,000, July, 1982-June, 1985

Biomedical Research Support Grant, CWRU, \$10,000 (1986)

Pew Scholars Award, \$200,000, June 1, 1985-May 31, 1989.

NIH R01, Oligosyndactyly: A mutation Affecting development. July, 1985-June, 1989, \$400,470 total direct costs.

March of Dimes, Basil O'Connor, 7/85-6/87, \$50,000 total direct costs

NIH Center Grant: NEOMAC (PI: R. Moskowitz), Sub Project: Transgenic Mice (PI: T. Magnuson), November, 1987-December, 1990. \$101,502 total direct costs.

Ohio Edison Project, Animal Models of Human Diseases, 1988-1993 total direct costs: \$175,000.

NIH R01, Role of IgG subclass in anti-polysaccharide antibody function: Molecular approach, 4/92 - 3/96, \$620,000 total direct costs. (P.I. John Schreiber, Co-P.I. Terry Magnuson, 10% effort)

March of Dimes, Embryology of Developmental Mutants,

P.I. Terry Magnuson

July 1, 1989-June 30, 1991, \$77,000 total direct costs.

July 1, 1991-June 30, 1993, \$70,000 total direct costs.

July 1, 1993-June 30, 1995, \$72,000 total direct costs.

July 1, 1995-June 30, 1997, \$72,000 total direct costs

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June 1, 1998-May 31, 2000, \$72,000 total direct costs  
June 1, 2000-May 31, 2002, \$72,000 total direct costs  
Human Frontiers: Molecular basis of an imprinting center in man and mouse. (Research Consortium, B. Horsthemke (Germany), H. Ceder (Israel), R. Nicholls (USA), T. Magnuson (USA). July 1, 1995 – June 30, 1998, \$60,000 direct costs to T. Magnuson  
NIH PO1 NS32779, Genetic Approaches to Analysis of the Nervous System 5/1/95-4/10/00  
SubProject 3: \$544,801 total direct costs. Gene Targeting Core: \$712,080 total costs  
NIH T32 HD07104, Training in Abnormal and Normal Development P.I. Terry Magnuson 7/1/97 - 6/30/01 \$1,154,754 total direct costs.  
NIH R01 HD26722, Role of Egfr Receptor in Mammalian Development P.I., Terry Magnuson, July 1, 1990 - June 30, 1996, \$850,323 total direct costs, July 1, 1996 - June 30, 2002, \$965,180 total direct costs.  
NIH P50: Pathophysiology of Recessive Polycystic Kidney Disease, PI. Ellis Avner 9/30/99-9/29/04, Project 2: PI, T. Magnuson, Cellular Signaling Pathways in ARPKD, Total Direct Costs: \$60,000  
CCR420912 Magnuson, T. (PI), Agency: Center for Disease Control  
Project Dates: 09/30/01-9/29/02, \$809.868 Direct costs, Title: Animal Modeling of Human Susceptibility to Complex Disease. \$809.868 Current year direct costs.  
Purpose: Equipment Grant  
RR017762-01 Magnuson, T. (PI), Agency: NIH, Project dates: 04/01/03-03/31/04, \$272,757 Current year direct costs, Title: SpectruMedix 9610 Mutation Discovery System, Purpose: Equipment Grant

### **Publications:**

1. **Magnuson, T.**, Demsey, A., and Stackpole, C.W. (1977). Characterization of intercellular junctions in the preimplantation mouse embryo by freeze-fracture and thin-section electron microscopy. Dev. Biol. 61, 252-261.
2. Swislocki, N.I., **Magnuson, T.**, and Tierney, J. (1977). Properties of rat liver plasma membrane adenylate cyclase after chromatography on 0- diethylaminoethyl-cellulose and agarose-hexane-GTP. Arch. Biochem. Biophys. 179, 157-165.
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4. **Magnuson, T.**, Jacobson, J.B., and Stackpole, C.W. (1978). Relationship between intercellular permeability and junction organization in the preimplantation mouse embryo. Dev. Biol. 67, 214-224.
5. Bennett, D., Artzt, K., **Magnuson, T.**, and Spiegelman, M. (1979). Developmental interactions studied with experimental teratomas derived from mutants at the T/t locus in the mouse. In Cell Interactions in Differentiation (eds: M. Karkinen-Jaaskelainen, L. Saxen, and L. Weiss), pp. 389-398. Academic Press, New York.
6. **Magnuson, T.** and Epstein, C.J. (1981). Characterization of concanavalin A precipitated proteins from early mouse embryos: A 2 dimensional gel electrophoresis study. Dev. Biol. 81, 183-199.

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7. **Magnuson, T.** and Epstein, C.J. (1981). Use of concanavalin A to monitor changes in glycoprotein synthesis during early mouse development. In Cellular and Molecular Aspects of Implantation (eds: S.R. Glasser and D.W. Bullock), pp. 409-411. Plenum Press, New York.
8. **Magnuson, T.** and Epstein, C.J. (1981). Genetic control of very early mammalian development. Biol. Rev. 56, 369-408.
9. Sawicki, J., **Magnuson, T.**, and Epstein, C.J. (1981). Paternal gene expression of  $\beta$ 2-microglobulin in preimplantation mouse embryos. Nature 294, 450-451.
10. Epstein, C.J. and **Magnuson, T.** (1982). Genetic control of early mammalian development, In Human Genetics, Part A: The Unfolding Human Genome (eds: B. Bonne-Tamir, T. Cohen, R.M. Goodman), pp. 327-338. A.R. Liss, New York.
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12. Epstein, C.J., Smith, S., Zamora, T., Sawicki, J.A., **Magnuson, T.**, and Cox, D. (1982). The production of viable adult trisomy 17 $\leftrightarrow$ diploid mouse chimeras. Proc. Natl. Acad. Sci. USA 79, 4376-4380.
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14. **Magnuson, T.** (1983). Genetic abnormalities and early mammalian development. In Development in Mammals (ed: M.H. Johnson), pp. 209-249.
15. **Magnuson, T.**, Martin, G., Silver, L.M., and Epstein, C.J. (1983). Studies of the viability of  $t^{w5}/t^{w5}$  embryonic cells in vitro and in vivo. In Cold Spring Harbor Conferences on Cell Proliferation, Vol. 10: Teratocarcinoma Stem Cells. pp. 671-681.
16. Epstein, C.J., Cox, D.R., Epstein, L.B., and **Magnuson, T.** (1984). Animal models for human chromosome disorders. In Research Perspectives in Cytogenetics. (eds: F. de La Cruz and R.S. Sparkes), pp. 75-95. University Park Press, Baltimore.
17. **Magnuson, T.** and Epstein, C.J. (1984). Oligosyndactyly: A lethal mutation in the mouse that results in a mitotic arrest very early in development. Cell 38, 823-833.
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19. **Magnuson, T.** (1986). Mutations and chromosomal abnormalities: How are they useful for studying genetic control of early mammalian development? In Experimental Approaches to Mammalian Embryonic Development (eds: J. Rossant and R. Pedersen). pp. 437-474, Cambridge University Press.
20. **Magnuson, T.** and Epstein, C.J. (1987). Genetic activity during early embryonic development. In The Mammalian Preimplantation Embryo: Regulation of Growth and Differentiation In Vitro (ed: B. Bavister). pp. 130-150, Plenum Press, New York.

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## CCGS FACULTY

(recruited with CCGS funds)

Academic Unit and Department	Name and Rank	Subgroup Affiliation
<b><i>College of Arts &amp; Sciences</i></b>		
Biology	<b>Greg Copenhaver, PhD</b> - Assistant Professor <b>Corbin Jones, PhD</b> - Assistant Professor <b>Jason Lieb, PhD</b> - Assistant Professor <b>Steve Rogers, PhD</b> - Assistant Professor	Basic Process Genomics Basic Process Genomics Basic Process Genomics Basic Process Genomics
Statistics & Operations Research	<b>Yufeng Liu, PhD</b> - Assistant Professor (0.5 position)	Computational Genomics
Chemistry	<b>Mike Ramsey, PhD</b> - Professor <b>Mohammed Yousaf, PhD</b> - Assistant Professor	Basic Process Genomics Basic Process Genomics
<b><i>School of Information and Library Science</i></b>		
	<b>Brad Hemminger, PhD</b> - Assistant Professor	Computational Genomics
<b><i>School of Dentistry</i></b>		
Pediatric Dentistry	<b>Eric Everett, PhD</b> - Associate Professor	Mammalian Genomics
<b><i>School of Medicine</i></b>		
Genetics	<b>Ethan Lange, PhD</b> - Assistant Professor <b>Leslie Lange, PhD</b> - Assistant Professor (0.5 position) <b>Karen Mohlke, PhD</b> - Assistant Professor <b>Pat Sullivan, MD</b> - Professor <b>Kirk Wilhelmsen, MD, PhD</b> - Associate Professor	Mammalian Genomics Mammalian Genomics Mammalian Genomics Mammalian Genomics Mammalian Genomics
<b><i>School of Nursing</i></b>		
Children's Health	<b>Marcia Van Riper, PhD</b> - Associate Professor	Translational Genomics
<b><i>School of Pharmacy</i></b>		
Medicinal Chemistry	<b>Rihe Liu, PhD</b> - Assistant Professor	Basic Process Genomics
<b><i>School of Public Health</i></b>		
Biostatistics	<b>Mayetri Gupta, PhD</b> - Assistant Professor <b>Fred Wright, PhD</b> - Associate Professor <b>Fei Zou, PhD</b> - Assistant Professor	Computational Genomics Computational Genomics Computational Genomics
Epidemiology	<b>Kari North, PhD</b> - Assistant Professor	Mammalian Genomics
Environmental Sci. & Engineering	<b>Ivan Rusyn, PhD</b> - Assistant Professor	Mammalian Genomics
Nutrition	<b>Daniel Pomp, PhD</b> - Professor	Mammalian Genomics



## CCGS FACULTY

(recruited from existing UNC faculty)

Academic Unit and Department	Name and Rank	Subgroup Affiliation
<b><i>College of Arts &amp; Sciences</i></b>		
Biology	<b>Vicki Bautch, PhD</b> - Professor <b>Jeff Dangel, PhD</b> - Professor <b>Bob Duronio, PhD</b> - Associate Professor <b>Todd Vision, PhD</b> - Assistant Professor	DB Training Program Basic Process Genomics Curr. in Genetics & Mol. Bio. Computational Genomics
Computer Science	<b>Wei Wang, PhD</b> - Assistant Professor	Computational Genomics
<b><i>School of Education</i></b>		
FPG Child Development Institute	<b>Don Bailey, PhD</b> - Professor	Translational Genomics
<b><i>School of Medicine</i></b>		
Biochemistry & Biophysics	<b>Nikolay Dokholyan, PhD</b> - Assistant Professor <b>Brian Kuhlman, PhD</b> - Assistant Professor	Computational Genomics Computational Genomics
Genetics	<b>Jim Evans, MD, PhD</b> - Associate Professor <b>Fernando Pardo Manuel de Villena, PhD</b> - Assistant Professor <b>Chuck Perou, PhD</b> - Assistant Professor <b>David Threadgill, PhD</b> - Assistant Professor	Translational Genomics Mammalian Genomics  Mammalian Genomics Mammalian Genomics
Microbiology & Immunology	<b>Morgan Giddings, PhD</b> - Assistant Professor	Computational Genomics
Pediatrics	<b>Art Aylsworth, MD</b> - Professor <b>Joe Muenzer, MD</b> - Associate Professor <b>Cindy Powell, MD</b> - Associate Professor <b>Kathleen Rao, PhD</b> - Professor	Translational Genomics Translational Genomics Translational Genomics Translational Genomics
Pharmacology	<b>Tim Elston, PhD</b> - Associate Professor	Computational Genomics
Social Medicine	<b>Giselle Corbie-Smith, MD</b> - Associate Professor <b>Gail Henderson, PhD</b> - Professor <b>Nancy King, JD</b> - Professor <b>Dan Nelson</b> - Research Associate Professor	Translational Genomics Translational Genomics Translational Genomics Translational Genomics
<b><i>School of Pharmacy</i></b>		
Medicinal Chemistry	<b>Alex Tropsha, PhD</b> - Professor	Computational Genomics

# CCGS Faculty Funding

# Appendix 2.3

Faculty recruited with CCGS Funds	\$12,322,047
Faculty recruited from existing UNC Faculty	\$13,722,333
<b>Total</b>	<b>\$26,044,380</b>

Faculty Name	Agency	Grant Title	Current Year Direct Costs	Total
<b>Aylsworth, A</b>	North Carolina Division of Public Health	Medical Genetics Counseling Unit	\$715,455	\$787,001
<b>Bailey, D</b>	National Institute of Child Health & Human Development	Identifying Newborns with Fragile X: Planning Grant	\$150,000	\$217,614
	National Institute of Child Health & Human Development	Identifying Newborns with Fragile X: Planning Grant:Subacct:Supplement	\$30,000	\$30,000
	National Institute of Child Health & Human Development	Attention, Memory, & Executive Function in Fragile X	\$200,000	\$291,000
	National Institute of Child Health & Human Development	Attention, Memory, and Executive Function in Fragile X-Subacct:Supplement Blair Edwards	\$103,533	\$103,533
	US Department of Education	Syndrome	\$89,041	\$130,000
		Elementary & Middle School Children w/ Fragile X		
	US Department of Education	Syndrome/subacct:Pilot Studies	\$130,000	\$130,000
	National Center for Human Genome Research	ELSI Scale-Up: Large Sample Gene Discovery and Disclosure	\$150,000	\$214,634
<b>Bautch, V</b>	American Heart Association - Mid Atlantic Affiliate	Fellow: N Kappas/ Post-Doc Fellowship: Nicholas Kappas--Coordination of cell division & morphogenesis in blood vessel development	\$20,000	\$20,000
	American Heart Association - Mid Atlantic Affiliate	Post-doc Fellowship: Nicholas Kappas-Coord of cell div & morphogenesis in blood vessel developmnt	\$20,000	\$20,000
	National Institute of Heart, Lung, and Blood	Molecular Control of Angiogenesis	\$225,000	\$327,114
		Analysis of a Novel, Vascular Ras-GEF in Breast Cancer		
	US Army Medical Research National Institute of Heart, Lung, and Blood	Neovascularizatin and Development	\$23,055	\$23,055
		Integrating Cell Division and Morphogenesis in Vessels	\$150,000	\$217,393
<b>Copenhaver, J</b>	University of North Carolina Office of the President	Arabidopsis Multi-disciplinary Genomic Training Program	\$150,000	\$1,574,072
	National Science Foundation - Research	14th International Conference on Arabidopsis Research	\$33,390	\$33,390
<b>Corbie-Smith, G</b>	National Center for Human Genome Research	Learn (Learning about Research in North Carolina)	\$225,000	\$299,980
	National Center for Human Genome Research	Learn (Learning about Research in North Carolina)	\$190,370	\$190,370
	Glaxo SmithKline Foundation	End of Life Care in the African-American Community: Exploring Hospice Use	\$11,394	\$11,394
<b>Dangl, J</b>	National Science Foundation - Research	The Arabidopsis RPMI Disease Resistance Signalling Network-REU Supplement	\$45,000	\$45,000
	National Institute of General Medicine Science	Genetics of Programmed Cell Death in Arabidopsis	\$225,214	\$326,962
		Genetic Mechanisms of Downy Mildew Resistance in Arabidopsis	\$64,800	\$80,000
	US Department of Agriculture	The Arabidopsis gp91-phox gene family and NADPH oxidase function	\$98,965	\$140,810
	National Science Foundation - Research			
	National Institute of General Medicine Science	Diversity and Evolution of P Syringae Type III Effectors	\$250,000	\$359,650
<b>Dokholyan, N</b>	Association	Familial ALS	\$98,853	\$108,738
		Identifying the mechanisms of mutant Cu, Zn superoxide dismutase aggreation and the link to Familial		
	March of Dimes Foundation	Amyotrophic Lateral Sclerosis	\$128,540	\$141,394
<b>Duronio, R</b>	National Science Foundation - Research	Regulation of Histone Gene Expression During Drosophila Development	\$134,416	\$194,352
	National Institute of General Medicine Science	Genetic Analysis of E2F Function During Development	\$225,000	\$323,865
	National Institute of General Medicine Science	NRSA in Genetics	\$357,822	\$375,796

# CCGS Faculty Funding

# Appendix 2.3

	American Cancer Society	Genetic Analysis of SCF E3 Ubiquitin Ligase Function in Drosophila	\$200,000	\$240,000
<b>Elston, T</b>	National Science Foundation - Training	Inst Allow: Postdoctoral Res Flshp: John Fricks	\$4,500	\$4,500
<b>Everett, Eric T</b>	National Institute of Dental and Craniofacial Research	Non-Syndromic Cleft Palate in Mice	\$76,933	\$112,322
<b>Giddings, M</b>	National Center for Human Genome Research	Computational Methods for Proteomic Analysis	\$244,931	\$264,525
	National Center for Human Genome Research	Computational Methods for Proteomic Analysis/Min. Supplement:Dr. Mack Crayton	\$0	\$0
	UT-Battelle	Data driven proteomics for the Genomes to Life Program	\$6,010	\$8,745
	National Institute of General Medicine Science	Fellow:Michael Wisz-- Computational Prediction of Prokaryotic Phase Variation	\$0	\$0
	University of Georgia	Genome Fingerprint Scanning For Tetrahymena	\$39,109	\$54,409
	National Center for Research Resources	Developing Genome Fingerprint Scanning for Proteomics	\$250,000	\$360,359
<b>Henderson, G</b>	National Center for Human Genome Research	Social Construction of Benefit in Gene Transfer Research	\$206,873	\$284,458
	National Center for Human Genome Research	Social Construction of Benefit in Gene Transfer Research - Subacct: Supplement	\$87,876	\$87,876
<b>Jones, C</b>	National Science Foundation - Research	Genetic Analysis of Complex Adaptive Traits	\$62,934	\$91,884
<b>Kuhlman, B</b>	Searle Scholars Program	Computer-based Design of Altered Specificity Protein-protein Interactions	\$74,074	\$80,000
	National Institute of General Medicine Science	Identifying Ubiquitin E3 Substrates with Redesigned E3s	\$125,000	\$181,623
	Alfred P Sloan Foundation	Computer- Based Protein Design	\$20,000	\$20,000
	Beckman Foundation (Arnold and Mabel)	Computer-based Design of Protein-Protein Interactions in the Ubiquitination Pathway	\$80,000	\$80,000
	Interest Account	Int Ernd from Beckman Fdn/Acct 59534	\$345	\$345
<b>Lieb, J</b>	National Center for Human Genome Research	Understanding Specificity in Protein-Genome Interactions	\$250,000	\$270,000
	National Center for Human Genome Research	Understanding Specificity in Protein-Genome Interactions--Fellow:Michael Buck	\$41,608	\$41,608
<b>Liu, R</b>	National Institute of Neurologic Disorders and Stroke	Identification of Caspase Substrates from Human Proteome--Subcon:Childrens Mem. Hosp.	\$77,176	\$77,176
	National Institute of Diabetes, Digestive & Kidney Diseases	Identification of Calpain-10 Substances from Human Proteome	\$100,000	\$144,573
	National Institute of Neurologic Disorders and Stroke	Identification of Caspase Substrates from Human Proteome	\$208,125	\$286,089
<b>Magnuson, T</b>	Child Hlth & Hum Dev	Fellowship: Courtney Giffin	\$48,928	\$48,928
	Amer Canc Assoc	Flshp:Sundee Kalantry--Mechanisms Of Im	\$42,000	\$42,000
	Child Hlth & Hum Dev	Albino Deletion Complex & Early Mouse	\$268,239	\$385,189
	Nat Ctr for Res	A Carolina Center To Characterize &	\$850,000	\$1,241,000
	INCOME ACCT	Income Account For 5-31955	\$16,956	\$16,956
	Nat Ctr for Res	A Carolina Center To Characterize & Main (Supplement)	\$55,000	\$77,300
	Nat Ctr for Res	A Carolina Center To Characterize & Main (Supplement)	\$39,660	\$39,660
	Nat Ctr for Res	A Carolina Center To Characterize & Main (Supplement)	\$171,821	\$250,000
	Gen Med Sciences	Fellow:Jennifer Brennan--The Role Of Atr	\$42,976	\$42,976
	Child Hlth & Hum Dev	Allelic Series Of Genomic Modifications	\$225,000	\$327,375
	Child Hlth & Hum Dev	Developmental Gene Regulation Through Ch	\$225,000	\$327,375
	NIMH	Gene-Brain-Behavior Relationships In Aut	\$295,908	\$295,908
	Child Hlth & Hum Dev	Suz12 Function In Heterochromatin & Muse	\$42,976	\$42,976
	Whitaker Fdn	Joint Biomedical Engineering Program In	\$449,759	\$491,041
	Whitaker Fdn	Joint Biomedical Engineering Prog In Fun	\$45,000	\$45,000
<b>Millikan, R</b>	Association of Schools of Public Health, Inc.	North Carolina Center for Genomics and Public Health	\$519,765	\$780,070

# CCGS Faculty Funding

# Appendix 2.3

<b>Mohlke, K</b>	Burroughs Welcome F	Career Awards In The Biomedical Sciences	\$386,000	\$386,000
<b>Muenzer, J</b>	Transkaryotic Therapies, Inc.	Ph II/III R,DB,PC Clinical Stdy Eval S&E of Wkly & Every Other Wk Dosing Regiments of Iduronate-2-Sulfatase Enzyme Replacement Therapy in Pts w/MPS	\$572,266	\$721,892
<b>Nelson, D</b>	NIH Clinical Center	Implementing the Assent Requirement for Research with Children	\$20,000	\$20,000
<b>North, K</b>	National Institute of Heart, Lung, and Blood	Gene-by-Smoking Interaction and Risk of Atherosclerosis	\$345,726	\$426,147
	National Institute of Heart, Lung, and Blood	Subcon:Univ Texas-Houston--Gene-by-Smoking Interaction & Risk of Atherosclerosis	\$184,524	\$184,524
	National Institute of Heart, Lung, and Blood	Subc:Baylor College of Medicine--Gene-by-Smoking Interaction & Risk of Atherosclerosis	\$166,815	\$166,815
	Washington University @ St. Louis, Mo.	Mapping adiposity QTLs in the NHLBI Family Heart Study	\$40,639	\$59,333
<b>Perou, C</b>	Washington University @ St. Louis, Mo.	WA#5-Comparison Animal Models of ER-Negative Breast Cancer W/ Human ER-Negative Breast High Risk Groups: Compare of Expression Patterns, . . .	\$110,280	\$160,000
	Washington University @ St. Louis, Mo.	Nonworking Prime-Compar Animal Models of ER-Negative Breast Cancer W/ Human ER-Negative Breast High Risk Groups: Compare of Expression Patterns, . . .	\$110,280	\$160,000
	National Cancer Institute	Molecular Characterizationof Breast Basal-like Tumors	\$273,414	\$399,184
	Becton Dickinson & Co.	Research Agreement with BDT	\$106,164	\$155,000
<b>Powell, C</b>	Association of American Medical Colleges	Genetic Services for Congenital Hearing Loss	\$58,904	\$97,990
<b>Ramsey, J</b>	National Institute of General Medicine Science	High Throughput Measurement of Cellular Signaling	\$416,545	\$520,030
	National Institute of General Medicine Science	High Throughput Measurement of Cellular Signaling--Subcon:Univ California Irvine	\$95,500	\$95,500
	National Institute of General Medicine Science	High Throughput Measurement of Cellular Signaling--Subcon:Kansas State Univ	\$102,489	\$102,489
	UT-Battelle	Develop a mass spectrometric detector	\$51,370	\$75,000
	UT-Battelle	Develop low and High Pressure Pumps	\$56,849	\$83,000
	National Center for Human Genome Research	Nanotechnology for the structural interrogation for DNA	\$823,219	\$1,000,000
	National Center for Human Genome Research	Subcon:Vanderbilt Univ---Nanotechnology for the structural interrogation for DNA	\$106,500	\$106,500
	National Center for Human Genome Research	Subcon:Washington State Univ---Nanotechnology for the structural interrogation for DNA	\$71,500	\$71,500
	National Center for Human Genome Research	Subcon:Univ Tennessee---Nanotechnology for the structural interrogation for DNA	\$92,340	\$92,340
	National Center for Human Genome Research	Subcon:Univ California-Dan Diego---Nanotechnology for the structural interrogation for DNA	\$61,873	\$61,873
	National Center for Human Genome Research	Subcon:Oak Ridge Nat Lab---Nanotechnology for the structural interrogation for DNA	\$224,500	\$224,500
<b>Rusyn, I</b>	Environmental Health Sciences	DNA Repair and Susceptibility to Environmental Agents	\$100,000	\$108,000
	Environmental Health Sciences	Fellow:Courtney Woods---Minority Predoctoral Fellowship Program	\$34,200	\$34,200
	Environmental Health Sciences	Molecular Mechanisms of Phthalate-induced Carcinogenesis	\$225,000	\$326,558
<b>Sullivan, P</b>	National Cancer Institute	Genetic & Environmental Determinants of Smoking Cessation--Subcon:Karolinska Inst.	\$924,397	\$924,397
	National Cancer Institute	Cessation	\$545,500	\$614,365
	National Institute of Allergy & Infectious Diseases	Microarrays & Proteomics in MZ Twins Discordant for CFS--Subcon:Univ of So California	\$4,472	\$4,472
	National Institute of Allergy & Infectious Diseases	Microarrays & Proteomics in MZ Twins Discordant for CFS	\$492,378	\$536,021
	National Institute of Mental Health-NIH	Detecting Susceptibility Loci for Recurrent Depression/SUBCON:QUEENSLAND INSTITUTE	\$90,218	\$90,218
	National Cancer Institute	Genetic & Environmental Determinants of Smoking Cessation--Subcon:Univ. S California	\$41,923	\$41,923

## CCGS Faculty Funding

## Appendix 2.3

	National Institute of Mental Health-NIH	Detecting Susceptibility Loci for Recurrent Depression	\$2,105,182	\$4,024,164
	Karolinska Institute	A twin study of chronic fatigue syndrome in Sweden	\$54,950	\$80,227
	National Institute of Allergy & Infectious Diseases	Microarrays & Proteomics in MZ Twins Discordant for CFS--Subcon:Karolinska Inst	\$205,449	\$205,449
	National Institute of Mental Health-NIH	Detecting Susceptibility Loci for Recurrent Depression/SUBCON:VIRJI INSTITUTE	\$95,982	\$95,982
<b>Tropsha, A</b>	National Institute of General Medicine Science	Predictive QSAR Modeling	\$204,444	\$294,650
	National Institute of General Medicine Science	Predictive QSAR Modeling-Subacct:Supplement Crystal Wright	\$29,674	\$41,939
	University of North Carolina Office of the President	UNC-CH Research Training in Bioinformatics	\$150,000	\$150,000
<b>Vision, T</b>	Boyce Thompson Institute	Genomic Analysis of Plant Water Use Efficiency	\$22,409	\$32,607
	National Science Foundation - Research	Tools for Plant Comparative Genomics	\$125,469	\$181,643
	Duke University	FIBR Proposal: Integrated Ecological and Genomic Analysis of Speciation in Mimulus	\$52,086	\$74,871
<b>Wang, W</b>	National Science Foundation - Research	Analysis of High Dimensional Data Using Subspace Clustering/SUBACCT:WANG	\$37,698	\$37,698
<b>Wilhelmsen, K</b>	UCSF	Frontotemporal Dementia	\$74,956	\$109,436
	Amyotrophic Lateral	Positional Cloning Of New Locus For Als	\$40,688	\$43,943
<b>Yousaf, M</b>	Burroughs Wellcome Fund	Burroughs Wellcome Interface Career Award	\$120,000	\$37,698
	Burroughs Wellcome Fund	Burroughs Wellcome Interface Career Award--Subacct:Research Allowance	\$182,000	\$37,698
	Burroughs Wellcome Fund	Burroughs Wellcome Interface Career Award--Subacct:Institutional Allowance	\$30,000	\$37,698
<b>Zou, F</b>	National Institute of Mental Health-NIH	Statistical Analysis of RIX for Complex Traits	\$50,000	\$71,616
<b>Total</b>			<b>\$20,256,101</b>	<b>\$26,044,380</b>

### BIOGRAPHICAL SKETCH

NAME	POSITION TITLE		
Donald B. Bailey, Jr.	Director, FPG Child Development Institute W. R. Kenan, Jr. Distinguished Professor		
EDUCATION/TRAINING			
INSTITUTION AND LOCATION	DEGREE <i>(if applicable)</i>	YEAR(s)	FIELD OF STUDY
Davidson College, Davidson, NC	B.A.	1971	Psychology
University of North Carolina at Chapel Hill	M.Ed.	1973	Special Education
University of Washington, Seattle, WA	Ph.D.	1979	Special Education

#### A. Positions and Honors

##### Positions and Employment

1971-1972     Psychological Technician, Mental Retardation, Central State Hospital, Milledgeville, GA  
 1973-1976     Preschool Teacher, Chapel Hill-Carrboro City Schools, Chapel Hill, NC  
 1976-1979     Research Assistant/Teaching Assistant, Special Education, University of Washington  
 1979-1986     Clinical Assistant Professor, Division of Special Education, UNC-CH  
 1984-1992     Director of Early Childhood Research, Frank Porter Graham Child Development Center  
 1986-1994     Clinical Associate Professor, Education, UNC-CH  
 1992-Present   Director, Frank Porter Graham Child Development Institute  
 1994-1999     Professor, Medical Allied Health and Research Professor, Education, UNC-CH  
 1999-Present   Professor, School of Education  
 2002-Present   W. R. Kenan, Jr. Distinguished Professor

##### Honors

1994     DEC Service to the Field Award  
 2000     James E. Favell Excellence in Research Award, NC AAMR  
 2002     AAMR Research Award

#### SELECTED PEER-REVIEWED PUBLICATIONS (from a total of more than 160)

Bailey, D.B., Hebbeler, K., Scarborough, A., Spiker, D., Mallik, S., & Simeonsson, R.J. (2004). First experiences with early intervention: A national perspective. *Pediatrics*, 113, 887-896.  
 Bailey, D.B. (2004). Newborn screening for fragile X syndrome. *Mental Retardation and Developmental Disabilities Research Reviews*, 10, 3-10.  
 Mirrett, P.L., Bailey, D.B., Roberts, J.E., & Hatton, D.D. (2004). Developmental screening and detection of developmental delays in infants and toddlers with fragile X syndrome. *Journal of Developmental and Behavioral Pediatrics*, 25, 21-27.  
 Hatton, D.D., Wheeler, A.C., Kinner, M.C., Bailey, D.B., Sullivan, K.B., Roberts, J.E., Mirrett, P., & Clark, R.D. (2003). Adaptive behavior in children with fragile X syndrome. *American Journal on Mental Retardation*, 108, 373-390.  
 Skinner, D., Sparkman, K.L., Bailey, D.B. (2003). Screening for fragile X syndrome: Parent attitudes and perspectives. *Genetics in Medicine*, 5, 378-384.  
 Symons, F.J., Clark, R. D., Hatton, D.D., Skinner, M., & Bailey, D.B. (2003). Self-injurious behavior in young boys with fragile X syndrome. *American Journal of Medical Genetics*, 118A, 115-121.

- Bailey, D.B., Skinner, D., & Sparkman, K. (2003). Discovering fragile X syndrome: Family experiences and perceptions. *Pediatrics*, 111, 407-416.
- Wolery, M., & Bailey, D.B. (2002). Early childhood special education research: Testimony to the President's Commission on Excellence in Special Education. *Journal of Early Intervention* 25, 88-99.
- Bailey, D. B. (2002). Are critical periods critical for early childhood education? The role of timing in early childhood pedagogy. *Early Childhood Research Quarterly*, 17, 281-294.
- Hatton, D.D., Hooper, S.R., Bailey, D.B., Skinner, M., Sullivan, K., & Wheeler, A. (2002). Problem behavior in boys with fragile X syndrome. *American Journal of Medical Genetics*, 108, 105-116.
- Roberts, J.E., Hatton, D.D., & Bailey, D.B. (2001). Development and behavior of male toddlers with fragile X syndrome. *Journal of Early Intervention*, 24, 207-223.
- Roberts, J.E., Boccia, M.L., Bailey, D.B., & Hatton, D.D. (2001). Cardiovascular indicators of arousal in boys with fragile X syndrome. *Developmental Psychobiology*, 39, 107-123.
- Bailey, D.B., (2001). Evaluating parent involvement and family support in early intervention and preschool programs. Three levels of accountability. *Journal of Early Intervention*, 24, 1-14.
- Skinner, D.G., Correa, V., Skinner, M. & Bailey, D.B. (2001). The role of religion in the lives of Latino families of young children with developmental delays. *American Journal on Mental Retardation*, 106, 297-313.
- Bailey, D.B., Hatton, D.D., Skinner, M. & Mesibov, G. (2001). Autistic behavior, FMRP, and developmental trajectories in young males with fragile X syndrome. *Journal of Autism and Developmental Disorders*, 31, 165-174.
- Bailey, D.B., Roberts, J.E., Mirrett, P., & Hatton D.D. (2001). Identifying infants and toddlers with fragile X syndrome: Issues and recommendations. *Infants and Young Children*, 14(1), 24-33
- Arcia, E., Skinner, M., Bailey, D.B., & Correa, V. (2001). Models of acculturation and health behavior among Latino immigrants to the US. *Social Science and Medicine*, 53, 41-53.
- Bailey, D.B., Hatton, D.D., Tassone, F., Skinner, M., & Taylor, A.K. (2001). Variability in FMRP and early development in males with fragile X syndrome. *American Journal on Mental Retardation*, 106, 16-27.
- Symons, F.J., Clark, R.D., Roberts, J.P., & Bailey, D.B. (2001). Classroom behavior and academic engagement of elementary school-aged boys with fragile X syndrome. *Journal of Special Education*, 34(4), 194-202.
- Bailey, D.B., Skinner, D., Hatton, D., & Roberts, J.E., (2000). Family experiences and factors associated with the diagnosis of fragile X syndrome. *Journal of Developmental and Behavioral Pediatrics*, 21, 315-321.
- Bailey, D.B., Hatton, D.D., Mesibov, G., Ament, N., & Skinner, M. (2000). Early development, temperament, and functional impairment in autism and fragile X syndrome. *Journal of Autism and Developmental Disorders*, 30, 49-59.
- Hooper, S.R., Hatton, D.D., Baranek, G.T., Roberts, J.P., & Bailey, D.B. (2000) Nonverbal assessment of IQ, attention, and memory abilities in children with fragile X syndrome using the Leiter-R. *Journal of Psychoeducational Assessment*, 18, 255-267.
- Bailey, D.B., Skinner, D., Correa, V., Arcia, E., Reyes-Blanes, M.E., Rodriguez, P., Vazquez-Montilla, E., & Skinner, M. (1999). Needs and supports reported by Latino families of young children with developmental disabilities. *American Journal on Mental Retardation*, 104, 437-451.
- Hatton, D.B., Bailey, D.B., Hargett-Beck, M.Q., Skinner, M. & Clark, R.D. (1999). Behavioral style of young boys with fragile X syndrome. *Developmental Medicine and Child Neurology*, 41, 625-632.
- Bailey, D.B., Skinner, D., Rodriguez, P., Gut, D., & Correa, V. (1999). Awareness, use, and satisfaction with services for Latino parents of young children with disabilities. *Exceptional Children*, 65, 367-381.
- Bailey, D.B., Aytch, L.S., Odom, S. L., Symons, F., & Wolery, M. (1999). Early intervention as we know it. *Mental Retardation and Developmental Disabilities Research Reviews*, 5, 11-20.
- Bailey, D.B., Mesibov, G.B., Hatton, D.D., Clark, R.D., Roberts, J.E., & Mayhew, L. (1998). Autistic behavior in young boys with fragile X syndrome. *Journal of Autism and Developmental Disorders*, 28, 499-508.
- Bailey, D.B., Hatton, D.D., & Skinner, M. (1998). Early developmental trajectories of males with fragile X syndrome. *American Journal on Mental Retardation*, 103, 29-39.

- Bailey, D.B., McWilliam R.A., Buysse, V., & Wesley, P.W. (1998). Inclusion in the context of competing values in early childhood education. *Early Childhood Research Quarterly, 13*, 27-47.
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- Hatton, D.B., Bailey, D.B., Burchinal, M.R., & Ferrell, K. A. (1997). Developmental growth curves of preschool children with vision impairments. *Child Development, 68*, 788-806.
- Bailey, D.B., & Nelson, D. (1995). The nature and consequences of fragile X syndrome. *Mental Retardation and Developmental Disabilities Research Reviews, 1*, 238-244.
- Bailey, D.B., Buysse, V., Simeonsson, R.J., Smith, T., & Keyes, L. (1995). Individual and team consensus ratings of child functioning. *Developmental Medicine and Child Neurology, 37*, 232-245.
- Bailey, D.B., Burchinal, M.R. & McWilliam, R.A. (1993). Age of peers and early child development. *Child Development, 64*, 848-862.
- Buysse, V., & Bailey, D.B. (1993). Behavioral and developmental outcomes for young children with disabilities in integrated and segregated settings: A review of comparative studies. *Journal of Special Education, 26*, 434-461.

#### **RESEARCH SUPPORT (ACTIVE):**

H324C010007	(Bailey)	7/1/01-6/30/06	10%
Department of Education, OSEP			

##### ***Elementary and Middle School Children with Fragile X Syndrome***

This project continues a longitudinal study of children with fragile X syndrome. A total of 67 students, who have been followed since the preschool years, will be studied during the late elementary and middle school grades, with a focus on school achievement, friendships, and community activities.

Role: PI

1-R01-HD38819-01A1	(Roberts)	5/1/01-4/30/06	Consultant, no effort
NICHD			

##### ***Communication of Young Males with Fragile X Syndrome***

This project is a longitudinal study of communication development of young males with fragile X syndrome.

Role: Consultant

1-R01-HD40602-01	(Bailey)	7/1/01-6/30/06	10%
NICHD			

##### ***Attention, Memory, and Executive Function in Fragile X***

This project conducts detailed, systematic, and expansive assessments of attention, memory, and executive function in children with fragile X syndrome during the late elementary and middle school years.

Role: PI

1-R21-HD43616-01	(Bailey)	7/1/03 – 6/30/06	0% committed
NICHD			

##### ***Identifying Newborns with Fragile X: Planning Grant***

This project assembles a multidisciplinary team of investigators to plan a large study involving newborn screening of 1,000,000 infants for fragile X syndrome to answer a range of questions such as incidence rate, early developmental trajectories, the efficacy of early intervention, and public reaction to newborn screening.

Role: PI

3-P30-HD003110-35S1	(Piven/Bailey)	7/1/03 – 6/30/08	25%
NICHD			



***Family Adaptation to Fragile X Syndrome***

This center grant, a supplement to a Mental Retardation and Developmental Disabilities Research Center grant, assembles a multidisciplinary team of investigators to study how families adapt to the learning problems, behavior challenges, and genetic information that accompanies fragile X syndrome.

Role: Center director

P20 HG003387-01

(Bailey)

7/1/04 – 6/30/06

10%

NHGRI

***ELSI Scale-Up: Large Sample Gene Discovery and Disclosure***

This grant provides funds to conduct the planning necessary to create a Center of Excellence on ethical, legal, and social issues in large sample gene discovery and disclosure.

Role: PI

### BIOGRAPHICAL SKETCH

NAME		POSITION TITLE	
Victoria L. Bautch		Professor	
EDUCATION/TRAINING			
INSTITUTION AND LOCATION	DEGREE <i>(if applicable)</i>	YEAR(s)	FIELD OF STUDY
Monmouth College, Monmouth, IL	BA	1974	Biology
University of Illinois at Chicago, Chicago, IL	PhD	1983	Biochemistry
Cold Spring Harbor Laboratory, CSH, NY	Post-doc	1983-88	Molecular Biology

### PROFESSIONAL EXPERIENCE:

1976-1978 **Medical Technologist**, Clinical Chemistry Lab, Loyola U. Hospital, Maywood, IL  
1978-1983 **Teaching Assistant**, Dept. of Biochemistry, U. of Illinois at Chicago, Chicago, IL  
1983-1988 **Post-doctoral Fellow**, Cold Spring Harbor Laboratory, Cold Spring Harbor, NY  
1989-1994 **Assistant Professor of Biology**, University of North Carolina, Chapel Hill, N.C.  
1995-2003 **Associate Professor of Biology**, University of North Carolina, Chapel Hill, NC  
2004-present **Professor of Biology**, University of North Carolina, Chapel Hill, NC  
1989-present **Member, Program in Molecular Biology and Genetics**, University of North Carolina, Chapel Hill, NC  
1989-present **Member, Lineberger Comprehensive Cancer Center**, University of North Carolina, Chapel Hill, NC  
2002-present **Charter Member, Carolina Cardiovascular Biology Center**  
2003-present **Member, Carolina Center for Genome Sciences**  
1997 **Visiting Scientist**, National Institute of Medical Research, Mill Hill, London, England

### HONORS AND AWARDS:

1983-1986 NIH Post-doctoral Research Award  
1985-1986 Award from Cold Spring Harbor Institutional Research Grant funded by ACS  
1986-1988 New York State Health Research Council Fellowship  
1993-1998 NIH Research Career Development Award  
1991-1999 NIH Panels: PPG Site Visit, NCI Center Site Visit, Biol 2 (ad hoc), Path A Special (ad hoc), NIH RFA Panel, NICHD Special Emphasis Panel  
1996-1997 Member, AHA Study Section (Vascular Biol. II)  
1998-2000 Co-chairperson, AHA Study Section (Vascular Biol. II)  
2000-2004 Member, NIH Pathology A Study Panel  
2003-present Councilor, NAVBO  
2004-present Member, AHA Mid-Atlantic Cardiovascular Development Study Section

### PUBLICATIONS (partial listing):

**Bautch, V.L.** and Storti, R.V. (1983). Identification of a cytoplasmic tropomyosin gene linked to two muscle tropomyosin genes in *Drosophila*. *Proc. Natl. Acad. Sci. USA* **80**, 7123-7127.  
**Bautch, V.L.** (1986). Genetic background affects integration frequency of ecotropic proviral sequences into the mouse germline. *J. Virol.* **60**, 693-701.  
**Bautch, V.L.**, Toda, S., Hassell, J.A. and Hanahan, D. (1987). Endothelial cell tumors develop in transgenic mice carrying polyoma virus middle T oncogene. *Cell* **51**, 529-538.  
**Bautch, V.L.** (1989). Effects of polyoma virus oncogenes in transgenic mice. *Mol. Biol. Med.* **6**, 309-317.

- Grant, S., Seidman, I., Hanahan, D. and **Bautch, V.L.** (1991). Early invasiveness characterizes metastatic carcinoid tumors in transgenic mice. *Cancer Res.* 51, 4917-4923.
- Dubois, N.A., Kolpack, L.C., Wang, R., Azizkhan, R.G., and **Bautch, V.L.** (1991). Isolation and characterization of an established endothelial cell line from transgenic mouse hemangiomas. *Exp. Cell Res.* 196, 302-313.
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- Wang, R., Clark, R., and **Bautch, V.L.** (1992). Embryonic stem cell derived cystic embryoid bodies form vascular channels: an in vitro model of blood vessel development. *Development* 114, 303-316.
- Helseth, A., Siegal, G.P., and **Bautch, V.L.** (1992). Transgenic mice that develop pituitary tumors: a model for Cushing's disease. *Am. J. Path.* 140, 1071-1080.
- Wang, R., Siegal, G.P., Scott, D. L., and **Bautch, V.L.** (1994). Developmental analysis of bone tumors in polyomavirus transgenic mice. *Lab. Invest*, 70, 86-94.
- Dubois-Stringfellow, N., Jonczyk, A., and **Bautch, V.L.** (1994). Perturbations of the fibrinolytic pathway abolish cyst formation but not capillary-like organization of cultured murine endothelial cells. *Blood* 83, 3206-3217.
- Decsi, A., Peiffer, R.L., Qiu, T., Lee, D.C., Friday, J.T., and **Bautch, V.L.** (1994). Lens expression of TGF $\beta$  in transgenic mice produces two distinct eye pathologies in the absence of tumors. *Oncogene* 9, 1965-1975.
- Heyward, S., Dubois-Stringfellow, N., Rapoport, R., and **Bautch, V.L.** (1995). Expression and inducibility of vascular adhesion receptors in development. *FASEB J.* 9, 956-962.
- Bautch, V.L.**, Stanford, W., Rapoport, R., Russell, S., Byrum, R., and Futch, T.A. (1996) Vascular and hematopoietic development in attached cultures of murine embryonic stem cells. *Dev. Dyn.* 205, 1-12.
- Ramakrishnan, S., Olson, T.A., **Bautch, V.L.**, and Mohanraj, D. (1996). Vascular endothelial growth factor-toxin conjugate specifically inhibits KDR/flk-1 positive endothelial cell proliferation in vitro and angiogenesis in vivo. *Cancer Res.* 56, 1324-1330.
- Ohneda, O. and **Bautch, V.L.** (1997). Murine endothelial cells support fetal liver erythropoiesis and myelopoiesis via distinct interactions. *Brit. J. Haematol.* 98, 798-808.
- Inamdar, M., Koch, T., Rapoport, R., Dixon, J.T., Probolus, J.A., Cram, E., and **Bautch, V.L.** (1997). A yolk sac-derived murine macrophage cell line has a counterpart during ES cell differentiation. *Dev. Dyn.* 210, 487-497.
- Stanford, W.L., Caruana, G., Vallis, K.A., Inamdar, M., Hidaka, M., **Bautch, V.L.**, and Bernstein, A. (1998). Expression trapping: identification of novel genes expressed in hematopoietic and endothelial lineages by gene trapping in ES cells. *Blood* 92, 4622-4631.
- Redick, S. and **Bautch, V.L.** (1999). Developmental PECAM expression suggests multiple roles for a vascular adhesion molecule. *Am. J. Path.* 154, 1137-1147.
- Bautch, V.L.**, Redick, S. D., Scalia, A., Harmaty, M., Carmeliet, P., and Rapoport, R. (2000). Characterization of the vasculogenic block in the absence of vascular endothelial growth factor-A. *Blood* 95, 1979-1987.
- Robinson, L.A., Nataraj, C., Thomas, D.W., Howell, D.N., Griffiths, R., **Bautch, V.**, Patel, D.D., Feng, L.L., and Coffman, T.M. (2000). A role for fractalkine and its receptor (CX<sub>3</sub>CR1) in cardiac allograft rejection. *J. Immunol.* 165, 6067-6072.
- Ambler, C.A., Nowicki, J.L., Burke, A.C., and **Bautch, V.L.** (2001). Assembly of trunk and limb blood vessels involves extensive migration and vasculogenesis of somite-derived angioblasts. *Dev. Biol.* 234, 352-364.
- Bautch, V.L.** (2001). Embryonic stem cell differentiation and the vascular lineage. In *Methods in Molecular Biology, Vol. 185, Embryonic stem cells: methods and protocols* (ed. K. Turksen). pp. 117-125, New Jersey: Humana Press.
- Kearney, J.B., Ambler, C.A., Monaco, K-A., Johnson, N., Rapoport, R., and **Bautch, V.L.** (2002). The VEGF receptor flt-1 negatively regulates developmental blood vessel formation by modulating endothelial cell division. *Blood* 99, 2397-2407.

- Ambler, C.A., Schmunk, G.M., and **Bautch, V.L.** (2003). Stem cell-derived endothelial cells/progenitors migrate and pattern in the embryo using the VEGF signaling pathway. *Dev. Biol.* 257, 205-219.
- Moser, M., Binder, O., Wu, Y., Aitsebaomo, J., Ren, R., Bode, C., **Bautch, V.L.**, Conlon, F.L., and Patterson, C. (2003). BMPER, a novel endothelial cell precursor-derived protein, antagonizes bone morphogenetic protein signaling and endothelial cell differentiation. *Mol. Cell. Biol.* 23, 5664-5679.
- Wu, Y., Moser, M., **Bautch, V.L.**, and Patterson, C. (2003). HoxB5 is an upstream transcriptional switch for differentiation of the vascular endothelium from precursor cells. *Mol. Cell. Biol.* 23, 5680-5691.
- Kearney, J.B., and **Bautch, V.L.** (2003). *In vitro* differentiation of mouse ES cells: hematopoietic and vascular development. In *Meth. Enzymol. vol. 365, Differentiation of Embryonic Stem Cells* (eds. P.M. Wassarman and G.M. Keller), pp. 83-98, San Deigo CA: Elsevier Academic Press.
- Robinson, L.A., Nataraj, C., Thomas, D.W., Cosby, J.M., Griffiths, R., **Bautch, V.L.**, Dhavalkumar, D., Patel, D., and Coffman, T.M. (2003). The chemokine CX3CL1 regulates NK cell activity in vivo. *Cell. Immunol.* 225, 122-130.
- Hogan, K.A.\*, Ambler, C.A.\*, Chapman, D.L., and **Bautch, V.L.** (2004). The neural tube patterns vessels developmentally using the VEGF signaling pathway. *Development* 131, 1503-1513. (\*= co-first authors)
- Roberts, D.M., Kearney, J.B., Johnson, J.H., Rosenberg, M.P., Kumar, R., and **Bautch, V.L.** (2004). The VEGF receptor flt-1 (VEGFR-1) modulates flk-1 (VEGFR-2) signaling during blood vessel formation. *Am. J. Path.* 164, 1531-1535.
- Bautch, V.L.**, and Ambler, C.A. (2004). Assembly and patterning of vertebrate blood vessels. *Trends Cardiovasc. Med.* 14, 138-143.
- Kearney, J.B.\*, Kappas, N.C.\*, Ellerstrom, C., DiPaola, F.W., and **Bautch, V.L.** (2004). The VEGF receptor flt-1 (VEGFR-1) is a positive modulator of vascular sprout formation and branching morphogenesis. *Blood* 103, 4527-4535. (\*= co-first authors).
- Hogan, K.A. and **Bautch, V.L.** (2004). Blood vessel patterning at the embryonic midline. *Curr Topics Dev Biol.* 62, 55-85.
- Roberts, D.M., Anderson, A.L., Hidaka, M., Swetenburg, R.L., Patterson, C., Stanford, W.L., and **Bautch, V.L.** (2004). A vascular gene trap screen defines RasGRP3 as an angiogenesis-regulated gene required for the endothelial response to phorbol esters. *Mol. Cell Biol.* 24, 10515-10528.
- Biggs, R., Monaco, K-A., Kirby, S., Blickarz, C.E., Inamdar, M.S., and **Bautch, V.L.** (2004). CSF-1 is required for early embryonic macrophage development: characterization of the *csfm<sup>op</sup>/csfm<sup>op</sup>* mutation in ES cell-derived macrophages. *Oncogene* (Under revision).

## **ONGOING AND RECENTLY COMPLETED SUPPORT**

### ONGOING

**2-RO1-HL43174-15 (Bautch)**

6/1/03 - 5/31/07

NIH/NHLBI

*Molecular Control of Angiogenesis*

The major goals of this project are to analyze the role of endothelial signaling pathways in vascular assembly and patterning events

**1 R21 HL71993-02 (Bautch)**

9/30/02 – 9/29/05

NIH/NHLBI

*Integrating Cell Division and Morphogenesis in Vessels*

The major goals of this exploratory grant application are to determine how endothelial cell division is integrated with the morphological processes involved in blood vessel formation

## Copenhaver, Greg

BIOGRAPHICAL SKETCH			
NAME		POSITION TITLE	
Gregory Paul Copenhaver		Assistant Professor of Biology	
EDUCATION/TRAINING			
INSTITUTION AND LOCATION	DEGREE (if applicable)	YEAR(s)	FIELD OF STUDY
University of California Riverside, Riverside, CA	B.S.	1990	Botany
Washington University, St. Louis, MO	Ph.D.	1996	Biology & Biomedical Sci.
The University of Chicago, Chicago, IL	--	1996 – 2001	Genetics

**A. Positions and Honors****Positions and Employment**

2001 (Dec.) - Assistant Professor, Dept. of Biology, UNC-Chapel Hill

2001 (Dec.) - Member, Carolina Center for Genome Sciences, UNC-Chapel Hill

**Other Experiences and Professional Memberships**

2000 - Chromatin, Inc., Scientific Advisory Board

2001 - Member, Interdisciplinary Program in Biomedical Sciences, UNC-Chapel Hill

2002 - Member, North American Arabidopsis Steering Committee (elected position)

2003 - Co-organized 14th International Conference on Arabidopsis Biology

2003 - Member, Curriculum in Genetics and Molecular Biology, UNC Chapel Hill

**Honors**

1989 Academic Program Service Award, U.C. Riverside

1989 Southern California Strawberry Growers Scholarship Award

1989 Bernard J. Hall Scholarship

1990 James and Adelaine Wallace Annual Prize for Botany

1990 Botanical Society of America Young Botanist Award

1994 Outreach Teaching Recognition Award from Beaumont High School, St. Louis, MO

**B. Selected peer-reviewed publications (in chronological order)**

1. Copenhaver GP, Putnam CD, Denton M, Pikaard CS (1994) The RNA polymerase I transcription factor UBF is a sequence-tolerant HMG-box protein that can recognize structured nucleic acids. *Nucleic Acids Research* 22(13): 2651-2657.
2. Putnam CD, Copenhaver GP, Denton M, Pikaard CS (1994) The RNA polymerase I transactivator upstream binding factor requires its dimerization domain and high-mobility-group (HMG) box 1 to bend, wrap and positively supercoil enhancer DNA. *Molecular and Cellular Biology* 14(10): 6476-6488.
3. Copenhaver GP, Doelling JH, Gens SJ, Pikaard CS (1995) Use of RFLPs larger than 100 kbp to map the position and internal organization of the nucleolus organizer region on chromosome 2 in *Arabidopsis thaliana*. *The Plant Journal* 7(2): 273-286.
4. Copenhaver GP, Pikaard CS (1996) RFLP and physical mapping with an rDNA-specific endonuclease reveals that nucleolus organizer regions of *Arabidopsis thaliana* adjoin the telomeres on chromosomes 2 and 4. *The Plant Journal* 9(2): 259-272.
5. Copenhaver GP, Pikaard CS (1996) Two-dimensional RFLP analyses reveal megabase-sized clusters of rRNA gene variants in *Arabidopsis thaliana*, suggesting local spreading of variants as the mode for gene homogenization during concerted evolution. *The Plant Journal* 9(2): 273-282.

6. Copenhaver GP, Browne WE, Preuss D (1998 ) Assaying genome-wide recombination and centromere functions with *Arabidopsis* tetrads. Proc. Natl. Acad. Sci 95:247-252.
7. Copenhaver GP, Preuss D. (1999) Centromeres in the genomic era: Unraveling paradoxes. Curr. Op. Plant Biol. 2: 104-108.
8. Lin X, Kaul S, Rounsley S, Shea TP, Benito M-I, Town CD, Fujii CY, Mason T, Bowman CL, Barnstead M, Feldblyum T, Buell CR, Ketchum KA, Ronning CM, Koo H, Moffat K, Cronin L, Shen M, Pai G, Van Aken S, Umayam L, Tallon L, Gill J, Adams MD, Carrera AJ, Creasy TH, Goodman, HM, Somerville CR, Copenhaver GP, Preuss D., Nierman WC, White O, Eisen JA, Salzberg S, Fraser, CM, Venter JC (1999) Sequence and Analysis of Chromosome 2 of *Arabidopsis thaliana*. Nature 402: 761-68.
9. Copenhaver GP, Nickel K, Kuromori T., Benito M-I, Kaul S, Lin X, Bevan M, Murphy G, Harris B, Parnell LD, McCombie WR, Martienssen RA, Marra M, Preuss D (1999) Genetic Definition and Sequence Analysis of *Arabidopsis* Centromeres. Science 286: 2468-74.
10. Copenhaver GP, Keith KC, Preuss D (2000) Tetrad Analysis in Higher Plants: A Budding Technology. Plant Physiology 124:7-15.
11. The Arabidopsis Genome Initiative: Genome Sequencing Groups: Kaul S, et al., Genome Analysis Group: Mayer K, et al., Contributing Authors: Rounsley S, Bush D, Subramaniam S, Levin I, Norris S, Schmidt R, Acarkan A, Bancroft I, Quetier F, Brennicke A, Eisen JA, Bureau T, Legault B-A, Le Q-H, Agrawal N, Yu Z, Martienssen R, Copenhaver GP, Luo S, Pikaard CS, Preuss D, Paulsen IT, Sussman M, Britt A, Selinger DA, Pandey R, Mount DW, Chandler VL, Jorgensen RA, Juergens G, Meyerowitz EM, Ecker JR, Theologis A, Dangl J & Jones JDG, Chen M, Chory J, and Somerville C.(2000) Analysis of the genome sequence of the flowering plant *Arabidopsis thaliana*. Nature 408: 796-815.
12. Copenhaver GP, Housworth E, Stahl FS (2002) Crossover Interference in Arabidopsis. Genetics 160:1631-1639.
13. Krysan PJ,. Young JC,. Jester PJ, Monson S, Copenhaver G, Preuss D, and Sussman MR (2002). Characterization of T-DNA Insertion Sites in Arabidopsis thaliana and the Implications for Saturation Mutagenesis. Omics 6: 163-175.
14. Chang Y-L, Henriquez X, Copenhaver GP, Preuss D, and Zhang H-B (2003) A Plant Transformation-competent Binary BAC (BIBAC) library from the Landsberg ecotype of *Arabidopsis thaliana*. Theoretical and Applied Genetics 106: 269-276.
15. Copenhaver GP (2003) Using Arabidopsis to understand centromere function: Progress and Chromosome Research 11: 255-262.
16. Hall A, Hall S, Keith K, Copenhaver GP, Preuss D (2004) The rapidly evolving field of plant centromere. Curr. Op. Plant Biol. 7: 104-1-7
17. Stahl FW, Foss HM, Young LS, Borts RH, Abdullah MFF and Copenhaver GP (2004) Does Crossover Interference Count in Saccharomyces cerevisiae? Genetics 168: 35-48

### **C. Research Support**

#### **Ongoing Research Support**

1. DOE "Regulation of Meiotic Recombination in Arabidopsis" PI: Gregory P. Copenhaver. Duration 3 years (start date 2/01/05)
2. UNC-CH Office of the Vice Chancellor for Research and Economic Development "Measuring Levels of Genetic Diversity in a North Carolina Endangered Species", 6/1/04 – 5/30/05
3. UNC Office of the President Genomics Research Support, "Arabidopsis Multi-disciplinary Genomic Training Program" PI: Gregory P. Copenhaver, 5/1/02-03/31/05.
4. UNC Department of Biology and Carolina Center for Genome Sciences start-up grant

**Copenhaver, Greg**

**Pending Research Support**

1. USDA “A Transgenic Approach to Tetrad Analysis in *Brassica oleraceae*” Co-PI: Kirk Francis (postdoc). Duration 2 years (anticipated start date 6/1/05)
2. NSF “The Dynamics of Centromere Evolution in the Brassicaceae Family” PI: Daphne Preuss; Gregory Copenhaver is a sub-awardee. Sub-award duration: 2 years (anticipated start date 6/1/05)

**Completed Research Support**

1. NSF “14<sup>th</sup> International Conference on Arabidopsis Research”, 6/1/03 – 12/31/13
2. USDA “14<sup>th</sup> International Conference on Arabidopsis Research”, 6/1/03 – 12/31/03
3. IBM Fund Award, “Arabidopsis Genetic Tools”, 1/1/03 – 12/31/03
4. UNC equipment fund for the purchase of a fluorescence light microscope, 12/1/01 – 12/1/02
5. USDA “Genetic Mechanisms Controlling Meiosis in *Arabidopsis thaliana*”, 12/15/96 – 12/31/98

BIOGRAPHICAL SKETCH			
NAME Giselle Corbie-Smith		POSITION TITLE Associate Professor of Social Medicine and Medicine	
EDUCATION/TRAINING			
INSTITUTION AND LOCATION	DEGREE (if applicable)	YEAR(s)	FIELD OF STUDY
Cornell University, Ithaca, NY	B.A.	1986	Biology
Albert Einstein College of Medicine, Bronx, NY	M.D.	1991	Medicine
Yale University/New Haven Hospital, New Haven, CT	Residency	1991-1994	Internal Medicine
Emory University, Atlanta, GA	Masters of Science	1997-2000	Clinical Research/ Epidemiology

#### **A. Positions and Employment**

1994-1995	Instructor in Medicine, Yale University School of Medicine
1995-2000	Assistant Professor of Medicine, Emory University School of Medicine
1995-2000	Attending Physician, Grady Health System, Atlanta, GA
2000-2004	Assistant Professor, Department of Social Medicine, School of Medicine, University of North Carolina at Chapel Hill, Chapel Hill, NC
2000-2004	Assistant Professor of Medicine, Division of General Medicine and Clinical Epidemiology, School of Medicine, University of North Carolina at Chapel Hill, Chapel Hill, NC
2000-2004	Adjunct Assistant Professor, Department of Epidemiology and Biostatistics, School of Public Health, University of North Carolina at Chapel Hill, Chapel Hill, NC
2000-2004	Research Fellow, Cecil G. Sheps Center for Health Services Research, Chapel Hill, NC
2000-present	National Institutes of Health Special Emphasis Study Section on Research Ethics
2000-present	Scientific & Policy Advisory Committee, Kellogg Minority Health Disparities Scholars Program
2001-present	Data Safety and Monitoring Board, Acute Respiratory Distress Syndrome Clinical Network, National Heart, Lung, and Blood Institute, National Institutes of Health
2002-present	Faculty, Robert Wood Johnson Clinical Scholars Program, UNC-Chapel Hill
2003-present	Director, Program on Health Disparities, Cecil G. Sheps Center for Health Services Research, University of North Carolina at Chapel Hill
2004-present	Senior Research Fellow, Sheps Center for Health Services Research, Chapel Hill, NC
2004-present	Adjunct Associate Professor, Department of Epidemiology and Biostatistics, School of Public Health, University of North Carolina at Chapel Hill, Chapel Hill, NC
2004-present	Associate Professor, Department of Social Medicine and Medicine, School of Medicine, University of North Carolina at Chapel Hill, Chapel Hill, NC

#### **Honors**

1987	Louis and Rachel Rudin Foundation Scholarship, Albert Einstein College of Medicine
1991	Alpha Omega Alpha Society, Albert Einstein College of Medicine
1995	Hugh Dwyer Award for Clinical Excellence, Yale University School of Medicine
1997-1999	Fellow, Association of American Medical Colleges Health Services Research Institute
2000	David E. Rogers Junior Faculty Education Award, "Reaching the Unreached: Research participation and underserved populations", Society of General Internal Medicine
2003-2007	Jefferson-Pilot Fellowship in Academic Medicine
2002-2005	Health Disparities Scholar, National Center for Minority Health and Health Disparities

#### **B. Selected peer-reviewed publications (in chronological order).**

1. Corbie-Smith G "The continuing controversy of the Tuskegee Syphilis Study: Implications for clinical research," *American Journal of Medical Sciences*, January 1999, Vol. 317, 1: pp5-8.



2. Corbie-Smith G, Frank E, Nickens H, Elon L. "Prevalence and correlates of ethnic harassment in the U.S. Women Physicians' Health Study" *Academic Medicine*, June 1999, Vol. 74, 6: pp695-701
3. Corbie-Smith G, Thomas S, Williams M, Moody-Ayers. "Attitudes and beliefs of African Americans toward participation in medical research" *JGIM*, September 1999, Vol. 14, p537-546
4. Corbie-Smith G, Frank E, Nickens H, "The Intersection of race, gender and primary care in US Physicians: Results from the Women Physicians' Health Study" *Journal of the National Medical Association*, October 2000, Vol. 92, p472-480
5. Corbie-Smith, G, Arriola, KJ. A legacy of distrust: Research, ethics and Black Americans. In: Braithwaite RL, Taylor SE, editors. *Health Issues in the Black Community*, 2<sup>nd</sup> edition, 2001, pg489-502
6. Bussey-Jones, J and Corbie-Smith, G, Ethnicity in women physicians (book chapter). In: Bowman, M and Frank, E editors. *Women In Medicine: Career and Life Management* (3<sup>rd</sup> edition), Springer, 2001
7. Frank E, Kunovich-Frieze T, Corbie-Smith G, "Characteristics of Women Internists" *Medscape General Medicine*. 4(1):11, 2002 Mar 18.
8. Corbie-Smith G, Flagg EW, Doyle JP, O'Brien MA, "The Influence of a usual source of care on differences by race/ethnicity in receipt of preventive services" *JGIM*, June 2002, Vol17, p 458-464.
9. Brady D, Corbie-Smith G, Branch W, "What's important to you?": The use of narratives to promote self-reflection and to understand the experiences of medical residents" *Annals of Internal Medicine*, August 2002, Vol. 137, p220-223
10. Corbie-Smith G, Thomas SB, St. George DM. "Distrust, race and research" *Archives of Internal Medicine*, November 2002; 162:2458-2463
11. Corbie-Smith G, Viscoli C, Kernan W, Brass L, Sarrel P, Horwitz R, "Influence of race, clinical and other sociodemographic features on trial participation" *Journal of Clin Epi*, April 2003; 56:304-309
12. Corbie-Smith G, St George DM, Moody-Ayers S, Ransohoff DF, "Adequacy of reporting race/ethnicity in clinical trials in areas of health disparities" *Journal of Clin Epi*, May 2003; 56:416-420.
13. Corbie-Smith G, Ammerman A, Katz M, St. George D. M., Blumenthal C, Washington C, Weathers B, Keyserling T, Switzer B, "Trust, benefit, satisfaction and burden in a randomized controlled trial to reduce cancer risk through African American churches using a community-based participatory research approach" *JGIM*, July 2003; 18:531-541.
14. Genao I, Bussey-Jones J, Corbie-Smith G, Brady D, "Building the case for cultural competence" *American Journal of Medical Sciences*, Sept 2003; 326(3):136-40.
15. Ammerman A, Corbie-Smith G, St. George D. M., Weathers B, Washington C, Research expectations among African American church leaders in the PRAISE! Project: A randomized trial guided by community-based participatory research, *AJPH*, October 2003; 93(10):1720-1727.
16. Corbie-Smith G, Miller W, Ransohoff DF "Interpretations of 'appropriate' minority inclusion in clinical research", *American Journal of Medicine*, Feb. 2004; 116(4):249-252.
17. Torke AM, Corbie-Smith G, Branch WT. "African American patients' perspectives on medical decision making", *Archives of Internal Medicine*, March 2004; 164(5):525-530.
18. Hutchinson AB, Corbie-Smith G, Thomas SB, DelRio C, Understanding the patient's perspective on innovative approaches to HIV counseling & testing: Results from qualitative research in a high risk population, *Journal of AIDS Education and Prevention*, April 2004, 16(2):101-114.
19. Sengupta S., Strauss R., Corbie-Smith, G., Thrasher, A., "What can the elderly do to protect themselves from the flu in addition to getting a flu vaccination?", *AJPH*, June 2004, 94(6):905-906.
20. Corbie-Smith G, Moody-Ayers S, Thrasher A, "Closing the circle: minority inclusion in research and reduction of health disparities, *Archives of Internal Medicine*, July 2004, 164(13):1362-1364
21. Fouad M, Corbie-Smith G, Curb D, Howard B, Mouton C, Simon M, Talavera G, Thompson J, Wang CY, White C, Young R. "Special Population Recruitment for the Women's Health Initiative: Successes and Limitations" *Controlled Clinical Trials*, August 2004, 25(4):335-52
- 22.

23. **Corbie-Smith, Giselle**

24. Sengupta S, Corbie-Smith G, Thrasher A, Strauss R, "African American Elders' Perceptions of the influenza vaccine in Durham, North Carolina." *North Carolina Medical Journal*, 2004, 65(4):194-199
25. Henderson SJ, Bernstein LB, St. George DM, Doyle JP, Paranjape A, Corbie-Smith G; Older women and HIV: How much do they know and where are they getting their information? *Journal of the American Geriatrics Society*, Sept 2004, 52(9):1549-1553
26. Horner RD, Salazar W, Geiger J, Bullock K, Corbie-Smith G, Cornog M, Flores G; Changing healthcare professionals' behaviors to eliminate disparities in healthcare: What do we know? How might we proceed? *American Journal of Managed Care*, Sept 2004, 10:SP12-SP19

**C. Research Support.****Ongoing Research Support**

*Carolina-Shaw Partnership for the Elimination of Health Disparities - Project EXPORT*

Role: Co-Investigator (PI: Godley)

Agency: National Center on Minority Health and Health Disparities

Grant # 1P60 MD000244

Type: Program project grant, 10/1/2002-9/31/2007

The goal of this project is to work with Black churches to develop and pilot test a registry of minority community members who are interested in being contacted about future research participation in cancer studies; and to engage in outreach to the scientific community to identify and address investigator specific barriers to minority recruitment.

**Learning about Research in North Carolina (LeARN)**

Role: Principal Investigator

Agency: NIH/Human Genome Research Institute/ELSI

Grant # R01 HG002830, 6/13/2003-5/31/2006

The goal of this project is to conduct a telephone survey to understand participants' views of genetic variation research and their perceptions about the causes of colorectal cancer.

**Barriers to African American Participation in Research**

Role: Principal Investigator

Agency: National Heart, Lung, Blood Institute

Type: Mentored Research Scientist Career Development Award; 9/1999-1/2005

Grant #: K01 HL04039 (PI: Corbie-Smith)

The goals of this project are to define the barriers to participation in clinical trials faced by African American patients and to assess the knowledge, attitudes, beliefs and practices of investigators toward recruitment and retention of African Americans in clinical research.

**Overcoming Barriers to African American Participation in Research**

Role: Principal Investigator

Agency: Robert Wood Johnson Foundation

Type: Minority Medical Faculty Development Program; 1/2001-6/2005

Grant #: 038407 (PI: Corbie-Smith)

The research goal of this project is to assess the knowledge, attitudes, beliefs and practices of investigators toward recruitment and retention of African Americans in clinical research and design an intervention to increase participation of African Americans in research.

**Research Training: Health Care Quality and Patient Outcomes**

Role: Mentor (PI: Mark)

Agency: NINR

Type: Training grant, 9/30/04-7/31/09

Grant #: T32NR08856

The purpose of this institutional training grant is to provide research training to 10 pre-doctoral trainees and 6 post-doctoral fellows in the area of quality health care and patient outcomes.

**Completed Research Support**

*End-of-Life Care in the African-American Community: Exploring Hospice Use*

Role: Principal Investigator/Mentor; (Co-PI: Reynolds)

Agency: UNC Program on Ethnicity, Culture and Health Outcomes

Type: Pilot study grant; 12/2002-11/2003

The goal of this project is to define the barriers and facilitators to use of hospice care among African Americans.

*Assessment of Cross-Cultural Medicine Curriculum and its Impact on Students' Level of Knowledge on Cultural Competence*

Role: Co-investigator

Agency: Emory Medical Care Foundation

Type: Intramural Research; 11/1/2001-10/31/2003

Grant #: 00005 (PI: Genao)

The goal of this project is to conduct a randomized control trial of a educational intervention to improve the knowledge of cross cultural issues in medicine.

*Influences on Vaccine Use in Elderly African-Americans*

Role: Principal Investigator of Pilot Study

Agency: National Institute on Aging

Type: Pilot study grant; 9/2001-6/2003

Grant # of Parent Study: NR04716 (PI: Mutran)

The goal is to define the barriers and facilitators to African American elders' use of influenza vaccines.

*Sexual Practices and Knowledge of HIV Risk among Older Women in an Inner-City Primary Care Clinic*

Role: Co-investigator

Agency: Emory Medical Care Foundation

Type: Intramural Research; 8/1/2001-7/31/2002

Grant #: 00002 (PI: Bernstein)

The goals of this project are to describe knowledge, perceived and actual risk of HIV among postmenopausal African American women seeking care in a public hospital primary care clinic.

*An Assessment of the Acceptability of a Rapid HIV Test in an Underserved Population*

Role: Co-Investigator

Agency: Centers for Disease Control and Prevention

Type: Research Grant; 9/1999-9/2001

Grant #: UR3/CCU416463-02-02 (PI: del Rio)

The goals of this project were to explore the attitudes and beliefs of African Americans toward HIV testing and to determine whether an opt-out strategy of rapid vs. standard HIV testing would be feasible in an urban hospital.

*Women's Health Initiative*

Role: Co-Investigator

Agency: National Institutes of Health

Type: NIH Contract; 12/1997-6/2000

Grant #: N01-WH-3211 (PI: McNagny)

Provided guidance in the recruitment, retention and adherence of participants at the Atlanta site for this longitudinal cohort and national multi-center clinical trial aimed at understanding the role of estrogen therapy, low fat diet and calcium/Vitamin D for multiple outcomes in women.

BIOGRAPHICAL SKETCH			
NAME		POSITION TITLE	
Jeff Dangl		John N. Couch Professor of Biology	
EDUCATION/TRAINING			
INSTITUTION AND LOCATION	DEGREE (if applicable)	YEAR(s)	FIELD OF STUDY
Stanford University, Stanford, Ca.	BAS	1981	Bio Sci/English-Modern Lit.
Stanford University, Stanford, Ca.	MS	1981	Bio Sci
Stanford University, Stanford, Ca.	PhD	1986	Genetics / Immunology

#### A. Positions and Honors.

##### Research and Professional Experience:

- 1978-1981:** Honors undergraduate research program; Departments of Biology and Genetics; Stanford University  
**Topic:** T-cell ontogeny via cell-surface marker analysis, Prof. Leonard Herzenberg, mentor.
- 1981-1986:** PhD student, Immunogenetics; Department of Genetics; Stanford University Medical School; Prof. Leonard A. Herzenberg, advisor  
**Dissertation:** Correlation of isotype with segmental flexibility and complement fixation among families of immunoglobulins containing identical combining sites
- 1986-1989:** NSF Post-doctoral fellowship; Department of Biochemistry; Max-Planck-Institut für Züchtungsforschung; Köln, Germany; Prof. Klaus Hahlbrock, mentor  
**Project:** Identification of stress- and disease-responsive regulatory elements from plant phenylpropanoid pathway genes
- 1989-1995:** Group Leader (Assistant Professor equivalent); Max-Delbrück-Laboratorium in der MPG; Köln, Germany  
**Research Topics:** *Arabidopsis* as a model to genetically identify and isolate loci necessary for disease resistance responses; *Arabidopsis* genomics; Mechanisms of plant cell death; *Pseudomonas syringae* genomics focused on plant pathogenesis.
- Jan. 1995-** Associate Professor, Department of Biology; Member, Curriculum in Genetics and Molecular Biology; University of North Carolina, Chapel Hill, NC (**Research Topics** as above). **From July, 2000:** John N. Couch Distinguished Professor. **From May 2001:** Adjunct Professor of Microbiology and Immunology, UNC-CH School of Medicine. **From 2001:** Associate Director, Carolina Center for Genome Sciences.

##### Awards:

Prize for Young Researchers, State of Nord-Rhein-Westfalen, Germany, 1991  
National Science Foundation Plant Molecular Biology post-doctoral fellow, 1986-89  
John L. Sanders Distinguished Undergraduate Teaching and Service Award, UNC 1998  
Elected member, "The Leopoldina", The German Academy of Sciences, 2003  
Elected, AAAS Fellow (2005)

##### Other Professional Activities:

**Editorial Boards:** *Cell* (from 1998) *The Plant Journal* (from 1990, Co-editor from 1995) *Molecular Plant-Microbe Interaction* (from 1995; Senior Editor 1998-2000), *Trends in Plant Sciences* (from 1995), *Current Opinion in Plant Biology* (from 1997), *PLoS Biology* (2003-2005), *PLoS Pathogens* (from 2005).

**Additional manuscript reviews for:** *Science, Nature, PNAS, Plant Cell, EMBO Journal, Genetics, Trends in Microbiology, Trends in Genetics, Plant Physiology, Nature Biotech., Molec. Microbiol., PLoS Biology.*

**Grant Reviews for:** NIH (Genetics, Variation and Evolution Study Section, 2004-present); NSF (Eukaryotic Genetics Panel, 1996-2000); NIH (CDF-1 study section 2001-2004); USDA; DOE; DFG (Germany); BBSRC (United Kingdom); BARD (Israel-USA); Austrian Research Council; Marsden Fund (NZ); Human Frontiers Science Program; Swiss National Funds

**Member:** North American Arabidopsis Steering Committee (NAASC) 1997-2000. National Research Council (NRC) Plant Genome Comm. (2002; Chair); NRC Board of Life Sciences, 2003-2006. The Arabidopsis Information Resource (TAIR) Advisory Board, 1999-present.

**Scientific Advisory Boards:** Syngenta Biotechnology Inst., RTP, NC 1996-present. Torrey Mesa Research Inst., La Jolla, 1999-2003; CropSolution, RTP, N.C., 2001-present.

**Selected peer-reviewed publications (in chronological order).** Do not include publications submitted or in preparation. **(2001-2004; from 103 total; PR is peer reviewed)**  
Dangl, JL and JDG Jones (2001) Plant pathogens and integrated defence responses to infection. *Nature* **411**, 826-833.

Staskawicz, BJ, MB Mudgett, JL Dangl and JE Galan (2001) Common and contrasting mechanisms of pathogen virulence and host resistance in plant and animal disease. *Science* **292**, 2285-2289.

Torres, MA, JL Dangl and JDG Jones (2002) *Arabidopsis* gp91<sup>phox</sup> homologues *AtrbohD* and *AtrbohF* are required for accumulation of reactive oxygen intermediates in the plant defense response. *Proc. Natl. Acad. Sci., USA* **99**, 523-528. **PR**

Tornero, P, R Chao, W Luthin, S Goff and JL Dangl (2002) Large scale structure-function analysis of the Arabidopsis *RPM1* disease resistance protein. *Plant Cell* **14**, 435-450. **PR**.

Mackey, D, BF Holt III, A Wiig and JL Dangl (2002) RIN4 interacts with *Pseudomonas syringae* Type III effector molecules and is required for RPM1-mediated disease resistance in Arabidopsis. *Cell* **108**, 743-754. **PR**

Tornero, P, P Merritt, A Sadanandom, K Shirasu, R Innes and JL Dangl (2002) *RAR1* and *NDR1* contribute quantitatively to the function of Arabidopsis disease resistance genes in both simple and non-linear pathways. *Plant Cell* **14**, 1005-1015 **PR**.

Holt III, BF, DC Boyes, M. Ellerstrøm, N Siefers, A Wiig, S Kauffman, MR Grant and JL Dangl (2002) An evolutionarily conserved mediator of plant disease resistance gene function is required for normal Arabidopsis development. *Developmental Cell* **2**, 807-817. **PR**

Mackey, D, Y Belkadir, JM Alonso, JR Ecker and JL Dangl (2003) Arabidopsis RIN4 is a target of the type III virulence effector AvrRpt2 and modulates RPS2-mediated resistance. *Cell* **112**, 379-389. **PR**

Epple, P, AA Mack, VRF Morris and JL Dangl (2003) Antagonistic control of oxidative stress-induced cell death in Arabidopsis by two related, plant specific zinc finger proteins. *Proc. Natl. Acad. Sci., USA* **100**, 6831-6836. **PR**

Rohmer, L., S Kjemtrup, P Marchesini and JL Dangl (2003) Nucleotide sequence, functional characterization and evolution of pFKN, a virulence plasmid in *Pseudomonas syringae* pathovar *maculicola*. *Molec. Microbiol.* **47**, 1545-1562. **PR**

Hubert, DA, P Tornero, Y Belkadir, P Krishna, A Takahashi, K Shirasu and JL Dangl (2003) Cytosolic HSP90 associates with and modulates the Arabidopsis RPM1 plant disease resistance protein. *EMBO J* **22**, 5679-5689. **PR**

Desveaux, D, G Subramanian, C Després, J-N Mess, C Lévesque, PR Fobert, JL Dangl, and N Brisson (2004) A “Whirly” plant transcription factor is a component of the SA-signaling pathway and is required for maximal disease resistance. *Developmental Cell* **6**, 229-240. **PR**

Chang, JH, AK Goel, SR Grant and JL Dangl (2004) Wake of the flood: ascribing functions to the wave of type III effector proteins of phytopathogenic bacteria. *Curr. Opin. Microbiol.* **7**, 11-18.

Rohmer, L, DS Guttman and JL Dangl (2004) Diverse evolutionary mechanisms shape the type III effector virulence factor repertoire in plant pathogenic *Pseudomonas syringae*. *Genetics* **167**, 1341-1360. **PR**

Eulgem, T, VJ Weigman, H-S. Chang, JM McDowell, EB Holub, T Zhu and JL Dangl (2004) Gene expression signatures from three genetically separable *R* gene signaling pathways for downy mildew resistance *Plant Physiol.* **135**, 1129-1144. **PR**

Singer, AU, D Desveaux, L Betts, JH Chang, Z Nimchuk, SR Grant, JL Dangl and J Sondek (2004) Crystal structures of the type III effector protein AvrPphF and its chaperone reveal residues required for plant pathogenesis. *Structure* **12**, 1669-1681. **PR (cover)**

Belkadir, Y, Z Nimchuk, DA Hubert, D Mackey and JL Dangl (2004) Arabidopsis RIN4 negatively regulates disease resistance mediated by RPS2 and RPM1 downstream or independent of the NDR1 signal modulator, and is not required for the virulence functions of bacterial type III effectors AvrRpt2 or AvrRpm1. *Plant Cell* **16**, 2822-2835. **PR**

### C. Research Support.

#### **ACTIVE**

NIH General Medical Sciences  
1-R01-GM057171-01

P.I.: Dr. Jeffery L. Dangl

5/1/02-4/30/06

#### **Title: Genetics of Programmed Cell Death in Arabidopsis**

Our current goals are to characterize the LSD1 protein, localize it, and determine how it functions. We also are characterizing two LSD1 relatives, and four loci that are suppressors of the *lsd1* mutant phenotype.

#### **ACTIVE**

NSF2010-IBN-0114795

P.I.: Dr. Jeffery L. Dangl

9/1/01-8/31/05

#### **Title: The Arabidopsis RPM1 Disease Resistance Signaling Network**

The goals of this work are to understand the nature of the protein complex anchored by the RPM1 NB-LRR R gene product.

#### **ACTIVE**

DE-FG05-95ER20187

P.I.: Dr. Jeffery L. Dangl

7/1/01-6/30/05

DOE Div. of Energy Biosci.

#### **Title: Functions of *Pseudomonas syringae* avirulence genes in plant disease and disease resistance.**

The goals of this project are aimed at understanding how Type III effector proteins cause disease in susceptible plants. We have found a novel locus required for response to AvrB in *rpm1* genotypes. We have identified a protein complex containing either AvrB or AvrRpm1 in *rpm1* plants. There is no overlap, as this submission is concerned with Type III effector discovery on a large scale. My DOE grant is very focused on AvrB and AvrRpm1 mechanisms of virulence.

Renewal funded from 7/1/05 to 6/30/09.

**ACTIVE**

CSREES 2002-35301-12059  
USDA NRICGP

P.I.: Dr. Jeffery L. Dangl

9/1/02-8/31/05

**Title: Genetic Control of Downy Mildew Resistance in Arabidopsis**

We study the NB-LRR genes encoded by RPP7 and RPP8 in this work, We focus on genetic screens to isolate novel signal transduction loci required for their functions, since we previously showed that the known signaling loci do not.

**ACTIVE**

NSF- IBN-0077887

P.I.: Dr. Jeffery L. Dangl

8/1/03-9/30/06

**Title: Functional Genomics of the Arabidopsis gp91-phox NADPH Oxidase Family**

We focus on understanding how the NADPH oxidase controls the oxidative burst associated with R function.

**ACTIVE**

NIH General Medical Sciences  
1 RO1GM066025-01

P.I.: Dr. Jeffery L. Dangl

1/1/04-12/31/08

**Title: Diversity and evolution of *P. syringae* type III effectors**

We focus on the isolation, by a saturation, high-throughput screen, of all the type III effectors from 16 evolutionarily diverse *P. syringae* strains. We will test all of these for translocation into plants cells. We study the evolution of the genes and we will begin to define functions for them using: 1) Transcriptional profiling of their effects on plant gene expression 2) Genetic screens in Arabidopsis 3) Enhancement of virulence of a weakly pathogenic strain of *P. syringae*.

**ACTIVE**

NSF-DEB-0412599

P.I.: Dr. Amy Charkowski (U Wisconsin) 9/15/04-9/14/07

**Title: Genome Enabled analysis of Natural Populations of Pathogens on Natural Hosts.**

We use the broad host range bacterial pathogen *Erwinia caratovora* to understand the diversity and deployment of type III effector genes.

**PENDING Competitive Renewal for:**

**NSF-0520003**

P.I.: Dr. Jeffery L. Dangl

9/1/05-8/31/09

Arabidopsis 2010

**Title:** The Arabidopsis RPM1 Signaling Network: A paradigm for NBS-LRR mediated plant disease resistance. This is a renewal of the above. The goals of this work are to understand the nature of the protein complex anchored by the RPM1 NB-LRR R gene product.

BIOGRAPHICAL SKETCH			
NAME Nikolay Dokholyan		POSITION TITLE Assistant Professor	
EDUCATION/TRAINING			
INSTITUTION AND LOCATION	DEGREE <i>(if applicable)</i>	YEAR(s)	FIELD OF STUDY
Moscow Institute of Physics and Technology	B.S.	1992	Physics
Moscow Institute of Physics and Technology	M.S.	1994	Physics
Boston University	Ph.D.	1999	Physics
Harvard University	NIH Postdoc	1999-2002	Biophysics

### **A. Positions and Honors.**

#### **Positions and Employment**

1988-1989 Teacher of Physics and Mathematics, Special Physics and Mathematics High School (at Moscow Institute of Physics and Technology), Moscow, Russia

1999 Research Associate, Physics Department, Boston University.

1999-2002 National Institutes of Health Postdoctoral Fellow, Department of Chemistry and Chemical Biology, Harvard University, Cambridge USA. Sponsor: E. I. Shakhnovich.

2002-present Assistant Professor, Department of Biochemistry and Biophysics, University of North Carolina at Chapel Hill, School of Medicine

2002-present Carolina Center for Genome Sciences Faculty

2002-present Bioinformatics Program Faculty

2002-present Molecular and Cellular Biophysics Program Faculty

#### **Other Experience and Professional Memberships**

1994-2003 American Physical Society

2001-2003 American Association for the Advancement of Science

2003 U.S. Civilian Research and Development Foundation, Review Panel

2004-present Biophysical Society

2004 Co-organizer, Triangle Biophysics Symposium 2004

2004 US Army Medical Research and Materiel Command (USAMRMC), Review Panel

2004 Co-organizer, Triangle Biophysics Symposium 2004

2004-2005 Reviewer, Louisiana Board of Regents Research and Development Grants

2005 Member, Biochemistry & Biophysics comprehensive examination committee

#### **Honors**

1990-1994 Recipient of Honorary Stipend, Moscow Institute of Physics and Technology

1994 "Red Diploma" 1994 (in Former USSR "Red Diploma" is awarded for outstanding achievements)

1995, 1998, 2001 NSF Young Scientist Travel Award

1998-1999 NIH Molecular Biophysics Predoctoral Traineeship

1999-2002 NIH postdoctoral fellowship

2004 The University of North Carolina at Chapel Hill IBM Junior Faculty Development Award

2004-2006 Basil O'Connor Starter Scholar Research Award

### **B. Selected peer-reviewed publications (in chronological order).**

(Publications selected from 52 peer-reviewed publications and 2 book chapters)

**N. V. Dokholyan**, S. V. Buldyrev, S. Havlin, and H. E. Stanley, "Distribution of base pair repeats in coding and noncoding DNA sequences." *Phys. Rev. Lett.* 79: 5182-5185 (1997)



- N. V. Dokholyan, Y. Lee, S. V. Buldyrev, S. Havlin, H. E. Stanley, and P. King, "Scaling of the distribution of shortest paths in percolation." *J. Stat. Phys.* 93: 603-613 (1998)
- N. V. Dokholyan, S. V. Buldyrev, H. E. Stanley, and E. I. Shakhnovich, "Molecular dynamics studies of folding of a protein-like model." *Folding & Design* 3: 577-587 (1998)
- N. V. Dokholyan, S. V. Buldyrev, H. E. Stanley, and E. I. Shakhnovich, "Identifying the protein folding nucleus using molecular dynamics." *J. Mol. Biol.* 296: 1183-1188 (2000)
- N. V. Dokholyan and E. I. Shakhnovich, "Understanding hierarchical protein evolution from first principles." *J. Mol. Biol.* 312: 289-307 (2001)
- J. M. Borreguero, N. V. Dokholyan, S. V. Buldyrev, H. E. Stanley, and E. I. Shakhnovich, "Thermodynamics and folding kinetics analysis of the SH3 domain from Discrete Molecular Dynamics." *J. Mol. Biol.* 318: 863-876 (2002)
- N. V. Dokholyan, Lewyn Li, Feng Ding, and E. I. Shakhnovich, "Topological determinants of protein folding." *Proc. Natl. Acad. Sci. USA* 99 8637-8641 (2002)
- M. Vendruscolo, N. V. Dokholyan, E. Paci and M. Karplus, "A small-world view of the amino acids that play a key role in protein folding." *Phys. Rev. E* 65: 061910 (2002)
- N. V. Dokholyan, B. Shakhnovich, and E. I. Shakhnovich, "Expanding protein universe and its origin from biological Big Bang" *Proc. Natl. Acad. Sci. USA* 99: 14132-14136 (2002)
- F. Ding, N. V. Dokholyan, S. V. Buldyrev, H. E. Stanley, and E. I. Shakhnovich, "Direct observation of folding transition state ensemble of C-Src SH3 domain in molecular dynamics simulations." *Biophys. J.* 83: 3525-3532 (2002)
- F. Ding, N. V. Dokholyan, S. V. Buldyrev, H. E. Stanley, and E. I. Shakhnovich, "Molecular dynamics simulation of C-Src SH3 aggregation suggests a generic amyloidogenesis mechanism." *J. Mol. Biol.* 324: 851-857 (2002)
- B. Shakhnovich, N. V. Dokholyan, C. DeLisi, and E. I. Shakhnovich, "Functional fingerprints of folds: Evidence for correlated structure-function evolution" *J. Mol. Biol.* 326: 1-9 (2003)
- F. Ding, J. M. Borreguero, S. V. Buldyrev, H. E. Stanley, and N. V. Dokholyan, "A mechanism for the alpha-helix to beta-hairpin transition", *Prot.: Struct., Func., Genet.*, 53: 220-228 (2003)
- E. J. Deeds, N. V. Dokholyan, and E. I. Shakhnovich, "Protein evolution within a structural space" *Biophys. J.* 85: 2962-2972 (2003)
- J. Pei, N. V. Dokholyan, E. I. Shakhnovich, and N. V. Grishin, "Modeling protein evolution: protein design method and its applications." *Proc. Natl. Acad. Sci. USA*, 100: 11361-11366 (2003)
- N. V. Dokholyan, "What is the protein design alphabet?" *Prot.: Struct., Func., Bioinf.*, 54: 622-628 (2003)
- S. Khare, F. Ding, and N. V. Dokholyan, "Folding of Cu, Zn superoxide dismutase and Familial Amyotrophic Lateral Sclerosis." *J. Mol. Biol.* 334: 515-525 (2003)
- M. I. Marques, J. M. Borreguero, H. E. Stanley, and N. V. Dokholyan, "A possible mechanism for cold denaturation of proteins at high pressure" *Phys. Rev. Lett.*, 91: 138103 (2003)
- J. Khatun, S. D. Khare, and N. V. Dokholyan, "Can contact potentials reliably predict stability of proteins?" *J. Mol. Biol.* 336: 1223-1238 (2004).
- G. Tiana, B. E. Shakhnovich, N. V. Dokholyan, and E. I. Shakhnovich, "Imprint of evolution on protein structures" *Proc. Natl. Acad. Sci. USA* 101: 2846-2851 (2004).
- S. Peng, F. Ding, B. Urbanc, S. V. Buldyrev, L. Cruz, H. E. Stanley, and N. V. Dokholyan, "Discrete molecular dynamics simulations of peptide aggregation" *Phys. Rev. E*, 69: 041908 (2004)
- J. M. Borreguero, F. Ding, Sergey V. Buldyrev, H. E. Stanley, and N. V. Dokholyan, "Multiple folding pathways of the SH3 domain" *Biophys. J.*, 87: 521-533 (2004)
- B. Urbanc, L. Cruz, F. Ding, D. Sammond, S. Khare, S. V. Buldyrev, H. E. Stanley, and N. V. Dokholyan, "Molecular dynamics simulation of Amyloid  $\beta$  dimer formation" *Biophys. J.*, 87: 2310-2321 (2004)
- S. D. Khare, M. Caplow, and N. V. Dokholyan, "The rate and equilibrium constants for a multi-step reaction sequence for the aggregation of superoxide dismutase in ALS" *Proc. Natl. Acad. Sci. USA* 101: 15094-15099 (2004)

**Dokholyan, Nikolay**

- R. D. S. Dixon, Y. Chen, F. Ding, S. D. Khare, K. C. Prutzman, M. D. Schaller, S. L. Campbell, and **N. V. Dokholyan**, "Reconstructing folding intermediates of the focal adhesion targeting domain of Focal Adhesion Kinase" *Structure*, 12: 2161-2171 (2004)
- F. Ding, Sergey V. Buldyrev, and **N. V. Dokholyan**, "Folding Trp-cage to NMR resolution native structure using a coarse-grained protein model" *Biophys. J.*, 88: 147-155 (2005)
- N. V. Dokholyan**, "The architecture of the protein domain universe" *Gene*, *in press* (2005)

**C. Research Support****Completed Research Support**

5 F32GM20251-02 Dokholyan (PI)/Shakhnovich (sponsor)

09/01/99 – 08/31/02

NIH/NRSA

Towards more realistic design of proteins

The goal of this study was to develop theoretical and computational framework for protein design.

Role: Post-Doctoral Investigator

**Current Research Support**

3-12736 Dokholyan

06/01/03 – 05/30/05

The University of North Carolina at Chapel Hill Research Council Grant

Uncovering the link between SOD1 mutations and Familial Amyotrophic Lateral Sclerosis

The goal of this study is to understand the link between mutations in Cu,Zn superoxide dismutase (SOD1) protein and FALS. It is a small award (\$4,000) to initiate computational SOD1 studies.

Role: Principal Investigator

5-FY03-155 Dokholyan

02/01/04 – 01/31/06

March of Dimes Birth Defect Foundation

Identifying the mechanisms of mutant SOD1 aggregation and the link to familial ALS

The goal of this study is to identify mutant SOD1 sequence propensities for aggregation, i.e. to identify the aggregation hot-spots of SOD1 (AIM 1). "Hot-spot" sequence fragments will be used as a strategy to construct aggregates (AIM 2).

Role: Principal Investigator

MDA3720 Dokholyan

01/01/04 – 12/31/06

Muscular Dystrophy Association

Uncovering the origins of mutant SOD1 toxicity in familial ALS

The goal of this study is to understand the origins of mutant SOD1 toxicity in familial ALS by *in silico* studies of FALS mutations effects on the stability of SOD1 (AIM 1), and to computationally reconstruct the molecular structure of stable aggregates by developing a hybrid computational approach (AIMs 2 and 3).

Role: Principal Investigator

R01 CA084480-04A1 Chaney

04/01/04 – 03/30/09

NIH

Error-Prone Replicative Bypass of Platinum Adducts

The goal of this study is to utilize molecular dynamics to characterize the impact of cisplatin and oxaliplatin adducts on DNA flexibility and to characterize the interaction of those adducts with polymerase beta.

Role: Co-Investigator

MCB040055 Dokholyan

07/01/04 – 06/30/05

NPACI

Study of the protein structural ensembles generated by partial distance constraints with Discrete Molecular Dynamics Simulations

The goal of this study is to utilize molecular dynamics to characterize ensembles of protein conformations that satisfy a set of inter-atomic distance constraints derived from experimental structural determination studies. This grant provides resources for simulations on supercomputers provided by the National Partnership for Advanced Computational Infrastructure (NPACI).

Role: Principal Investigator

### BIOGRAPHICAL SKETCH

NAME	POSITION TITLE
Robert Joseph Duronio	Associate Professor

EDUCATION/TRAINING			
INSTITUTION AND LOCATION	DEGREE (if applicable)	YEAR(s)	FIELD OF STUDY
Massachusetts Institute of Technology, Cambridge, MA	B.S.	1986	Biology
Washington University, St. Louis, MO	Ph.D.	1991	Molecular Biology & Biochemistry
University of California, San Francisco	Postdoctoral	1996	Developmental Genetics

#### **POSITIONS:**

1986-1991	Graduate Research with Dr. Jeffrey I. Gordon, Head, Department of Molecular Biology and Pharmacology, Washington University, St Louis, MO.
1992-1996	Post-doctoral research with Dr. Patrick H. O'Farrell, Professor of Biochemistry and Biophysics, University of California, San Francisco, CA.
1992-1995	Damon Runyon-Walter Winchell Cancer Research Fund Postdoctoral Fellow
1996-2002	Assistant Professor of Biology and Member Lineberger Comprehensive Cancer Center and Program in Molecular Biology and Biotechnology, University of North Carolina, Chapel Hill, NC.
2002-present	Associate Professor of Biology and Member Lineberger Comprehensive Cancer Center and Program in Molecular Biology and Biotechnology, University of North Carolina, Chapel Hill, NC.
2003-present	Director, Curriculum in Genetics and Molecular Biology, University of North Carolina, Chapel Hill, NC.

#### **HONORS:**

1988	Josiah P. Macy, Jr. Predoctoral Fellowship.
1989	Spencer T. and Ann W. Olin Foundation Fellowship.
1992	Damon Runyon-Walter Winchell Cancer Research Fund Postdoctoral Fellowship
1997	Damon Runyon Scholar Award
2000	NSF Career Award
2003	UNC Ruth and Phillip Hettleman Prize for Artistic and Scholarly Achievement

#### **PROFESSIONAL ACTIVITIES:**

1998-2000, 2002	Panel Member, Molecular Genetics-1 Study Section, US AMRC Breast Cancer Research Initiative.
2001	Ad hoc Panel Member, NIH CDF-3 Study Section.
2001-2003	Ad hoc outside reviewer for National Science Foundation.
2004	Member, NIH CDF-2 Special Emphasis Panel
2004	Ad hoc Member, Development, Differentiation and Cancer Peer Review Committee, American Cancer Society

#### **SELECTED PUBLICATIONS (34 out of 44 total):**

- Duronio, R.J.**, Towler, R.J., Heuckeroth, R.O., and Gordon, J.I. Disruption of the yeast *N*-myristoyltransferase gene causes recessive lethality, *Science*, **243**, 796-800 (1989).
- Duronio, R.J.**, Jackson-Machelski, E., Heuckeroth, R.O., Olins, P.O., Devine, C.S., Yonemoto, W., Slice, L.W., Taylor, S.S., and Gordon, J.I. Protein *N*-myristoylation in *Escherichia coli*:

3. Reconstitution of a eukaryotic protein modification in bacteria, *Proc. Natl. Acad. Sci. USA* 87, 1506-1510 (1990).
4. **Duronio, R.J.**, Rudnick, D.A., Adams, S.P., Towler, D.A., and Gordon, J.I. Analyzing the substrate specificity of *Saccharomyces cerevisiae* myristoyl-CoA:protein *N*-myristoyl transferase by coexpressing it with mammalian G protein  $\alpha$  subunits in *Escherichia coli*, *J. Biol. Chem.* 266, 10498-10504 (1991).
5. **Duronio, R.J.**, Rudnick, D.A., Johnson, R.L., Linder, M.E., and Gordon, J.I. Reconstitution of protein *N*-myristoylation in *Escherichia coli*, *Methods: A Companion to Methods in Enzymology*, 1, 253-263 (1990).
6. **Duronio, R.J.**, Rudnick, D.A., Johnson, R.L., Johnson, D.R., and Gordon, J.I. Myristic acid auxotrophy caused by mutation of *S. cerevisiae* myristoyl-CoA:protein *N*-myristoyl transferase, *J. Cell. Biol.* 113, 1313-1330 (1991).
7. **Duronio, R.J.**, Gordon, J.I., and Boguski, M.S. Comparative analysis of the  $\beta$ -transducin family with identification of several new members including *PWP1*, a nonessential protein of *Saccharomyces cerevisiae* that is divergently transcribed from *NMT1*, *Proteins* 13, 41- 56 (1992).
8. **Duronio, R.J.**, Reed, S.I., and Gordon, J.I. Mutations in a human myristoyl-CoA:protein *N* myristoyl-transferase cause myristic acid auxotrophy in yeast, *Proc. Natl. Acad. Sci. USA*, 89, 4129-4133 (1992).
9. **Duronio, R.J.**, Knoll, L.J., and Gordon, J.I. Isolation of a *Saccharomyces cerevisiae* long chain acyl CoA synthetase gene (*FAA1*) and assessment of its role in protein *N*-myristoylation, *J. Cell Biol.*, 117, 515-529 (1992).
10. **Duronio, R.J.** and O'Farrell, P.H. Developmental control of a G1-S transcriptional program in *Drosophila*, *Development*, 120, 1503-1515 (1994).
11. **Duronio, R.J.**, O'Farrell, P.H., Xie, J.-E., Brook, A., and Dyson, N. The transcription factor E2F is required for S phase during *Drosophila* embryogenesis, *Genes & Dev.*, 9, 1445-1455 (1995).
12. **Duronio, R.J.** and O'Farrell, P.H. Developmental control of the G1-S transition in *Drosophila*: Cyclin E is a limiting downstream target of E2F, *Genes & Dev.*, 9, 1456-1468 (1995).
13. **Duronio, R.J.**, Brook, A., Dyson, N., and O'Farrell, P.H. E2F-induced S phase requires cyclin E. *Genes & Dev.*, 10, 2505-2513 (1996).
14. **Duronio, R.J.**, Bonnette, P.C., and O'Farrell, P.H. Mutations of the *Drosophila* *dDP*, *dE2F*, and *cyclin E* genes reveal distinct roles for the E2F/DP transcription factor and cyclin E during the G1-S transition. *Mol. Cell. Biol.*, 18, 141-151 (1998).
15. Follette, P.J., **Duronio, R.J.**, and O'Farrell, P.H. Fluctuations in cyclin E levels are required for multiple rounds of endocycle S phase in *Drosophila*. *Curr. Biol.*, 8, 235-238 (1998).
16. **Duronio, R.J.**, Establishing links between developmental signaling pathways and cell-cycle regulation in *Drosophila*. *Curr. Opin. in Genetics & Development*, 9, 81-88 (1999).
17. **Duronio, R.J.**, Meeting report: The eukaryotic nucleus. Published online, June 26, 2000. *BBA (Reviews on Cancer)* 1471, R1-R14 (2000).
18. Myster, D.L. and **Duronio, R.J.**, Cell cycle: To differentiate or not to differentiate. *Curr. Biol.*, 10, R302-R304 (2000).
19. Cox, R.T., McEwen, D.G., Myster, D.L., **Duronio, R.J.**, Loureiro, J., and Peifer, M. (2000). A screen for mutations that suppress the phenotype of *Drosophila* armadillo, the  $\beta$ -catenin homolog. *Genetics*, 155, 1725-1740.
20. Myster, D. L., Bonnette, P. C., and **Duronio, R. J.** (2000) A Role for the DP Subunit of the E2F Transcription Factor in Axis Determination During *Drosophila* Oogenesis, *Development*, 127, 3249-3261.
21. Sullivan, E., Santiago, C., Parker, E.D., Dominski, Z., Yang, X., Lanzotti, D.J., Ingledue, T.C., Marzluff, W.F., and **Duronio, R.J.** *Drosophila* stem loop binding protein coordinates accumulation of mature histone mRNA with cell cycle progression. *Genes & Dev.*, 15, 173-187 (2001).
22. Cayirlioglu, P. and **Duronio, R.J.** Cell Cycle: Flies teach an old dogma new tricks. *Curr. Biol.*, 11, R178-R181 (2001).

**Duronio, Robert**

23. Cayirlioglu, P., Bonnette, P.C., Dickson, M.R., and **Duronio, R. J.** *Drosophila dE2F2 Promotes the Conversion from Genomic DNA Replication to Gene Amplification in Ovarian Follicle Cells.* Development, 128, 5085-5098 (2001).
24. Lanzotti, D.J., Kaygun, H., Yang, X., **Duronio, R.J.**, and Marzluff, W.F. Developmental control of histone mRNA and dSLBP synthesis during *Drosophila* embryogenesis and the role of dSLBP in histone mRNA 3' end processing in vivo. Mol Cell Biol., 22, 2267-2282 (2002).
25. Nouredine, M.A., Donaldson, T. D., Thacker, S.A. and **Duronio, R.J.** *Drosophila Roc1a encodes a RING-H2 protein with a unique function in processing the Hh signal transducer Ci by the SCF E3 ubiquitin ligase.* Dev. Cell 2, 757-770 (2002).
26. Dominski, Z., Yang, X., Raska, C. S., Santiago, C. S., Borchers, C. H., **Duronio, R. J.**, and Marzluff, W. F. 3' end processing of *Drosophila* histone pre-mRNAs: Requirement for phosphorylated dSLBP and co-evolution of the histone pre-mRNA processing system. Mol. Cell. Biol. 22, 6648-6660 (2002).
27. Marzluff, W. F. and **Duronio, R. J.** Histone mRNA expression: Multiple levels of cell cycle regulation and important developmental consequences. Current Opinions in Cell Biology 14, 692-699 (2002).
28. Thacker, S., Bonnette, P. C., and **Duronio, R. J.** The contribution of E2F-regulated transcription to *Drosophila* PCNA function. Curr Biol 13, 53-58 (2003).
29. Cayirlioglu, P. Ward, W. O., Silver Key, S. C., and **Duronio, R. J.** Transcriptional repressor functions of *Drosophila* E2F1 and E2F2 cooperate to inhibit genomic DNA synthesis in ovarian follicle cells. Mol. Cell. Biol. 23, 2123-2134 (2003).
30. Lanzotti, D. J., Kupsco, J. M., Yang, X.-C., Dominski, Z., Marzluff, W. F., and **Duronio, R. J.** *Drosophila* SLBP intracellular localization is mediated by phosphorylation and is required for cell cycle-regulated histone mRNA expression. Mol. Biol. Cell 15, 1112-1123 (2004).
31. **Duronio, R. J.** A Breath of Fresh Air for Cyclin D/Cdk4; Triggering Growth via Hph. Dev Cell. 6, 163-164 (2004).
32. Lanzotti, D. J., Kupsco, J. M., Marzluff, W. F., and **Duronio, R. J.** string<sup>cdc25</sup> and cyclin E are required for patterned histone expression at different stages of *Drosophila* embryonic development. Dev. Biol. 274, 82-93 (2004).
33. Donaldson, T. D. and **Duronio, R. J.** Cancer cell biologist: Myc wins the competition. Curr. Biol. 14, R425-427 (2004).
34. Swanhart, L., Kupsco, J., and **Duronio, R. J.** Developmental Control of Growth and Cell Cycle Progression in *Drosophila*. Methods Mol Biol. 296, 69-94 (2004).
35. Donaldson, T. D., Nouredine, M.A., Reynolds, P. J., Bradford, W., and **Duronio, R.J.** Targeted disruption of *Drosophila Roc1b* reveals functional differences in the Roc subunit of Cullin-dependent E3 Ubiquitin Ligases. Mol. Biol Cell 15, 4892-4903 (2004).

**RESEARCH SUPPORT:****DURONIO, R. J. (Principal Investigator except where noted).****Active:****NSF, MCB-0342847**

4/01/04-3/31/07

Regulated Histone Gene Expression  
During *Drosophila* Development

The goals of this project are to genetically and molecularly characterize the histone pre-mRNA processing machinery and how it is regulated during the cell cycle.

**ACS, RSG-04-179-01-DDC**

7/01/04-6/30/08

Genetic Analysis of SCF E3 Ubiquitin  
Ligase Function in *Drosophila*

The goals of this project are to genetically and biochemically characterize the cell cycle and developmental function of the three *Drosophila* Roc proteins, which are subunits of SCF E3 ubiquitin ligase complexes.

**NIH, R01 GM57859**

7/01/04-6/30/08

Genetic Analysis of E2F Function  
During Development

The major goals of this project are to understand transcriptional regulation of the cell cycle during early *Drosophila* development and to identify new genes that regulate E2F function.

### BIOGRAPHICAL SKETCH

NAME		POSITION TITLE	
Timothy Charles Elston		Associate Professor	
EDUCATION/TRAINING			
INSTITUTION AND LOCATION	DEGREE <i>(if applicable)</i>	YEAR(s)	FIELD OF STUDY
Georgia Institute of Technology	B. S.	1988	Physics
Georgia Institute of Technology	Ph. D.	1993	Physics

#### A. Positions and Honors

##### Positions and Employment

- 1994-1996 Postdoctoral Fellow, The Center for Nonlinear Studies, Los Alamos National Laboratory
- 1996-1997 Visiting Scholar, Department of Molecular and Cell Biology, University of California, Berkeley
- 1997-1998 Assistant Professor, Department of Physics, DePaul University
- 1998-2002 Assistant Professor, Department of Statistics, North Carolina State University
- 2001-2002 Director of the Graduate Program, Biomathematics Graduate Program, North Carolina State University
- 2002- Associate Professor, Department of Mathematics, University of North Carolina at Chapel Hill
- 2005- Associate Professor, Department of Pharmacology, University of North Carolina at Chapel Hill

##### Professional Memberships

- 1990 Member, American Physical Society
- 1996 Member, Biophysical Society
- 1998 Member, Society of Mathematical Biology

#### B. Selected Peer-Reviewed Publications

(Publications selected from 35 peer-reviewed publications)

1. Elston, T. and G. Oster. 1997. Protein turbines I: the bacterial flagellar motor. *Biophys. J.* 73, 703-721.
2. Glick, B., T. Elston and G. Oster. 1997. Cisternal maturation can explain the asymmetry of the golgi stack. *FEBS Letters.* 414:177-181.
3. Wang, H., T. Elston, A. Mogilner and G. Oster. 1998. Force production in RNA polymerase. *Biophys. J.* 74:1186-1202.
4. Elston, T., H. Wang and G. Oster. 1998. Energy transduction in ATP synthase. *Nature* 391:510-513.
5. Elston, T., and C. Peskin. 2000. The role of protein flexibility in molecular motor function: coupled diffusion in a tilted periodic potential. *SIAM.* 60: 842-867.
6. Elston, T., D. You and C. Peskin. 2000. Protein flexibility and the correlation ratchet. *SIAM.* 61:776-791.
7. Elston, T. 2000. A macroscopic description of biomolecular transport. *J. Math. Biol.* 41:189-206.
8. Elston, T. 2000. Models of post-translational protein translocation. *Biophys. J.* 79:2235-2251.
9. Elston, T. and T. Kepler. 2001. A linear two-state model with complex dynamics. *PLA.*, 280:204-208.
10. T. Kepler and T. Elston. 2001. Stochasticity in transcriptional regulation: origins, consequences, and mathematical representations. *Biophys. J.* 81:3116-3136.



11. T. Elston. 2002. The Brownian ratchet and power stroke models of post-translational translocation into the endoplasmic reticulum *Biophys. J.* 82:1239-1253.
12. Wang, H., C. Peskin and T. Elston. 2003. A robust numerical algorithm for studying energy transduction in motor proteins. *J. Theor. Biol.*, 221:491-511.
13. Morgan, K., W. Casey, M. Easton, D. Creech, H. Ni, L. Yoon, S. Anderson, C. Qualls, L. Crosby, P. Bloomfield, A. MacPherson, and T. Elston. 2003. Frequent Sampling Reveals Dynamic Responses by the Transcriptome to Routine Media Replacement in HepG2 Cells. *Tox. Path.*, 31:448-461.
14. Hao, N., Yildirim, N. Wang, Y., Elston, T., and Dohlman, H. G. 2003. Regulators of G protein signaling and transient activation of signaling: Experimental and computation analysis reveals negative and positive feedback controls on G protein activity. *J. Biol. Chem.*, 278:46506-46515.
15. Pirone, J. and T. Elston. 2004. Fluctuations in transcription factor binding can explain the graded and binary responses observed in inducible gene expression. *J. Theor. Biol.*, 226:111-121.
16. Adalsteinsson, D., D. McMillen, and T. Elston. 2004. Biochemical Network Stochastic Simulator (BioNetS): software for stochastic modeling of biochemical networks. *BMC Bioinformatics* 5:2-37.
17. Yildirim, N. N. Hao, H. Dohlman, and T. Elston. 2004. Mathematical Modeling of RGS and G Protein Regulation in Yeast. *Methods Enzymol.*, 389:383-398.
18. Goedecke, M., and T. Elston. 2005. A mechanism for the oscillatory behavior of single dynein molecules. *J. Theor. Biol.*, 232:27-39.

### **C. Research Support**

#### Ongoing Research Support

F30602-01-2-0579 Elston (PI)

9/1/2003-9/1/2005

DARPA

Stochastic Fluctuations in Gene Regulation

The goals of this project are to develop software for stochastic modeling of genetic regulatory networks and to conduct theoretical investigations into the effects of biochemical fluctuations in gene expression.

Role: PI

R01-GM073180 Dohlman, H. (PI)

4/1/2005-3/31/2009

NIH/NIGMS

Mathematical and Experimental Analysis of Feedback Regulation in the Pheromone Response Pathway of Yeast

This project is to understand the biochemical mechanisms that mediate the graded to binary response observed in the pheromone response pathway of yeast.

Role: Co-Investigator

#### Completed Research Support

DMS-0242543 Elston (PI)

8/15/2000-10/15/2004

NSF

Modeling Biomolecular Transport Processes

The goal of this project was to develop theoretical models to understand energy transduction in biomolecular motors.

Role: PI

F30602-01-2-0579 Collins, J. (PI)

9/1/2001-9/1/2003

DARPA

Stochastic Fluctuations in Gene Regulation

The goals of this project were to develop software for stochastic modeling of genetic regulatory networks and to conduct theoretical investigations into the effects of biochemical fluctuations in gene expression.

Role: Co-Investigator

### BIOGRAPHICAL SKETCH

NAME	POSITION TITLE
James P. Evans	Associate Professor

EDUCATION/TRAINING			
INSTITUTION AND LOCATION	DEGREE (if applicable)	YEAR(s)	FIELD OF STUDY
University of Kansas, Lawrence, Kansas	B.S.	1979	Chemistry
University of Kansas Medical Center Grad School	Ph.D.	1983	Pathology/Oncology
University of Kansas Medical Center, School of Medicine	M.D.	1984	School of Medicine

### **PROFESSIONAL EXPERIENCE**

1984-1985	Intern in Internal Medicine, North Carolina Memorial Hospital/University of North Carolina, <i>Chapel Hill, North Carolina 27514</i> .
1985-1987	Junior and Senior Assistant Resident, North Carolina Memorial Hospital/University of North Carolina, <i>Chapel Hill, North Carolina 27514</i> .
1987-1988	Chief Resident in Internal Medicine at the University of North Carolina at Chapel Hill, North Carolina Memorial Hospital, <i>North Carolina 27514</i> .
1988-1989	Hematology fellow, University of North Carolina, <i>Chapel Hill, North Carolina 27514</i> .
1989-1991	Fellow in Medical Genetics, University of Washington, <i>Seattle, Washington 98195</i> .
1991-1992	Acting Assistant Professor, University of Washington, <i>Seattle, Washington 98195</i> .
1992-1994	Investigator, Lucille P. Markey Molecular Medicine Center.
1992-1994	Assistant Professor, Division of Medical Genetics, Department of Medicine, University of Washington, <i>Seattle, Washington 98195</i> .
1994-1995	Assistant Professor and Chief, Division of Medical Genetics, Department of Medicine, University of North Carolina, <i>Chapel Hill, North Carolina 27599</i> .
1994-1995	Member, Lineberger Comprehensive Cancer Center and Program for Molecular Biology and Biology and Biotechnology, University of North Carolina at Chapel Hill.
1995-1997	Physician, Internal Medicine. The Carolina Permanente Medical Group.
1997-Present	Associate Professor of Genetics and Medicine at University of North Carolina School of Medicine. Departments of Medicine and Genetics, Divisions of General Medicine and Hematology and Oncology. Director, Cancer Genetics Services, Director, Bryson Program on Human Genetics

### **Professional Societies**

National Society of Genetic Counselors  
 American Society of Human Genetics  
 Lineberger Comprehensive Cancer Center (associate member)  
 NC Medical Genetics Association

### **Current Funding**

Principal Investigator for UNC component of "Cancer Genetics Network"; NCI funded

### **PUBLICATIONS**

#### **Articles (30)**

1. Plapp FV, Kowalski MM, Tilzer LL, Brown PJ, **Evans J**, and Chiga M. Partial purification and Rh (D) antigens from Rh positive and negative erythrocytes. *Pro. Natl. Acad. Sci. USA*. 76:2964-2968, 1979.

2. Plapp FV, Kowalski MM, **Evans J**, Tilzer LL, and Chiga M. The role of membrane phospholipid in expression of erythrocyte Rh (D) antigen activity. *Proc. Soc. Exp. Biol. Med.* 164:561-568, 1980.
3. Plapp FV, **Evans JP**, Tilzer LL. Detection of Rh (D) antigen on the inner surface of Rh negative erythrocyte membranes. *Fed Proc.* 40:208, 1981.
4. Tilzer LL, Plapp FV, **Evans JP**, and Chiga M. Different ionic forms of estrogen receptor in rat uterus and human breast carcinoma. *Cancer Research.* 41:1058-1063, 1981.
5. Tilzer LL, Plapp FV, **Evans JP**. Steroid receptor proteins in human meningiomas. *Cancer.* 49:633-636, 1982.
6. **Evans JP**, Brown PJ, Sinor LT, Tilzer LL, and Plapp FV. Identification of Rh (D) antigen in polyacrylamide gels by an enzyme linked immunoassay. *Molecular Immunology.* 19(5): 671-675, 1982.
7. Brown PJ, **Evans JP**, Sinor LT, Tilzer LL, and Plapp FV. The rhesus D antigen is a dicyclohexylcarbodiimide binding proteolipid. *Am. J. Pathol.* 110(2): 127-134, 1983.
8. **Evans JP**, Brown PJ, Sinor LT, Beek MLO, and Plapp FV. Detection of a protein on the inner surface of Rh negative erythrocytes which binds anti-D IgG. *Molecular Immunology.* 20(5):529-536, 1983.
9. Sinor LP, Brown PJ, **Evans JP**, and Plapp LV. The Rh antigen specificity of erythrocyte proteolipid. *Transfusion.* 24(2): 179-180, 1984.
10. **Evans JP**, Watzke HW, Ware JL, Stafford DW, High KA. Molecular cloning of a cDNA encoding canine factor IX. *Blood.* 74:207-212, 1989.
11. **Evans JP**, Brinkhous KM, Reisner H, Brayer GD, and High KA. A point mutation in canine hemophilia B with unusual consequences. *Proc. Natl. Acad. Sci. USA.* 86:10095-10099, 1989.
12. **Evans JP**, and Palmiter RD. Retrotransposition of a mouse L1 element. *Proc. Natl. Acad. Sci. USA.* 88:8792, 1991.
13. Scherer SW, Poorkaj P, Allen T, Kim J, Geshuri D, Nunes M, Soder S, Stevens K, Pagon RA, Patton MA, Berg MA, Donlon T, Rivera H, Pfeiffer RA, Naritomi K, Hughes H, Genuardi M, Gurrieri F, Neri G, Lovrein E, Magenis E, Tsui L-C, and **Evans JP**. Fine mapping of the Autosomal dominant split hand/split foot locus on chromosome 7, band q21.3-a22. *American Journal of Human Genetics.* 55:12-20, 1994.
14. Palmer SE, Scherer S, Kukulich M, Wijsman EM, Tsui L-C, Stephens K, and **Evans JP**. Evidence for locus heterogeneity in autosomal dominant split hand/split foot malformation. *American Journal of Human Genetics.* 55:21-26, 1994.
15. Scherer S, Poorkaj P, Geshuri D, Nunes M, Genuardi M, Tsui L-C, and **Evans JP**. Physical mapping of the human split hand/ split foot (SHSF) locus on chromosomes 7 reveals a relationship between SPSF and the syndromic ectrodactylies. *Human Molecular Genetics.* 3:1345-1354, 1994.
16. Nunes M, Pagon R, Distech C, and **Evans JP**. A contiguous gene deletion syndrome at human 7q21-q22 and implications for the relationship between isolated ectrodactyly and syndromic ectrodactyly. *Clinical Dysmorphology.* 3:277-286, 1994.
17. Jarvik GP, Patton MA, Homfray T, and **Evans JP**. Segregation distortion in a human developmental disorder: split hand/ split foot malformation. *Am. J. Hum. Genet.* 55:710-713, 1994.
18. Marinoni JC, Stevenson RE, **Evans JP**, Geshuri D, Phelan MC, Shewartz CE. Split foot and developmental retardation associated with a deletion of three microsatellite makers in 7q21-q22.1. *Clinical Genetics.* 47:90-95, 1995.
19. Steiner RD, **Evans JP**, Uemichi T, Paunio T, and Benson MD. Familial amyloidosis, Finish type, in three generations of a Swedish-American family is caused by asparaginase substitution for aspartic acid at gelson residue 187. *Human Genetics.* 95:327-330, 1995.
- 20.

- Evans JP**, Burke W, Chen R, Bennett R, Schmidt R, Dellinger EP, Kimmey M, Crispin D, Brentnall TA, and Byrd DA. Familial pancreatic adenocarcinoma: association with diabetes and exocrine insufficiency and early molecular diagnosis. *Journal of Medical Genetics*. 32:330-335, 1995.
21. Crackower MA, Scherer SW, Rommens JM, Hui CC, Poorkaj P, Soder S, Cobben JM, Hudgins L, **Evans JP**, Tsui LC. Characterization of the split hand/split foot malformation locus SHFM1 at 7q21.3-q22.1 and analysis of a candidate gene for its expression during limb development. *Human Molecular Genetics*. 5(5): 571-9, 1996 May.
  22. Nunes ME, Schutt G, Kapur RP, Luthardt F, Kukulich M, Byers P, **Evans JP**. A second autosomal split hand/split foot locus maps to chromosome 10q24-q25. *Human Molecular Genetics*. 4(11): 2165-70, 1995 Nov.
  23. Scherer SW, Heng HH, Robinson GW, Mahon KA, **Evans JP**, Tsui LC. Assignment of the human homolog of mouse D1x3 to chromosome 17q21.3-q22 by analysis of somatic cells hybrids and fluorescence in situ hybridization. *Mammalian Genome*. 6(4):310-1, 1995 Apr.
  24. Brentnall TA, Rubin CE, Crispin DA, Stevens A, Batchelor RH, Haggitt RC, Bronner MP, **Evans JP**, McCahill LE, Bilir N, et al. A germline substitution in the human MSH2 gene is associated with high-grade dysplasia and cancer in ulcerative colitis. *Gastroenterology*. 109(1):151-5, 1995 Jul.
  25. **Evans JP**. Genomics: Delayed Reaction. *Hospitals and Health Networks*, 74 (12):42-44. 2000
  26. Hadler N & **Evans JP**. Medicalization of the Genome. *Commentary in Current Anthropology*, 42(2):252-253. 2001
  27. **Evans JP**, Skrzynia C, Burke W. The complexities of predictive genetic testing. *British Medical Journal*. 322: 1052-1056. 2001
  28. Finkler K, Skrzynia C, **Evans JP**. The New Genetics and its Consequences for Family, Kinship, Medicine, and The New Genetics. *Social Science and Medicine* 2003 Aug;57(3):403-12
  29. Burke W, Acheson L, Botkin J, Bridges K, Davis A, **Evans JP** et al. Genetics in Primary Care: A USA Faculty Development Initiative. *Community Genetics* 5:138-146. 2002
  30. McKelvey K and **Evans JP**. Cancer Genetics in the Primary Care Setting. *J. of Nutrition*. 133:3767S-3772S. 2003
  31. Moorman P, Calingaert B, **Evans JP**, Hoyo C, Newman B, Skinner C, Sorenson J, Schildkraut J. Racial Differences in Enrollment in a Cancer Genetics Registry; *Cancer Epidemiology, Biomarkers and Prevention*; 13(8): 1349-1354. 2004.

#### **Invited Book Reviews**

Book Review, 1994. Dealing with Genes: The Language of Heredity by Paul Berg and Maxine Singer. *American Journal of Human Genetics*. 55:595.

#### **Special International Activities**

Senior Fellow for the Einstein Institute for Science, Health, and the Courts. Senior faculty member and organizer of forums to teach high court judges about genetics and its broad impact on society. Such forums are international in scope and include the education of supreme court justices from numerous nations.

I was an organizer and faculty participant for a United Nations conference including delegates from 81 nations held in Concepción, Chile, in March of 2004 which addressed global disparities in the use of biotechnology.

### BIOGRAPHICAL SKETCH

NAME		POSITION TITLE	
EDUCATION/TRAINING			
INSTITUTION AND LOCATION	DEGREE <i>(if applicable)</i>	YEAR(s)	FIELD OF STUDY
Jacksonville University, Jacksonville, FL	B.S.	1977-1981	Biology
Univ. of Florida College of Medicine, Gainesville, FL	M.S.	1985-1989	Clinical Immunology
Medical Univ. of South Carolina, Charleston, SC	Ph.D.	1989-1993	Mol. and Cell Biology
HHMI, Ind. Univ. School of Med., Indianapolis, IN	Postdoctoral	1993-1996	Cell Biology
Indiana University School of Medicine, Indianapolis, IN	Postdoctoral	1994-1996	Medical Genetics

#### **A. Positions:**

1996 - 1997	Visiting Assistant Scientist, Section of Oral Facial Genetics, Department of Oral Facial Development, Indiana University School of Dentistry
1996 - 1997	Visiting Assistant Scientist, Department of Dermatology, Indiana University School of Medicine
1997 - 1998	Assistant Scientist, Oral -Facial Genetics Section, Department of Oral Facial Development, Indiana University School of Dentistry
1997 - 1998	Assistant Scientist, Department of Dermatology, Indiana University School of Medicine
1998 - 2004	Assistant Professor, Oral Facial Genetics Section, Department of Oral Facial Development, Indiana University School of Dentistry
1998 - 2004	Assistant Professor, Department of Dermatology, Indiana University School of Medicine
2001 - 2004	Director, IUSD Mineralized Tissue and Histology Research Laboratory
2003 - 2004	Assistant Professor, Department of Medical & Molecular Genetics, Indiana University School of Medicine
2004	Associate Professor, Departments of Oral Facial Development, Dermatology and Medical & Molecular Genetics, Indiana University Schools of Dentistry and Medicine
2004	Associate Professor, Department of Pediatric Dentistry and the Carolina Center for Genome Sciences, University of North Carolina at Chapel Hill

#### **Honors:**

1993-1996	Howard Hughes Medical Institute Postdoctoral Research Fellowship
1997	Dermik Laboratories Research Grant / Dermatology Foundation
1998	Outstanding Mentor Award, American Chemical Society, Project SEED Summer Program for High School Students
1999	External Reviewer for the Joint Infrastructure Grant Program, The Wellcome Trust, UK
2000	Indiana University School of Dentistry Teaching Excellence Recognition Award
2001	President of the Society for Craniofacial Genetics
2001	Secretary/Treasurer Indiana Section of the AADR
2002	Indiana University School of Dentistry Alumni Association Distinguished Faculty Award for Research
2002	President of the Society for Craniofacial Genetics
2002	Indiana University School of Dentistry Trustees Teaching Award
2002	Vice President Indiana Section of the AADR
2004	External Referee Molecular and Cell Biology Panel The Wellcome Trust, U.K.

#### Federal Government Advisory Committees:

- 1999 November, Member of the NIDCR Genetics Workgroup
- 2002 December, *Ad Hoc* Reviewer NIDCR Special Emphasis Panel / OBM-2
- 2002 December, *Ad Hoc* Reviewer NIDCR Special Emphasis Panel for R25/Education Projects
- 2003 July, *Ad Hoc* Reviewer of CSR/NIDCR Musculoskeletal Dental Special Emphasis Panel / ZRG1 GRM(03)
- 2004 Reviewer, NIDCR Special Emphasis Panel P50 Center grants in the area of craniofacial biology
- 2004 October, Temporary Member of CSR/Oral, Dental and Craniofacial Sciences Study Section

*Ad Hoc* Reviewer/Referee:

*Cleft Palate and Craniofacial Journal; Teratology; Journal of Dental Education; Critical Reviews of Oral Biology and Medicine; J Dent Res and Pharmacogenomics*

**B. Selected peer-reviewed publications (in chronological order).**

- Everett, ET, JL Pablos, SE Harris, EC LeRoy, and JS Norris. The tight-skin (*Tsk*) mutation is closely linked to *b2m* on mouse chromosome 2. *Mamm Genome* 5:55-57,1994.
- Gong, YZ, ET Everett, DA Schwartz, JS Norris, and FA Wilson. Molecular cloning, tissue distribution, and expression of a 14-kDa bile acid-binding protein from rat ileal cytosol. *Proc Natl Acad Sci U S A* 91:4741-4745,1994.
- Fan, W, ET Everett, C Tang, T Cooper, Q Fang, K Bhalla, and JS Norris. Glucocorticoid-mediated inhibition of taxol-induced apoptosis in leiomyosarcoma cells. *Cellular Pharmacology* 1:205-212,1994.
- Everett, ET, JL Pablos, RA Harley, EC LeRoy, and JS Norris. The role of mast cells in the development of skin fibrosis in tight- skin mutant mice. *Comp Biochem Physiol A Physiol* 110:159-165,1995.
- Pablos, JL, ET Everett, R Harley, EC LeRoy, and JS Norris. Transforming growth factor-beta 1 and collagen gene expression during postnatal skin development and fibrosis in the tight-skin mouse. *Lab Invest* 72:670-678,1995.
- Du, X, ET Everett, G Wang, WH Lee, Z Yang, and DA Williams. Murine interleukin-11 (IL-11) is expressed at high levels in the hippocampus and expression is developmentally regulated in the testis. *J Cell Physiol* 168:362-372,1996.
- Majumdar, MK, ET Everett, X Xiao, R Cooper, K Langley, R Kapur, T Vik, and DA Williams. Xenogeneic expression of human stem cell factor in transgenic mice mimics codominant c-kit mutations. *Blood* 87:3203-3211,1996.
- Kapur, R, ET Everett, J Uffman, M McAndrews-Hill, R Cooper, J Ryder, T Vik, and DA Williams. Overexpression of human stem cell factor impairs melanocyte, mast cell, and thymocyte development: a role for receptor tyrosine kinase-mediated mitogen activated protein kinase activation in cell differentiation. *Blood* 90:3018-3026,1997.
- Hartsfield Jr, JK, MJ Sutcliffe, ET Everett, C Hassett, CJ Omiecinski, and JA Saari. Assignment1 of microsomal epoxide hydrolase (*EPHX1*) to human chromosome 1q42.1 by *in situ* hybridization. *Cytogenet Cell Genet* 83:44-45,1998.
- Pablos, JL, ET Everett, EC Leroy, and JS Norris. Thrombospondin 1 is expressed by mesenchymal cells in mouse post-natal skin and hair follicle development. *Histochem J* 30:461-465,1998.
- Everett, ET, DA Britto, RE Ward, and JK Hartsfield, Jr. A novel *FGFR2* gene mutation in Crouzon syndrome associated with apparent nonpenetrance. *Cleft Palate Craniofac J* 36:533-541,1999.
- Hartsfield, JK, Jr., and ET Everett. The *Ephx1(d)* allele encoding an Arg338Cys substitution is associated with heat lability. *Mamm Genome* 11:915-918,2000.
- Everett, ET, and JK Hartsfield. Mouse models for craniofacial anomalies. In: *Biological Mechanisms of Tooth Movement and Craniofacial Adaptation*. Z. Davidovitch, and J. Mah (eds.), Harvard Society for the Advancement of Orthodontics, Boston, 287-298,2000.
- Hartsfield JK Jr, TA Hickman, ET Everett, GM Shaw, EJ Lammer and RA Finnell. Analysis of the *EPHX1* 113 polymorphism and *GSTM1* homozygous null polymorphism and oral clefting associated with maternal smoking. *Am J Med Genet*. 102(1):21-4, 2001.

- Alvarez MB, Thunyakitpisal P, Rhodes SJ, Everett ET, Bidwell JP. Assignment\* of *Nmp4* to mouse chromosome 6 band F1 flanked by D6Mit134 and D6Mit255 using radiation hybrid mapping and fluorescence *in situ* hybridization. *Cytogenetics and Cell Genetics*. 94:3-4:244-245, 2001.
- Amador AG, Righi PD, Radpour S, Everett ET, Weisberger E, Langer M, Eckert GJ, Christen AG, Campbell S, Summerlin D-J, Hartsfield, Jr. JK. Polymorphisms of xenobiotic metabolizing genes in patients with cancers of the mouth and throat. *Oral Surgery, Oral Medicine, Oral Pathology, Oral Radiology and Endodontics*. 93: 440-5, 2002.
- Everett ET, McHenry MAK, Reynolds N, Eggertsson H, Sullivan J, Kantmann C, Martinez-Mier EA, Warrick JM, Stookey GK. Dental Fluorosis: Variability Among Different Inbred Mouse Strains. *J. Dent. Res*. 81:795-798, 2002.
- Al-Qawasmi RA, Hartsfield J, J.K., Everett ET, Flury L, Liu L, Foroud TM, Macri JV, Roberts WE. Genetic predisposition to external root apical resorption. *Am J Orthod Dentofacial Orthop*, 123:242-251, 2003.
- Al-Qawasmi RA, Hartsfield JJK, Everett ET, Flury L, Liu L, Foroud TM, Macri JV, Roberts WE. Genetic predisposition to external apical root resorption in orthodontic patients: linkage of chromosome-18 marker. *J Dent Res*, 82:356-360, 2003.
- Hartsfield J, J.K., Everett ET, Al-Qawasmi RA. External apical root resorption and orthodontic treatment. *Crit Rev Oral Biol Med*, 15:115-122, 2004.
- Pablos JL, Everett ET, Norris, JS (2004) The tight skin mouse: an animal model of systemic sclerosis. *Clin Exp Rheumatol*; 22(3 Suppl 33):S81-5.
- Vieira, APGF, Hancock, R, Eggertsson, H, Everett, ET and Grynpas, MD. Tooth quality in dental fluorosis: genetic and environmental factors. *Calcified Tissue Int*, in press
- Al-Qawasmi RA, Hartsfield J, J.K., Everett ET, Weaver MR, Foroud TM, Chaplin DD, Roberts WE (2004) Root resorption associated with orthodontic force in IL-1b knockout mice. *J Musculoskeletal and Neuronal Interactions*; 4:383-385.

### C. Research Support.

#### Ongoing:

Title of Project: Genetic Determinants of Dental Fluorosis

Principal Investigator: Eric T. Everett      Agency: NIH/NIDCR

Type: R01DE014853-01A1      Period: 7/1/03-6/30/07

The major goal of this project is to identify candidate loci that convey susceptibility / resistance to dental fluorosis in mice.

Title of Project: Non-syndromic Cleft Palate in Mice

Principal Investigator: Eric T. Everett      Agency: NIH/NIDCR

Type: R21 DE015180-01      Period: 04/01/03 to 03/31/05

The major goal of this project is to identify, map, and clone genomic DNA that flanks the site of a transgene insertion causing non-syndromic cleft palate in mice.

#### Completed:

Title of Project: Normal Craniometric and Radiographic Morphology Among Inbred Mouse Strains

Principal Investigator: Eric T. Everett      Agency: Mouse Phenome Consortium / The Jackson Laboratory with support from AstraZeneca

Type: Collaborations Program Award      Period: 11/01/01 to 05/30/04

The major goal of this project is to assess quantitative and discrete differences in skull and mandible traits within and between adult male and female inbred mice.

Title of Project: Heritability of Oculo-Auriculo-Vertebral Spectrum

Principal Investigator: R.E.Ward      Agency: NIH/NIDCR

Type: R03 DE13259-01      Period: 03/01/01 to 02/28/04

**Everett, Eric**

The major goal of this project is to identify and recruit families where multiple individuals are affected by a form of OAVS (oculo-auriculo-vertebral spectrum) as a prelude to linkage and candidate gene studies. ETE's role is to provide supervision and guidance to the molecular biology elements of this project.

Title of Project: Genetic Determinants of Isolated Cleft Palate in Mice

Principal Investigator: Eric T. Everett      Agency: NIH/NIDCR

Type: R03 DE14006-01      Period: 03/01/01 to 02/28/03

The major goal of this project is to identify, map, and clone genomic DNA that flanks the site of a transgene insertion causing non-syndromic cleft palate in mice.



**BIOGRAPHICAL SKETCH**

NAME	POSITION TITLE		
Morgan Giddings	Assistant Professor		
EDUCATION/TRAINING			
INSTITUTION AND LOCATION	DEGREE <i>(if applicable)</i>	YEAR(s)	FIELD OF STUDY
University of Utah, Salt Lake City, UT	B.S.	1989	Physics (minor C.S.)
University of Wisconsin, Madison, WI	M.S.	1991	Computer Science
University of Wisconsin, Madison, WI	Ph.D.	1997	Distributed (bioinformatics)
University of Utah, Salt Lake City, UT	Postdoc	1998-2001	Proteomics/Bioinformatics

**A. Positions and Honors.**

**Positions and Employment:**

1986 to 1987	Tutor of Physics, Math and Computer Science, University of Utah Tutoring Center
1987 to 1990	Programmer/Researcher, developing software for particle separation analysis, University of Utah department of Chemistry.
1989 to 1991	Instructor (intro to programming) and lab TA (intro to computers), University of Wisconsin Department of Computer science.
1991 to 1994	Research Assistant studying computational methods for DNA sequencing under direction of Prof. Lloyd Smith at the University of Wisconsin-Madison.
1993 to 1995	President (Vice President in 1993), R3, Inc., Poynette, WI, planning, obtaining funding, and managing personnel (3) to explore feasibility of manufacturing kayaks and related products from recycled plastics.
1993 to 1997	Consultant, Third Wave Technologies, Madison, WI, assisting with research and code prototyping for DNA/RNA fragment analysis.
1995 to 1997	Research Assistant, continuing studies in Prof. Smith's lab
1997 to 1998	Post-Doctoral Researcher, Smith Lab, UW-Madison, continuing research for base-calling software
1997 to 2001	Director, FFFractionation, Inc. (analytical chemistry products company) Salt Lake City, Utah (company sold summer 2001)
1998 to 2001	Post-Doctoral Researcher, Prof. Ray Gesteland Lab, University of Utah, bioinformatics projects including proteome project studying alternatively-coded proteins in <i>S. Cerevisiae</i> .
2002 to present	Assistant Professor, The University of North Carolina at Chapel Hill School of Medicine, Microbiology/Immunology and joint appointment in Biomedical Engineering.

**Other Experience and Professional Memberships**

1990 to 1992	Independent research w/Dr. N Bamford analyzing EEG traces with fractal dimension for seizure foci
1994	State of Wisconsin recycling feasibility grant awarded for kayak manufacturing, co-author.
1996	DOE grant funded, data analysis system for DNA sequencing, primary author. (PI: L. Smith)
1999-present	International Society for Computational Biology
1999-present	Member, AAAS.
1999-2001	Founder and director, University of Utah bioinformatics seminar.
2000-2001	Member, American Association for Artificial Intelligence

**Giddings, Morgan**

2002 to present Co-founder, graduate training program for bioinformatics, University of North Carolina at Chapel Hill

**Honors**

2000-2005 NIH/NHGRI K22 Genome Scholar Award

B. Selected peer-reviewed publications (in chronological order).

1. Giddings, M.C., Brumley, R.L., Haker, M., and Smith, L.M. 1993. An adaptive, object-oriented strategy for base calling in DNA sequence analysis. *Nucleic Acids Res.* 21(19), 4530-4540.
2. Chen, D., Peterson, M.D., Brumley, R. L. Jr., Giddings, M.C., Buxton, E.C., Westphall, M., Smith, L., and Smith, L.M. 1995. Side excitation of fluorescence in ultrathin slab gel electrophoresis. *Analytical Chemistry.* 67(19), 3405-3411.
3. Yin, Z., Severin, J., Giddings, M.C., Huang, W., Westphall, M.S., and Smith, L.M. 1996. Automatic matrix determination in 4-dye fluorescence-based DNA sequencing. *Electrophoresis.* 17, 1143-1150.
4. Giddings, M.C., Severin, J., Westphall, M., Wu, J., and Smith, L.M. 1998. A software system for data analysis in automated DNA sequencing. *Genome Research.* 8(6):644-665
5. Matveeva, O.V., Tsodikov, A.D., Giddings, M.C., Freier, S.M., Wyatt, J.R., Spiridonov, A.N., Shabalina, S.A., Gesteland, R.F., and Atkins, J.F. 2000. Identification of sequence motifs in oligonucleotides whose presence is correlated with antisense activity, *Nucleic Acids Res.* 28(15):2862-2865
6. Giddings, M.C., Matveeva, O., Atkins, J., and Gesteland, R. 2000. ODNBase - A web database for antisense oligonucleotide effectiveness studies. *Bioinformatics.* 16(9):843-844.
7. Williams P.S., Giddings M.C., Giddings J.C. 2001. A data analysis algorithm for programmed field-flow fractionation. *Analytical Chemistry.* 73(17): 4202-11
8. Baranov, P.V., Gurvich, O.L., Fayet, O., Pr  re, M.F., Miller, W.A., Gesteland, R.F., Atkins, J.F., and Giddings, M.C. 2001. Recode: A Database of Frameshifting, Bypassing and Codon Redefinition utilized for gene expression. *Nucleic Acids Research.* 29(1):264-267.  
<http://recode.genetics.utah.edu>
9. Shah, A.S., Giddings, M.C., Parvaz, J.B., Gesteland, R.F., Atkins, J.F., and Ivanov, I.P. 2002. Computational Identification of Putative Programmed Translational Frameshift Sites in Protein-Encoding Nucleotide Sequences. *Bioinformatics.* 18(8): 1046-1053
10. Giddings, M.C., Shah, A.S., Frier, S.F., Atkins, J.F., Gesteland, R.F., and Matveeva, O.V. 2002. Artificial Neural Network Prediction of Antisense Oligodeoxynucleotide Activity. *Nucleic Acids Res.* 30(19):4295-4304.
11. Giddings, M.C., Shah, A.S., Gesteland, R.F., and Moore, B. 2003. Genome-Based Peptide Fingerprint Scanning. *Proc. Nat. Acad. Sci. USA.* 100(1):20-25.
12. Holmes, M.R. and Giddings, M.C., Prediction of posttranslational modifications using intact-protein mass spectrometric data. *Anal Chem.* 2004. 76(2): p. 276-82.
13. Wisz, M.S., Suarez, M.K., Holmes, M.R., and Giddings, M.C., *GFSWeb: a web tool for genome-based identification of proteins from mass spectrometric samples.* J Proteome Res, 2004. 3(6): p. 1292-5.

C. Current Research Support.

**ACTIVE**

3 K22 HG00044-04S1

1/1/2003-12/31/04

National Inst. of Health/NHGRI

**Computational Methods for Proteomic Analysis - Research Supplement for Underrepresented Minorities (Mack Crayton)**

The project goal is development of computational resources and informatics structure to advance the science of proteomics. The proposed program for Dr. Crayton will provide hands-on research experience flowing from computer to bench and back, expanding his skills into new areas promoting his independence as a scientific investigator.

4000018979

10/4/02-9/30/05

UT-Battelle

**Data Driven Proteomics for the Genomes to Life Program (Sub with UT-Battelle/ORNL)**

The focus of this work is to apply these data driven proteomics tools to the data obtained in the genomes to life program implemented at ORNL and at PNL.

5 RO1 RR020823-02

9/1/04-8/31/07

National Inst. of Health/NCRR

**Developing Genome Fingerprint Scanning for Proteomics**

This project is for the ongoing development and maintenance of GFS as a tool for the proteomics community. This includes further development of the website, improvement of the scoring measures, porting the code to other platforms, and enhancing user documentation.

MCB-0433977 (Gaertig)

8/1/04-7/31/05

NSF-MCB

**Developing Genome Fingerprint Scanning for *Tetrahymena***

This proposal is to develop GFS as a resource specifically to serve the *Tetrahymena* research community, by enhancing and supporting the website for *Tetrahymena* proteomic analysis and genome annotation.

### BIOGRAPHICAL SKETCH

NAME		POSITION TITLE	
Mayetri Gupta		Assistant Professor	
EDUCATION/TRAINING			
INSTITUTION AND LOCATION	DEGREE <i>(if applicable)</i>	YEAR(s)	FIELD OF STUDY
Presidency College, Calcutta University, India	B.Sc.(Hons.)	1994-1997	Statistics, minor in Mathematics, Economics
Indian Statistical Institute, Calcutta, India	M.Stat.	1997-1999	Statistics
Harvard University, Cambridge, MA	Ph.D.	1999-2003	Statistics

#### A. Positions and Honors.

##### Positions and employment

1999-2002 Teaching Fellow, Dept. of Statistics, Harvard University  
 2000-2003 Research Assistant, Dept. of Statistics, Harvard University  
 2003- Assistant Professor, University of North Carolina at Chapel Hill, Department of Biostatistics and the Carolina Center for Genome Sciences

##### Other Positions

1997 Summer Research Fellow, Department of Statistics, Pune University, India  
 2000 Summer Research Fellow, Statistics and Data Mining Research Division, Lucent Technologies, Murray Hill, NJ.

##### Honors

1997 Ranked first in Statistics B. Sc. (Honors) in Calcutta University.  
 1997 Indian Institute of Science junior summer research award, Bangalore, India.  
 1999 P. C. Mahalanobis Lecture Award, Indian Statistical Institute, Calcutta, awarded to top 5 students receiving a Masters' degree in Statistics.  
 2002 Student presentation award, Intelligent Systems for Molecular Biology, Edmonton, Canada  
 2003 Best Student Presentation award in Applied Statistics, International Conference on Statistics, Combinatorics and Related Areas, Portland, Maine.

##### Professional Activities

Reviewer for: *Statistica Sinica*, *Biometrics*, *Journal of the American Statistical Association*, *Bioinformatics*, *Genome Research*, *Nucleic Acids Research*.  
 Committees served: IMS Committee on New Researchers (2004-07)  
 Session Organizer for *Bioinformatics*: International Conference on Statistics in Health Sciences, 2004, Nantes, France.  
 2001-present Member, Institute of Mathematical Statistics (IMS)  
 2001-present Member, American Statistical Association (ASA)  
 2003-present Member, International Society for Bayesian Analysis (ISBA)

2004-present Member, International Society for Computational Biology (ISCB)

**A. Selected peer-reviewed publications**

1. Liu JS, **Gupta M**, Liu XS, Lawrence CL. (2002)  
Statistical models for motif discovery. *Case Studies in Bayesian Statistics* Vol. 6, Springer-Verlag, New York.
2. **Gupta M** and Liu JS. (2003)  
Discovery of conserved sequence patterns using a stochastic dictionary model. *Journal of the American Statistical Association*, 98 (461): 55-66.

**Other selected publications**

1. **Gupta M** and Liu JS. (2004)  
Invited discussion for "A Bayesian approach to DNA sequence segmentation" by R. J. Boys and D. A. Henderson, *Biometrics*, 60 (3): 573-844.

**B. Research Support**

5 P30 ES1010126-04

04/01/01 - 03/30/05

Swenberg (PI)

NIH/NIEHS

UNC Center for Environmental Health and Susceptibility

The focus of the UNC-CH Center for Environmental Health and Susceptibility focuses on environmental epidemiology and toxicology.

Role: Biostatistician

Also supported by startup funds from the department of Biostatistics, University of North Carolina at Chapel Hill.

### BIOGRAPHICAL SKETCH

NAME	POSITION TITLE		
Bradley M. Hemminger	Assistant Professor of Information and Library Science		
EDUCATION/TRAINING			
INSTITUTION AND LOCATION	DEGREE <i>(if applicable)</i>	YEAR(s)	FIELD OF STUDY
Vanderbilt University, Nashville TN	BS	1982	Math and Comp Sci
University of North Carolina, Chapel Hill NC	MS	1985	Computer Science
University of Utrecht, Utrecht, the Netherlands	PhD	2001	Computer Science

#### **C. Positions and Honors.**

##### **Positions and Employment**

1980-1981	Research Assistant, Department of Computer Science, Vanderbilt University
1982-1985	Research Assistant, Departments of Computer Science and Radiology, University of North Carolina at Chapel Hill.
1985-2000	Senior Research Associate, Department of Radiology, University of North Carolina at Chapel Hill
2001-present	Assistant Professor, School of Information and Library Science, University of North Carolina at Chapel Hill
2001-present	Adjunct Assistant Professor, Department of Radiology, School of Medicine, University of North Carolina at Chapel Hill

##### **Other Experience and Professional Memberships**

2000-present	Hologic: Consultant for the overall architecture and user interface design for their next generation of digital x-ray products.
1999-present	Dome Imaging: Consultant for image display technology and products.
1998-present	OTech: Consultant for DICOM standards, and Lecturer on standardization and databases.
1998-present	Cedara: Consultant for workstation, user interface and information workflow design, for digital mammography and 3D visualization products.
1998-present	Qualia Computing: Consultant for workstation and user interface design, for incorporating computer aided detection of breast cancer into digital mammography.
1997-2000	Fischer Imaging: Consultant, designed and oversaw implementation of their digital mammography review station.
1982-present	Member of the Institute of Electrical and Electronics Engineers (IEEE) and Computer Society.
1982-present	Member of the Association of Computing Machinery (ACM), including special interest groups Computer Human Interaction (SIGCHI) and Graphics (SIGGRAPH).
1996-present	Member of the American College of Radiology (ACR).
1999-present	Co-program chair of SPIE Image Perception, Observer Performance, and Technology Conference.
1997-present	Member, (appointed) ACR Standards and Accreditation Committee.
1993-present	Chairman, Digital Imaging and Communications in Medicine (DICOM) international standards group, Working Group (WG) 11 Display.
1997-present	Member, DICOM Standards Working Group 15, Computer Aided Detection.
1998-present	Member, DICOM Standards Working Group 17, Visualization.
1998-present	Member, American Association of Physicists in Medicine (AAPM) Task Group 18 on the Electronic Display of Medical Images.

**Hemminger, Brad****Honors**

- 1995 Honorable Mention: Best Scientific Exhibit, Radiology Society of North America (RSNA) 1995 conference.
- 1999 Honorable Mention: Best Scientific Exhibit, RSNA 1999 conference.
- 2000 Honorable Mention: Best Scientific Exhibit, RSNA 2000 conference.
- 2004 Certificate of Merit: Best Scientific Exhibit, RSNA 2004 conference.

**B. Selected peer-reviewed publications (in chronological order).**

Beard DV, Hemminger BM, Perry JR, Mauro MA, Muller KE, Warshauer DM, Smith MA, Zito AJ, "Interpretation of CT studies: single-screen workstation versus film alternator," Radiology 187(2):565-9, 1993 May.

Beard DV, Hemminger BM, Keefe B, Mittelstaedt C, Pisano ED, Lee JK, "Real-time radiologist review of remote ultrasound using low-cost video and voice," Investigative Radiology, 28(8):732-4, 1993 Aug.

Beard DV, Hemminger BM, Denelsbeck KM, Johnston RE, "How many screens does a CT workstation need?," Journal of Digital Imaging, 7(2):69-76, 1994 May.

Beard DV, Hemminger BM, Pisano ED, Denelsbeck KM, Warshauer DM, Mauro MA, Keefe B, McCartney WH, Wilcox CB, "Computed tomography interpretations with a low-cost workstation: a timing study," Journal of Digital Imaging, 7(3):133-9, 1994 Aug.

Puff DT, Pisano ED, Muller KE, Johnston RE, Hemminger BM, Burbeck CA, McLelland R, Pizer SM, "A Method for Determination of Optimal Image Enhancement for the Detection of Mammographic Abnormalities," Journal of Digital Imaging, Nov 1994.

Hemminger BM, Johnston RE, Rolland JR, Muller KE, "Introduction to Perceptual Linearization for Video Display Systems for Medical Image Presentation," Journal of Digital Imaging, Vol 8, No 1, Feb. 1995, pp:21-34.

Beard DV, Molina PL, Muller KE, Denelsbeck KM, Hemminger BM, Perry JR, Braeuning MP, Glueck DH, Bidgood WD Jr, Mauro M, et al., "Interpretation time of serial chest CT examinations with stacked-metaphor workstation versus film alternator," Radiology, 197(3):753-8, 1995 Dec.

Beard DV, Hemminger BM, "Managing Remote Ultrasound with Cooperative Video: A Field Study," J. of Behaviour and Information Technology, 1995.

Pisano ED, Chandramouli J, Hemminger BM, DeLuca M, Glueck D, Johnston RE, Muller K, Braeuning MP, Pizer S, "Does intensity windowing improve the detection of simulated calcifications in dense mammograms?," Journal of Digital Imaging, 10(2):79-84, 1997 May.

Pisano ED, Chandramouli J, Hemminger BM, Glueck D, Johnston RE, Muller K, Braeuning MP, Puff D, Garrett W, Pizer S, "The effect of intensity windowing on the detection of simulated masses embedded in dense portions of digitized mammograms in a laboratory setting," Journal of Digital Imaging, 10(4):174-82, 1997 Nov.

Pisano ED, Zong S, Hemminger BM, DeLuca M, Johnston RE, Muller K, Braeuning MP, Pizer SM, "Contrast limited adaptive histogram equalization image processing to improve the detection of simulated spiculations in dense mammograms," Journal of Digital Imaging, 11(4):193-200, 1998 Nov.

**Hemminger, Brad**

Shtern F, Winfield DW, Behlen F, Blume H, Flynn MJ, Hemminger BM, Huang HK, Krupinski EA, Kundel H, Roehrig H, Shile PE, Sickles E, "Report of Working Group on Digital Mammography: Digital Displays and Workstation Design," Academic Radiology, Vol 6, Supplement 4, April 1999, pp 197-218.

Hemminger BM, Dillon AW, Johnston RE, Muller KE, Deluca MC, Coffey CS, Pisano ED, "Effect of display luminance on the feature detection rates of masses in mammograms," Medical Physics, 26 (11), Nov 1999, pp 2266-2272.

Pisano ED, Cole EB, Hemminger BM, Yaffe MJ, etal, "Image Processing Algorithms for Digital Mammography," Radiographics 20:1479-1491, May 2000.

Pisano ED, Cole EB, Major SC, Zong S, Hemminger BM, Muller K, etal., "Clinical Evaluation of Digital Mammography versus Film Screen Mammography," Radiology, Jan 2000.

Pisano ED, Cole EB, Major S, Zong S, Hemminger BM, Muller KE, Johnston RE, Walsh R, Conant E, Fajardo LL, Feig SA, Nishikawa RM, Yaffe MJ, Williams MB, Aylward SR, Braeuning MP, McLelland R, Pizer SM, Brown ME, Rosen E, Soo MS, Williford M, Niklason LT, Maidment ADA, Vermont A, Kornguth PJ, Kopans DB, Moore RH, Chakraborty D, Jong R, Shumak R, Staiger M, Plewes DB, "Radiologists' Preferences for Digital Mammographic Display," Radiology, 2000; 216 (3): 820-830.

Hemminger BM, Zong S, Muller KE, Coffey CS, DeLuca MC, Johnston RE, Pisano ED, "Improving the Detection of Simulated Masses in Mammograms through two Different Image-Processing Techniques", Academic Radiology 2001; 8:845-855.

Pisano ED, Cole EB, Kistner EO, Muller KE, Hemminger BM, Brown ML, Johnston RE, Kuzmiak CM, Braeuning MP, Freimanis RI, Soo MS, Baker JA, Walsh R. Interpretation of Digital Mammograms: A Comparison of Speed and Accuracy of Soft-Copy Versus Printed-Film Display. Radiology. 2002; 223: 483-488.

MacMullen, W.J., Parmelee, M.C., Fenstermacher, D.A. & Hemminger, B.M. (2002). Defining an Open Metadata Framework for Proteomics: The PROMIS Project. In Proceedings of the 2002 American Medical Informatics Association (AMIA) Annual Symposium, p. 1093.

Hemminger BM, "Softcopy Display Requirements for Digital Mammography", Journal of Digital Imaging, Dec 2003.

Hemminger BM, Fox J, Ni M, "Improving the ETD submission process through automated author self contribution using DSpace", Electronic Theses and Dissertations 2004 conference, Lexington KY.

Hemminger BM, Gerald Bolas, David Carr, Paul Jones, Doug Schiff, Nick England, "Capturing Content for Virtual Museums: from Pieces to Exhibits", Joint Conference on Digital Libraries 2004, Tucson AZ.

**National and International Standards**

DICOM 3.0 Grayscale Standard Display Function, 1998

DICOM 3.0 Digital X-ray, 1999

DICOM 3.0 Grayscale Softcopy Presentation State Storage, 2000

DICOM 3.0 Mammography Computer Aided Detection, 2001

DICOM 3.0 Patient Clinical History, 2002

DICOM 3.0 Breast Imaging Report, 2003

American Association of Physicists in Medicine (AAPM) Task Group 18 Assessment of Display Performance for Medical Imaging (2003).



DICOM 3.0 Hanging Protocols, 2004

## **A. Research Support**

### **Ongoing Research Support**

Grant Hemminger (PI) 1999-2002  
Qualia/CadX  
Phase II: Application of Computer Aided Detection to Digital Mammography  
Role: PI

Tropsha (PI) 2001-2004  
NC OP  
Bioinformatics Training Grant  
Role: Investigator

Grant Hemminger (PI) 1999-2002  
Hologic  
Development of Computer Interface for Medical Imaging Review Station for Mammography  
Role: PI

Grant Reed (PI) 2004-2007  
UNC Campus Partnerships Awarded Computing Grants  
Community Grid Portals for Bioinformatics  
Role: Investigator

### **Completed Research Support**

Role: PIDAMD17-94-J4423 Beard (PI) 1994-1999  
DOD (US Army)  
Development of a Common Database for Digital Mammography Research  
Role: Investigator

5-RO1-CA60193-04 Pisano (PI) 1994-1999  
NIH  
Greyscale Image Processing for Digital Mammography Display  
Role: Investigator

1995-1999 Pisano (PI)  
DAMD17-94-J-4345  
DOD Army  
Evaluation of Digital Mammography Display  
Role: Investigator

282-97-0078 Pisano (PI) 1997-1999  
Multi-Center Clinical Evaluation of Digital Mammography  
Role: Investigator

Grant Hemminger (PI) 1997-2000  
Fischer  
Development of Digital Mammography  
Role: Investigator

NCI 1999-2001  
Women's Health Initiative: HRT and changes in Mammographic Density  
Role: Investigator

### BIOGRAPHICAL SKETCH

NAME Gail E. Henderson		POSITION TITLE Professor of Social Medicine	
EDUCATION/TRAINING			
INSTITUTION AND LOCATION	DEGREE <i>(if applicable)</i>	YEAR(s)	FIELD OF STUDY
Oberlin College, Oberlin, OH	BA	1971	Chinese Lang & Lit
Univ. of Michigan, Ann Arbor, MI	MA	1977	Sociology
Univ. of Michigan, Ann Arbor, MI	PhD	1982	Sociology
Univ. of North Carolina, Chapel Hill, NC	Postdoc	1984	Public Health

#### Positions and Honors:

##### Employment:

1971-73	Instructor, Tunghai University, Dept of Foreign Languages, Taichung, Taiwan
1979-80	Lecturer, Hubei Provincial Medical College, Wuhan, People's Republic of China, Dept of Foreign Languages
1983-87	Research Assistant Professor, Dept of Social Medicine, School of Medicine, University of North Carolina at Chapel Hill
1987-93	Assistant Professor, Dept of Social Medicine, University of North Carolina
1988-92	Lecturer, Robert Wood Johnson Clinical Scholars Program and Rockefeller International Clinical Epidemiology Network Program, University of North Carolina, School of Medicine
1989-91	Consultant to CDC, Center for Environmental Health and Injury Control, Division of Birth Defects and Developmental Disabilities, on clinical trial for the prevention of neural tube defects, in six counties in North China
1993-97	Associate Professor, Dept of Social Medicine, Univ. of North Carolina
1997-	Professor, Dept of Social Medicine, University of North Carolina
1996-	Adjunct Professor, Dept of Sociology, University of North Carolina
2004-	Director, International Core, UNC Center for AIDS Research

#### Professional Honors

1971-74	Oberlin Shansi Memorial Association Fellowship
1982-84	Mellon Fellowship in Chinese Studies, for postdoctoral studies in the fields of public health and medical sociology
1996-98	Luce Foundation, 3-year grant. "Welfare Effects of Economic and Social Change in China." Co-P.I.
1997-98	University Pogue Leave Award
2001-05	NIH, NHLBI, Genetics of Asthma and Hypertension Observational Study Monitoring Board
2001-	Member, Protection of Human Subjects Committee, Family Health International, RTP, NC
2001-	American Sociological Review Editorial Board

#### Selected Peer-Reviewed Publications

##### Articles:

- Henderson, Gail and M.S. Cohen, "Health Care in the People's Republic of China: A View from Inside the System," American Journal of Public Health 1982; 72, 11 (November).
- Henderson, Gail, Liu Yuanli, Guan Xiaoming, and Liu Zongxiu, "The Rise of Technology in Chinese Hospitals," International Journal of Technology Assessment in Health Care 1987; 253-263.

3. Henderson, Gail, Elizabeth Murphy, Samuel Sockwell, Zhou Jiongliang, Shen Qingrui, and Li Zhiming, "High-Technology Medicine in China: The Case of Chronic Renal Failure and Hemodialysis." *New England Journal of Medicine* 1988; 318:1000-1004.
4. Henderson, Gail, "Rethinking the Presence of American Scholars in China," *A Commentary. Journal of the American Medical Association* 1990; 273:992-993.
5. King, Nancy M.P. and Gail Henderson, "Treatments of Last Resort: Informed Consent and the Diffusion of New Technology," *Mercer Law Review* 1991; 42, 3:1007-1050.
6. Henderson, Gail, John Akin, Li Zhiming, Jin Shuigao, Ma Haijiang, and Ge Keyou, "Equity and the Utilization of Health Services: Report on an Eight-Province Survey in China," *Social Science and Medicine* 1994; 39,5: 687-699.
7. Henderson, Gail, John Akin, Li Zhiming, Jin Shuigao, Wang Jianmin, and Ge Keyou, "The Distribution of Medical Insurance in China," *Social Science and Medicine* 1995; 41,8: 1119-1130.
8. Entwisle, Barbara, Gail Henderson, Susan Short, Jill Bouma, and Zhai Fengying, "Gender and Family Businesses in Rural China," *American Sociological Review* 1995; 60,1: 36-57.
9. Cohen, Myron S., Gail Henderson, Pat Aiello, and Zheng Heyi, "The Eradication of STDs in China," *Journal of Infectious Disease* 1996; 174 (Supplement 2): S223-230.
10. Danis, Marion, Andrea Biddle, Gail Henderson, Joanne M. Garrett, and Robert De Vellis, "The Health Insurance Puzzle: A New Approach to Assessing Patient Coverage," *Journal of the Community Health* 1998; 23,3:181-94.
11. Henderson, Gail, John Akin, Paul Hutchinson, Jin Shuigao, Jason Deitrich, Wang Jianmin, and Ma Linmao, "Trends in Health Care Utilization in Eight Chinese Provinces, 1989-1993," *Social Science and Medicine* 1998; 47,12:1957-1971.
12. Cohen, Myron S., Gao Ping, Kim Fox, and Gail Henderson, "Sexually Transmitted Diseases in the People's Republic of China in Y2K: Back to the Future." *Sexually Transmitted Diseases* 2000; 27,3:143-5.
13. Henderson, Gail E. and Nancy M.P. King, "Studying Benefit in Gene Transfer Research," *IRB: Ethics and Human Research* 23,2:13-15, 2001.
14. Davis, Arlene M., Sara Hull, Christine Grady, Benjamin Wilfond, and Gail Henderson, "The Invisible Hand in Clinical Research: The study coordinator's critical role in human subjects protection," *Journal of Law, Medicine, & Ethics*, 30:411-419, 2002.
15. Churchill, Larry, Daniel Nelson, Gail Henderson, Nancy King, Arlene Davis, Erin Leahey, and Benjamin Wilfond, "Assessing Benefits in Clinical Research: Why Diversity in Benefit Assessment Can Be Risky," *IRB: Ethics and Human Research* 25,3:1-8, 2003.
16. Henderson, Gail E., "Understanding the Context of Emerging Pathogens in China," *Harvard Asia Quarterly*, 7,4: 4-8, 2003.
17. Henderson, Gail E., Arlene M. Davis, Nancy M.P. King, Michele M. Easter, Catherine R. Zimmer, Barbra Bluestone Rothschild, Benjamin S. Wilfond, Daniel K. Nelson, and Larry R. Churchill, "Uncertain Benefit: Investigators' Views and Communications in Early Phase Gene Transfer Trials." *Molecular Therapy* 2004;10,2: 225-231.
18. Henderson, Gail E., Arlene M. Davis, and Nancy M.P. King, "Vulnerability to Influence—A Two-Way Street," *Invited Commentary on Levine, C., R. Faden, C. Grady, D. Hammerschmidt, L. Eckenweiler, and J. Sugarman, "The limitations of vulnerability as a protection for human research participants," The American Journal of Bioethics* 2004; 4,3:50-51.
19. King, Nancy M.P., Gail E. Henderson, Larry R. Churchill, Arlene M. Davis, Sara Chandros Hull, Daniel K. Nelson, P. Christy Parham-Vetter, Barbra Bluestone Rothschild, Michele M. Easter, Benjamin S. Wilfond, MD, "Consent Forms and the Therapeutic Misconception: The Example of Gene Transfer Research," *IRB: Ethics and Human Research* Forthcoming January 2005.
20. Huang, Yingying, Gail E. Henderson, Suiming Pan, and Myron S. Cohen, "HIV/AIDS Risk among Brothel-based Female Sex Workers in China: Assessing the terms, content and knowledge of sex work," *Sexually Transmitted Disease* 2004; 11:695-700.

## Henderson, Gail

**Books and Book Chapters:**

1. Henderson, Gail and M.S. Cohen, *The Chinese Hospital: A Socialist Work Unit* Yale University Press, New Haven, 1984.
2. Henderson, Gail, "Public Health in China," In *China Briefing*, 1992. Edited by William A. Joseph. Published by The Asia Society, New York, 1992. pp. 103-123.
3. Henderson, Gail, "Physicians in China: Assessing the Impact of Ideology and Organization," *The Changing Character of the Medical Profession: An International Perspective*. Edited by Frederic W. Hafferty and John McKinlay. Published by Oxford University Press, New York, 1993. pp. 251-278.
4. Henderson, Gail, Nancy King, Ronald Strauss, Sue Estroff, and Larry Churchill (eds), *The Social Medicine Reader* Duke University Press, Durham, NC, 1997. [2<sup>nd</sup> edition forthcoming, 2005]
5. Henderson, Gail and T. Scott Stroup, "Preventive Health Care in Zouping: Privatization and the Public Good," In *Zouping in Transition: The Political Economy of Growth in a North China County*. Edited by Andrew Walder, Council on East Asian Studies, Harvard University, Cambridge, MA, 1998.
6. King, Nancy, Gail Henderson, and Jane Stein (eds), *Beyond Regulations: The Ethics of Human Subjects Research* University of North Carolina Press, Chapel Hill, 1999.
7. Entwisle, Barbara and Gail Henderson (eds), *Re-Drawing Boundaries: Work, Households, and Gender in China* University of California Press, Berkeley, 2000.
8. Henderson, Gail, "Descriptive Methods: The Case of Genetic Diagnosis," in *Methods in Medical Ethics*. Edited by Jeremy Sugarman and Daniel P. Sulmasy. Published by Georgetown University Press, Washington DC, 2001.

**Research and Training Support:**

2 RO1 HG 02087 (Henderson) 01/01/04-12/31/06

NIH, National Human Genome Research Institute

*The Social Construction of Benefit in Gene Transfer Research*

This competing continuation project involves three activities: 1) development of a multi-factorial model of *influence* in GTR, to replace the static and problematic notion of *vulnerability*, based on research relationships, analyzing research participation as a form of social exchange, and delineating a dynamic continuum of influences, ranging from 'due' to 'undue', affecting all parties to research relationships; 2) development of a *benefit threshold* for assessing what may be offered as a "reasonable prospect of direct benefit" for subjects in early-phase GTR, including how study endpoints relate to direct benefit, specificity in discussion of direct benefit in early-phase research, the effects of trial design features on direct benefit, and assessment of collateral ("inclusion") and societal benefit; and 3) application of our influence model and benefit threshold to a close examination of the "vulnerable" population of *children in GTR studies*, where special regulatory guidance, the dual problems of inclusion and access, and growth and change in the field of GTR affect how benefit in pediatric GTR is viewed by IRBs, investigators, and families.

1 R01 HG002830 (Corbie-Smith) 5/2003-4/2006

NIH National Human Genome Research Institute

*Learning About Research in North Carolina*

The aims of this project are to describe: 1) North Carolina Colorectal Cancer Study (NCCCS) participants' perceptions of causality of colorectal cancer and how perceptions of causality of colorectal cancer change after participation in the NCCCS determinants of colorectal cancer interview; 2) what motivates research participants to participate in the NCCCS study; 3) NCCCS participants' perceptions of positives and negatives related to collecting genetic data in epidemiologic research; and 4) how NCCCS research participants understand the purpose of the NCCCS research. All aims will be examined for differences by disease status and race/ethnicity.

**Henderson, Gail**

P30-AI50410-04 (Swanstrom) 8/1/01-5/31/06

NIH, National Institute of Allergy and Infectious Diseases

*NIH UNC Center for AIDS Research*

*International Core Director* The goal of the International Core is to facilitate the development and continued success of international collaborations in HIV/AIDS research, including: 1) maintaining a dynamic informational display of current international research in HIV/AIDS by UNC investigators; 2) providing guidance on the ethics of international research on HIV/AIDS; 3) assisting international collaborators and trainees to develop independent proposals for NIH funding, focusing particularly on the countries with which UNC has ongoing collaborative research projects, and 4) in collaboration with the other cores, providing technical support for clinical and basic research laboratories in countries with ongoing collaborative research projects.

1 P20HG03387-01 (Bailey) 7/1/04-6/30/06

NIH National Human Genetics Research Institute

*ELSI Scale-Up: Large Sample Gene Discovery and Disclosure*

This proposal rests on the assumption that rapid expansion of large sample gene discovery and disclosure projects raise major ethical, legal, social, and policy challenges, to such an extent that it constitutes a significant and urgent public health need. By utilizing three unique projects at UNC-CH involving large-sample gene discovery and disclosure, we are proposing a two-year Exploratory (P20) grant to conduct the planning necessary to create a Center of Excellence on ELSI Issues in Large Sample Gene Discovery and Disclosure. Our goal is to develop an infrastructure to maximize collaborative research, create partnerships with relevant constituencies, identify critical issues that must be addressed, and collect sufficient pilot data to propose a well-integrated center in which state-of-the-art ELSI research can be conducted to inform public policy.

1 R25TW007098-01 (Behets) 06/01/04-05/31/08

NIH Fogarty International Center

*Strengthening Bioethics Capacity and Justice in Health*

To build bioethical training and research capacity at the Kinshasa School of Public Health, Democratic Republic of Congo through expansion of its partnerships with the University of North Carolina and the Catholic University of Louvain, Belgium.

### BIOGRAPHICAL SKETCH

NAME	POSITION TITLE		
Corbin D. Jones	Assistant Professor of Biology		
EDUCATION/TRAINING			
INSTITUTION AND LOCATION	DEGREE <i>(if applicable)</i>	YEAR(s)	FIELD OF STUDY
Reed College, Portland, OR	B.A.	1991	Pol. Sci.
University of Rochester, Rochester, NY	M.S.	1996	Biology
University of Rochester, Rochester, NY	Ph.D.	2000	Biology (E & E)

#### **A. Positions and Honors**

Post-doctoral fellow, Department of Biology, University of Rochester, (with H. A. Orr), 2000  
 Post-doctoral fellow, Center for Population Biology, University of California Davis, (with D. Begun), 2000-2003  
 Assistant Professor, Department of Biology and Carolina Center for Genome Sciences, University of North Carolina, Present

#### **Awards, Fellowships, and Honors:**

Letter of Commendation, Biology Department, Reed College, 1989  
 NSF Pre-doctoral Fellowship Honorable Mention, 1995  
 Biology Department Teaching Award, University of Rochester, 1996  
 First Prize, BioResearch Competition, University of Rochester, 1997  
 Caspari Fellowship, University of Rochester, 1994-1999  
 Peter Wall Institute Junior Fellow, University of British Columbia, Summer 2002  
 Elected post-doctoral associate, Center for Population Biology, UC Davis, 2002

#### **B. Selected peer-reviewed publications:**

Jones, C. D. 1998. The genetic basis of *Drosophila sechellia*'s resistance to a host plant toxin. *Genetics*. 149:1899-1908. [see related: *Science* 284:2106-7]

Otto, S. P. and C. D. Jones. 2000. Detecting the undetected: estimating the number of loci underlying a trait in QTL studies. *Genetics*. 156:2093-2107.

Jones, C. D. 2001. Extension of the Castle-Wright effective factor estimator to sex-linkage and haplodiploidy. *Journal of Heredity*. 92:274-276

Jones, C. D. 2001. The genetic basis of larval resistance to a host plant toxin in *Drosophila sechellia*. *Genetical Research*. 78: 225-233

Kern, A.D., C. D. Jones, and D. J. Begun. 2002 Genomic effects of nucleotide substitution. *Genetics* 162(4):1753-61

Jones, C. D. 2004. The genetics of egg production in *Drosophila sechellia*. *Heredity* 92:235-41.

Kern, A.D., C. D. Jones, and D. J. Begun. 2004. Molecular population genetics of male accessory gland proteins in the *Drosophila simulans* complex. *Genetics*. 167 (4): [in press]

Jones, C. D. 2004. The genetics of adaptations in *Drosophila sechellia*. *Genetica*. 121. [in press]

**Jones, Corbin**

Danzinger, R.S., and C. D. Jones. 2005. A time to reconsider our collaborations with the Dahl rat. Current Hypertension Reviews. [Accepted]

Jones C. D. A. W. Custer, and D. J. Begun. 2005. Origin and evolution of a chimeric fusion gene in *Drosophila subobscura*, *Drosophila madeirensis*, and *Drosophila guanche*. Genetics [Accepted ]

**C. Ongoing Research Support**

Current:

NSF

DEB-0212686

Jones (PI)

8/01/02-7/31/05

Genetic analysis of complex adaptive traits

Fine scale genetic mapping of a suite of adaptive phenotypes in *Drosophila simulans* and *D. sechellia* hybrids.

Role: PI



### BIOGRAPHICAL SKETCH

NAME	POSITION TITLE		
Nancy M. P. King	Professor of Social Medicine		
EDUCATION/TRAINING			
INSTITUTION AND LOCATION	DEGREE <i>(if applicable)</i>	YEAR(s)	FIELD OF STUDY
St. John’s College, Annapolis, MD	BA	1975	Law
University of North Carolina at Chapel Hill, NC	JD	1980	

#### A. Positions and Honors.

##### Positions and Employment:

- 1980     Legal Consultant, Kennedy Institute of Ethics, Center for Bioethics, Georgetown University, Washington, D.C.
- 1980-81   Attorney, Health Care Financing and Human Development Services Division, Office of General Council, OS, DHHS
- 1982-83   Research Attorney to Professor Clark C. Havighurst, Program on Legal Issues in Health Care, Duke University Law School
- 1983-87   Adjunct Instructor, Department of Social Medicine, University of North Carolina
- 1987-93   Assistant Professor, Department of Social Medicine, University of North Carolina
- 1993-     Associate Professor, Department of Social Medicine, University of North Carolina
- 1999     Professor, Department of Social Medicine, University of North Carolina

##### Professional Memberships and Honors:

- 1992     Philip and Ruth Hettleman Award for Artistic and Scholarly Achievement of Young Faculty
- 1994     Committee for Evaluation of 1905s Air Force Human Testing in Alaska Using Radioisotope Iodine-131
- 1998-2002   Recombinant DNA Advisory Committee, NIH
- 1999     University Kenan Leave Award
- 2002     Elected Fellow of the Hastings Center

#### B. Selected peer-reviewed publications (in chronological order).

##### Articles:

1.   King, NMP. Ensuring Informed Consent in Human Experimentation: Two States' Approaches, *N.C.L. Rev.* 58:137-152 (1979).
2.   King, NMP, and Henderson, GW. Treatments of Last Resort: Informed Consent and the Diffusion of New Technology, *Mercer Law Review* 42:1007-1050 (1991).
3.   King, NMP. Maternal-Fetal Conflicts: Ethical and Legal Implications for Nurse-Midwives, *Journal of Nurse-Midwifery* 36:361-365 (1991).
4.   King,, NMP, and Stanford, AF. Patient Stories, Doctor Stories, and True Stories: A Cautionary Reading, *Literature and Medicine* 11(2): 185-199 (1992).
5.   King, NMP. The Natural Death Act: A Philosophical Context for a Practical Problem, *North Carolina State Bar Quarterly* 39(1): 12-17 (1992).
6.   King, NMP. Transparency in Neonatal Intensive Care, *Hastings Center Report* 22(2): 18-25 (1992).
7.   King, NMP. Patient Waiver of Informed Consent, *North Carolina Medical Journal* 54:399-403 (1993).
8.   King, NMP. Experimental Treatment: Oxymoron or Aspiration?, *Hastings Center Report*, 25 (4):6-15 (1995).

9. King, NMP. and Davis, AM. End-of-Life Decisionmaking: The Patient's Right to Choose, *North Carolina Medical Journal*, 57:381-384 (1996).
10. King, NMP. The Ethics Committee as Greek Chorus, *Healthcare Ethics Committee Forum*, 8:346-354 (1996).
11. King, NMP and Davis, AM. Advance Directives for Medical Decision Making in North Carolina: Rights, Duties, and Questions, *Popular Government*, 62 (3): 2-11 (Spring 1997) and 62 (4): 38-49 (Summer 1997).
12. Churchill, LR, Collins, ML, King, NMP, Pemberton, S, and Wailoo K. Genetic Research as Therapy: Implications of "Gene Therapy" for Informed Consent, *Journal of Law, Medicine and Ethics*, 1998; 26:38-47.
13. King, NMP. Rewriting the "Points to Consider": The Ethical Impact of Guidance Document Language, *Human Gene Therapy*, 1999;10:133-139.
14. King, NMP. Defining and Describing Benefit Appropriately in Clinical Trials, *Journal of Law, Medicine & Ethics* 2000; 28: 332-343.
17. King, NMP. RAC Oversight of Gene Transfer Research: A Model Worth Extending?, *Journal of Law, Medicine & Ethics* 2002, 30: 381-389.
18. King, N. M. P. Accident and Desire: Inadvertent Germline Effects in Clinical Research, *Hastings Center Report* 2003;33(2):23-30.
19. King N. M. P. The Line Between Clinical Innovation and Human Experimentation, *Seton Hall Law Review* 2003; 32:573-582.
20. Churchill L. R., Nelson D. K., Henderson G. E., King N. M. P., et al. Assessing Benefits in Clinical Research: Why Diversity in Benefit Assessment Can Be Risky, *IRB: Ethics & Human Research* 2003;25(3):1-8
21. Henderson G. E., Davis A. M., King N. M. P. Vulnerability to Influence: A Two-Way Street. *American Journal of Bioethics* 2004;4(3):50-52.
22. Henderson G. E., Davis A. M., King N. M. P., Easter M. M., Zimmer C. R., Rothschild B. B., Wilfond B. S., Nelson D. K., and Churchill L. R.. Uncertain Benefit: Investigators' Views and Communications in Early Phase Gene Transfer Trials. *Molecular Therapy* 2004;10:225-231.
23. King N. M. P., Churchill L. R., Davis A. M., Hull S. C., Nelson D. K., Parham-Vetter P. C., Rothschild B. B., Easter M. M., and Wilfond B. S. Consent Forms and the Therapeutic Misconception: The Example of Gene Transfer Research. *IRB: Ethics & Human Research* 2005; 27(1):1-8.

**Books and Book Chapters:**

1. King, NMP. Ethics Committees: Talking the Captain Through Troubled Waters, in *The Physician as Captain of the Ship: A Critical Reappraisal* (N. King, L. Churchill, A. Cross, eds.), D. Reidel Publishing, 1988, pp. 223-241.
2. Havighurst, CC, and King, NMP. Liver Transplantation in Massachusetts: Public Policymaking as Morality Play, in *Organ Transplantation Policy: Issues and Prospects* (J.F. Blumstein and F.A. Sloan, eds.), Duke University Press, 1989, pp. 229-260.
3. King, NMP. Consent to Treatment, in *Health Care Facilities Law* (A. Dellinger, ed.), Little, Brown, 1991, pp. 455-529.
4. King, NMP. *Making Sense of Advance Directives* (revised ed.), Georgetown University Press, 1996.
5. Committee on Evaluation of 1950s Air Force Human Health Testing in Alaska Using Radioactive Iodine-131: *The Arctic Aeromedical Laboratory's Thyroid Function Study: A Radiological and Ethical Analysis*, National Research Council, Institute of Medicine, National Academy Press, 1996.
6. Henderson, GE, King, NMP, Strauss, RP, Estroff, SE, and Churchill, LR. (eds.): *The Social Medicine Reader*, Duke University Press, 1997.
7. King, NMP, Henderson, GE, and Stein, J. (eds.): *Beyond Regulations: Ethics in Human Subjects Research*, University of North Carolina Press, 1999.
- 8.

- King, N.M.P.: Privacy and Confidentiality in Research, in *Encyclopedia of Bioethics* (3rd ed., S. Post, ed.), MacMillan Publishing, 2004.
9. Oberlander, J., L. Churchill, S. Estroff, G. Henderson, N. King and R. Strauss, eds. *Health Policy, Markets and Medicine* (In Press, Duke University Press).
  10. Henderson, G., S. Estroff, L. Churchill, N. King, J. Oberlander, and R. Strauss, eds. *Social and Cultural Contributions to Health, Difference, and Inequality* (In Press, Duke University Press)
  11. N. King, R. Strauss, L. Churchill, S. Estroff, G. Henderson, and J. Oberlander, eds. *Patients, Doctors, and Illness* (In Press, Duke University Press).

**C. Research Support.**

1 RO1 HG 02087-01 Gail E. Henderson and Nancy M. P. King (Co-PIs) 10/1/99-7/31/03

National Human Genome Research Institute, NIH

*The Social Construction of Benefit in Gene Transfer Research.*

This interdisciplinary empirical study continues the examination of gene transfer research. Its goals are to examine how potential benefit to subjects is understood and discussed by all participants in gene transfer research -- investigators, study coordinators, research subjects, and reviewing IRB members -- as well as how potential benefit to subjects is described in gene transfer protocol materials and consent forms. Analysis will compare participant groups, types of trials, disease categories, funding sources, and research settings, and identify both the strengths of current procedures and challenges to further improvement. NMP King coordinates analysis of consent forms and protocol materials.

1 R25 ES012079-01 (Crump) 8/1/03-7/31/07

NIH/National Institute of Environmental Health Services

*Exchange: Improving Environmental Health Research Through Dialogue*

The major goals of this project are: to assess views about and understanding of ethical, legal and social implications of environmental health research among residents of communities affected by environmental hazards, health care providers and attorneys serving those communities, and academic researchers; to develop, implement, and evaluate an educational campaign to raise awareness of ethical, legal, and social implications of environmental health research among those constituencies; and to facilitate collaborative discussion among those constituencies, in order to help develop, modify, and implement policies and procedures to guide environmental health research that is responsive to the interests and needs of communities affected by environmental hazards.

Renewal of R01 HG 02087 (Henderson) 1/01/04-12/31/07

NIH National Human Genome Research Institute

*The Social Construction of Benefit in Gene Transfer Research*

In our 1999-2003 ELSI project, "Social Construction of Benefit in Gene Transfer Research" (R01 HG02087), we explored how benefit in gene transfer research (GTR) is discussed and understood, and whether and how the "therapeutic misconception" exists in GTR. In this competing continuation application, we propose to reframe the concept of "vulnerability" in relational terms by means of a multifactorial model of *influence* in GTR; to develop a *benefit threshold standard* for assessing what may be offered as a "reasonable prospect of direct benefit" for subjects in early-phase GTR; and to apply our influence model and benefit threshold to a close examination of GTR in *children*.

## BIOGRAPHICAL SKETCH

NAME Brian Kuhlman		POSITION TITLE Assistant Professor	
EDUCATION/TRAINING			
INSTITUTION AND LOCATION	DEGREE <i>(if applicable)</i>	YEAR(s)	FIELD OF STUDY
Rice University, Houston, TX	BA	1988-1992	Chemical Physics
SUNY at Stony Brook, Stony Brook, NY	PhD	1993-1998	Chemistry
University of Washington, Seattle, WA	postdoc	1999-2002	Biochemistry

### A. Positions and Honors:

#### Positions and Employment

2002- Assistant Professor, Department of Biochemistry and Biophysics, UNC-Chapel Hill

2003- Member, UNC Biophysics Curriculum, UNC-Chapel Hill

2003- Member, Carolina Center for Genome Sciences

#### Honors

Stony Brook President's award for excellence in teaching by a graduate student, 1995

Stony Brook President's award for excellence in research by a graduate student, 1998

Damon Runyon –Walter Winchell Cancer Research Fund Postdoctoral Fellowship, 1999-2002.

Sloan Research Fellow, 2004

Beckman Young Investigator, 2004-2007

Searle Scholar, 2004-2007

Foresight Institute Feynman Prize in Nanotechnology, 2004

AAAS Newcomb Cleveland Prize, 2004

### B. Selected peer-reviewed publications (in chronological order):

Kuhlman, B., Boice, J. A., Wu, W. J., Fairman, R. & Raleigh, D. P. (1997). Calcium binding peptides from alpha-lactalbumin: implications for protein folding and stability. *Biochemistry* 36(15), 4607-15.

Kuhlman, B., Yang, H. Y., Boice, J. A., Fairman, R. & Raleigh, D. P. (1997). An exceptionally stable helix from the ribosomal protein L9: implications for protein folding and stability. *J Mol Biol* 270(5), 640-7.

Vugmeyster, L., Kuhlman, B. & Raleigh, D. P. (1998). Amide proton exchange measurements as a probe of the stability and dynamics of the N-terminal domain of the ribosomal protein L9: comparison with the intact protein. *Protein Sci* 7(9), 1994-7

Spector, S., Kuhlman, B., Fairman, R., Wong, E., Boice, J. A. & Raleigh, D. P. (1998). Cooperative folding of a protein mini domain: the peripheral subunit- binding domain of the pyruvate dehydrogenase multienzyme complex. *J Mol Biol* 276(2), 479-89

Kuhlman, B. & Raleigh, D. P. (1998). Global analysis of the thermal and chemical denaturation of the N- terminal domain of the ribosomal protein L9 in H<sub>2</sub>O and D<sub>2</sub>O. Determination of the thermodynamic parameters,  $\Delta H(o)$ ,  $\Delta S(o)$ , and  $\Delta C(o)p$  and evaluation of solvent isotope effects. *Protein Sci* 7(11), 2405-12.

**Kuhlman, Brian**

- Kuhlman, B., Luisi, D. L., Evans, P. A. & Raleigh, D. P. (1998). Global analysis of the effects of temperature and denaturant on the folding and unfolding kinetics of the N-terminal domain of the protein L9. *J Mol Biol* 284(5), 1661-70.
- Kuhlman, B., Boice, J. A., Fairman, R. & Raleigh, D. P. (1998). Structure and stability of the N-terminal domain of the ribosomal protein L9: evidence for rapid two-state folding. *Biochemistry* 37(4), 1025-32.
- Sato, S., Kuhlman, B., Wu, W. J. & Raleigh, D. P. (1999). Folding of the multidomain ribosomal protein L9: the two domains fold independently with remarkably different rates. *Biochemistry* 38(17), 5643-50.
- Luisi, D. L., Kuhlman, B., Sideras, K., Evans, P. A. & Raleigh, D. P. (1999). Effects of varying the local propensity to form secondary structure on the stability and folding kinetics of a rapid folding mixed alpha/beta protein: characterization of a truncation mutant of the N-terminal domain of the ribosomal protein L9. *J Mol Biol* 289(1), 167-74.
- Kuhlman, B., Luisi, D. L., Young, P. & Raleigh, D. P. (1999). pKa values and the pH dependent stability of the N-terminal domain of L9 as probes of electrostatic interactions in the denatured state. Differentiation between local and nonlocal interactions. *Biochemistry* 38(15), 4896-903.
- Kuhlman, B. & Baker, D. (2000). Native protein sequences are close to optimal for their structures. *Proc Natl Acad Sci U S A* 97(19), 10383-8.
- Nauli, S., Kuhlman B. & Baker, D. (2001) Computer-based redesign of a protein folding pathway. *Nat. Struct. Biol.* 8(7), 602-5
- Kuhlman B., O'Neill, J. W., Kim, D. E., Zhang, K.Y. & Baker, D. (2001) Conversion of monomeric protein L to an obligate dimer by computational design. *Proc Natl Acad Sci U S A* 98(19), 10687-91
- Nauli S, Kuhlman B, Le Trong I, Stenkamp RE, Teller D, Baker D. (2002) Crystal structures and increased stabilization of the protein G variants with switched folding pathways NuG1 and NuG2. *Protein Sci.* 12, 2924-31
- Kuhlman B., O'Neill, J. W., Kim, D. E., Zhang, K. Y. & Baker, D. (2002) Accurate computer-based design of a new backbone conformation in the second turn of protein L. *J Mol Biol* 315, 471-7
- Dantas G., Kuhlman B., Callender D., Wong M. & Baker, D. (2003) A large scale test of computational protein design: Folding and stability of nine completely redesigned globular proteins. *J Mol Biol.* 332, 449-460.
- Kuhlman, B., Dantas, G., Ireton, G., Varani, G., Stoddard, B., & Baker, D. (2003) Design of a novel globular protein fold with atomic level accuracy. *Science* 302, 1364-1368.
- Leaver-Fay, A., Kuhlman, B., & Snoeyink, J. (2005) An adaptive dynamic programming algorithm for the side chain placement problem. *Pacific Symposium on Biology*, accepted
- Jiang, L., Kuhlman, B., Kortemme, T., & Baker, D. (2005) A "solvated rotamer" approach to modeling water mediated hydrogen bonds at protein-protein interfaces. *Proteins*, in press.

**Kuhlman, Brian****C. Research Support****Ongoing Research Support**

R21 GM070597 Kuhlman (PI) 7/01/04 - 6/30/06

NIH/NIGMS

Identifying Ubiquitin E3 Substrates with Redesigned E3s

The goal of this project is to develop a new method for identifying the substrates of E3 ubiquitin ligases. To achieve this objective we are redesigning ubiquitin ligases so that instead of attaching ubiquitin to their substrates, they modify their substrates with the ubiquitin-like molecule NEDD8.

Role: PI

New Investigator Award Kuhlman (PI) 7/01/04 – 6/30/07

Searle Scholars Program

Computer-based Design of Protein-Protein Interactions in the Ubiquitination Pathway

The major goals of this project are to use computer-based methods to redesign the ubiquitin ligase E6AP to interact with the Nedd8 conjugating enzyme Ubch12, and to redesign the binding loops of Ubch7 to interact more tightly with E6AP.

Role: PI

New Investigator Award Kuhlman (PI) 9/01/04 – 8/31/07

Beckman Young Investigator

Computer-based Design of Protein-Protein Interactions in the Ubiquitination Pathway

The major goals of this project are to use computer-based methods to redesign the ubiquitin ligase E6AP to interact with the Nedd8 conjugating enzyme Ubch12, and to redesign the binding loops of Ubch7 to interact more tightly with E6AP.

Role: PI

New Investigator Award Kuhlman (PI) 5/01/04 - 4/30/05

Alfred P. Sloan Foundation

There is no proposal associated with this award.

Role: PI

**Pending Support**

1R01GM073960 Kuhlman (PI) submitted 6/01/04

NIH/NIGMS

Designing affinity and specificity at protein interfaces

1R01GM073151 Rohl (PI), Baker (Co-PI), Gray (Co-PI), Kuhlman (Co-PI) submitted 3/01/04

Rosetta: An integrated protein structure modeling suite

## BIOGRAPHICAL SKETCH

NAME Ethan M. Lange	POSITION TITLE Assistant Professor		
EDUCATION/TRAINING			
INSTITUTION AND LOCATION	DEGREE <i>(if applicable)</i>	YEAR(s)	FIELD OF STUDY
University of California, Los Angeles	B.S.	86 - 90	Applied Mathematics
University of California, Los Angeles	M.A.	91 - 94	Mathematics
University of Michigan, Ann Arbor	M.S.	94 - 97	Biostatistics
University of Michigan, Ann Arbor	PhD	97 - 01	Biostatistics

**A. Positions and Honors.**

1990-1994	Research Assistant/Computer Programmer, Ataxia-Telangeiectasia Research Center, Dept of Pathology School of Med., University of California, Los Angeles.
1995-1998	NIH Pre-Doctoral Training Fellowship, National Human Genome Research Institute, T32 HG00040, <i>Institutional Training Grant in Genomic Science</i> .
1994-2000	Graduate Student Research Assistant, Department of Biostatistics School of Public Health, University of Michigan, Ann Arbor.
2000-2001	Instructor, Department of Public Health Sciences, Section on Biostatistics, Wake Forest University School of Medicine, Winston-Salem, N.C.
2002-2004	Assistant Professor, Department of Public Health Sciences, Section on Biostatistics, Wake Forest University School of Medicine, Winston-Salem, N.C.
2004-present	Assistant Professor, Department of Genetics, University of North Carolina School of Medicine, Chapel Hill, NC
2004-present	Research Assistant Professor, Department of Biostatistics, University of North Carolina School of Public Health, Chapel Hill, NC

**B. Selected Peer-reviewed publications (from over 40 total; in chronological order).**

- Gatti RA, Peterson KL, Novak J, Chen X, Yang-Chen L, Liang T, **Lange E**, Lange K. Prenatal genotyping of ataxia-telangiectasia. *The Lancet* 1993;342:376.
- Uhrhammer N, **Lange E**, Porras O, et al. Sublocalization of an ataxia-telangiectasia gene distal to D11S384 by ancestral haplotyping in Costa Rican families. *American Journal of Human Genetics* 1995;57:103-111.
- Lange E**, Borresen A-L, Chen X, et al. Localization of an ataxia-telangeiectasia gene to an ~500 kb interval on chromosome 11q23.1: Linkage analysis of 176 families by an international consortium. *American Journal of Human Genetics* 1995;57:112-119.
- Cooney KA, McCarthy JD, **Lange E**, Huang L, Miesfeldt S, Montie JE, Oesterling JE, Sandler HM, Lange K. Prostate cancer susceptibility locus on chromosome 1q: a confirmatory study. *Journal of the National Cancer Institute* 1997;89:955-952.
- Cerosaletti KM, **Lange E**, Stringham HM, Weemaes CMR, Smeets D, Solder B, Belohradsky BH, Taylor AMR, Karnes P, Elliott A, Komatsu K, Gatti RA, Boehnke M, Concannon P. Fine localization of the Nijmegen breakage syndrome gene to 8q21: Evidence for a common founder haplotype. *American Journal of Human Genetics* 1998;63:125-134.
- Lange EM**, Chen H, Brierley K, Perrone E, Bock CH, Gillanders E, Ray ME, Cooney KA. Linkage analysis of 153 prostate cancer families over a 30cM region containing the putative susceptibility locus HPCX. *Clinical Cancer Research* 1999;5:4013-4020.
- Lange EM**, Chen H, Brierley K, Livermore H, Wojno KJ, Langefeld CD, Lange K, Cooney KA. The polymorphic exon 1 androgen receptor CAG repeat in men with a potential inherited predisposition to prostate cancer. *Cancer Epidemiology, Biomarkers & Prevention* 2000;9:439-442.

## Lange, Ethan

- Gosh S, Watanabe RM, Valle T, ...**Lange EM**, et al. The Finland-United States Investigation of Non-Insulin Dependent Diabetes Mellitus (FUSION) genetic study: I. An autosomal genome scan for genes that predispose to type 2 diabetes. *American Journal of Human Genetics* 2000; 67: 1174-1185.
- Watanabe RM, Ghosh S, Langefeld CD, ...**Lange EM**, et al. The Finland-United States Investigation of Non-Insulin Dependent Diabetes Mellitus (FUSION) genetic study: II. An autosomal genome scan for quantitative trait loci. *American Journal of Human Genetics* 2000;67:1186-1200.
- Mohlke KL, **Lange EM**, Valle TT, et al. Linkage Disequilibrium Between Microsatellite Markers Extends Beyond 1 cM on Chromosome 20 in Finns. *Genome Research* 2001;11:1221-1226.
- Bock CH, Cunningham JM, McDonnell SK, Schaid DJ, Peterson BJ, Pavlic RJ, Schroeder JJ, Klein J, French AJ, Marks A, Thibodeau SN, **Lange EM**, Cooney KA. Analysis of the prostate cancer susceptibility locus HPC20 in 172 prostate cancer families. *American Journal of Human Genetics* 2001;68: 795-801.
- Davis CC, Brown WM, **Lange EM**, Rich SS, Langefeld CD. Nonparametric linkage regression II: Identification of influential pedigrees in tests for linkage. *Genetic Epidemiology* 2001; 21: S123-S129.
- Shah S, Doyle K, **Lange EM**, Shen P, Pennell T, Ferree C, Levine EA, Perrier ND. Breast cancer recurrences in elderly patients after lumpectomy. *The American Surgeon* 2000; 68:735-739.
- Lange LA, **Lange EM**, Bielak LF, Langefeld CD, Kardina SL, Turner SL, Sheedy PF, Boerwinkle E, Peyser PA. Autosomal genome-wide scan for coronary artery calcification loci. *Arteriosclerosis, Thrombosis and Vascular Biology*, 2002;22:418-423.
- Guo S-W, Jenisch S, Stuart P, **Lange EM**, Kukuruga D, Nair RP, Henseler T, Voorhees JJ, Christophers E, Elder JT. Combined segregation and linkage analysis of HLA markers in familial psoriasis. *European Journal of Human Genetics* 2002;10:327-333.
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- Chen H, Griffin A, Wu Y-Q, Tomsho P, Zuhlke KA, **Lange EM**, Gruber SB, Cooney KA. RNASEL mutations in hereditary prostate cancer. *Journal of Medical Genetics* 2003; 40: 0-4.
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- Huang S-K, Mathias RA, Ehrlich E, Plunkett B, ..., Rich S, Mellen B, **Lange E**, Beaty TH, and the CSGA. Evidence for asthma susceptibility genes on chromosome 11 in an African American population. *Human Genetics* 2003; 113: 71-75.
- Miller DC, Zheng SL, Dunn RL, Sarma AV, **Lange EM**, Meyers DA, Xu J, Cooney KA. Germline mutations of the macrophage scavenger receptor 1 gene: Association with prostate cancer risk in African-American men. *Cancer Research* 2003; 63: 3486-3489.
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## Lange, Ethan

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- Lange EM**, Lange K. Powerful allele-sharing statistics for nonparametric linkage analysis. *Human Heredity* 2004; 57:49-58.
- Ambrosius WT, **Lange EM**, Langefeld CD. Power for genetic association studies with random allele frequencies and genotype distributions. *American Journal of Human Genetics* 2004; 74:683-693.
- Blumenthal MN, Langefeld CD, Beaty TH, ... , **Lange E**, ..., Oetting W, Meyers DA, Rich SS for the NHLBI Collaborative Study on the Genetics of Asthma. A genome-wide search for allergic response (atopy) genes in three ethnic groups: Collaborative Study on the Genetics of Asthma (CSGA). *Human Genetics* 2004; 114:157-164.
- Gillanders EM, Xu J, Chang B, **Lange EM**, ... , Gronberg H, Cooney KA, Isaacs WM, Trent JM. Combined genome-wide scan for prostate cancer susceptibility genes in four hereditary prostate cancer populations: evidence for linkage at 17q22. *Journal of the National Cancer Institute* 2004; 96:1240-1247.
- Lange EM**, Boehnke M. The haplotype runs test: The parent-parent-affected-offspring trio design. *Genetic Epidemiology* 2004; 27:118-130.
- Zuhlke KA, Madeoy JJ, Dimmer JB, White KA, Griffen A, **Lange EM**, Gruber SB, Ostrander EA, Cooney KA. Truncating BRCA1 mutations are uncommon in hereditary prostate cancer families with evidence for linkage to 17q markers. *Clinical Cancer Research* 2004; in press.
- Nicklas BJ, Mychaleckyj J, Kritchevsky S, Palla S, Lange LA, **Lange EM**, Messier SP, Bowden D, Pahor M. Physical function and its response to exercise: Associations with cytokine gene variation in older adults with knee osteoarthritis. *The Journal of Gerontology: Medical Sciences* 2004; in press.

### C. Research Support Ongoing

Lange (PI) 08/01/00 – 07/31/04\*  
NIH/Subcontract with the U. of Michigan 1 Ro1 CA79596

#### **Genetic Analysis of Hereditary Prostate Cancer Families**

The purpose of this project is to examine in an independent set of hereditary prostate cancer families collected at the University of Michigan Medical Center for evidence of linkage to these identified candidate regions. The identification of prostate cancer genes should help facilitate a better understanding of the molecular pathways that lead to prostate cancer and should eventually lead to better preventative measures and potential cures.

Role: Principal Investigator

*\* Under no cost extension, renewal (retroactive to 08/01/04) funded and awaiting final award notice*

Lange (PI) 07/01/02 – 04/30/06  
NIH/Subcontract with the U. of Michigan CFDA No. 93.399

#### **Prostate Cancer Susceptibility: The ICPCG Study**

This is a collaborative study of prostate cancer genetics. This grant allows for continued collection of medical information and DNA from prostate cancer families, genotyping, and collaborative analyses with the other eleven participating ICPCG groups.

Role: Principal Investigator

Lange (PI) 08/01/03-08/01/06  
DOD/Subcontract with the U. of Michigan DAMD17-03-1-0270  
**Genetic and Hormonal Risk Factors for Prostate Cancer in African American Men**

## Lange, Ethan

This grant investigates the relationship between hormones, growth factors and their impact on the development of prostate cancer in an African American population. This study uses data collected from the Flint Men's Health Study. Relationships between genetic polymorphisms and prostate cancer will also be investigated.

Role: Principal Investigator

L. Lange (PI)

07/01/03 – 06/30/08

NIH/Univ. of Washington

R01 HL027862

### **Molecular Epidemiology of MI and Stroke in Older Adults**

We expect this multi-disciplinary approach to enable the detection of genetic variants that influence CVD susceptibility or modify the response to conventional cardiovascular risk factors.

Role: Co-Investigator

**Completed in Last 3 years** (\* I left study after changing institutions)

Principal Investigator: Dr. Marco Pahor

04/01/01-03/31/04

NIH-NIA

1 R01 AG18702-01A1

### **Gene Polymorphisms and Prevention of Disability**

The major goals of this project were to explore the interactions of polymorphisms of the angiotensin converting enzyme (ACE) and cytokines genes with behavior and medication use in determining physical function outcomes in older persons.

Role: Co-Investigator

Rich (PI)

07/01/02 - 06/31/07 \*

NIH/NIDDK

1 R01 DK 062418-01

### **Type 1 Diabetes Genetics Consortium**

The goal of the "Type 1 Diabetes Genetics Consortium" (T1DGC) is to organize international efforts to provide the fundamental clinical and genetic resources to achieve the necessary sample size and sample availability to identify genes that determine an individual's risk of type 1 diabetes. The creation of a resource base of well-characterized families from multiple ethnic groups is proposed that will facilitate the localization and characterization of type 1 diabetes genes that determine disease risk. The Consortium will gain a better understanding of disease mechanisms, with a purpose of altering these mechanisms and pathways in individuals at risk of type 1 diabetes.

Role: Co-Investigator

Langefeld (PI)

07/01/02 – 06/30/07 \*

NIH/Subcontract with UAB

1 P01-AR049084-01

### **Program Project in the Genetics of SLE**

The Program Project in the Genetics of SLE forms an extension of the previously funded Specialized Center of Research (SCOR) in Systemic Lupus. In this Program Project we will attempt to replicate, narrow and fine map previously defined linkage regions, and pursue the structure and biology of a series of candidate genes.

Role: Co-Investigator

Rich (PI)

08/01/03-06/30/08 \*

NIH/Subcontract with Cedar-Sinai Medical Center 1 R01 HL 071205-01A1

### **MESA Family Study – Genetic Analysis Center**

Epidemiologic study on the determinants of subclinical cardiovascular diseases and its progression to clinical CVD. To examine the range of noninvasive measures of subclinical CVD including assessment of coronary calcium by computerized tomography (EBCT or helical CT), carotid ultrasound, and magnetic resonance imaging (MRI).

Role: Co-Investigator

## BIOGRAPHICAL SKETCH

NAME	POSITION TITLE		
Leslie A. Lange	Research Assistant Professor		
EDUCATION/TRAINING			
INSTITUTION AND LOCATION	DEGREE <i>(if applicable)</i>	YEAR(s)	FIELD OF STUDY
University of Michigan, Dearborn, MI	B.S.	1993	Mathematics
University of Michigan, Ann Arbor, MI	M.S.	1996	Biostatistics
University of Michigan, Ann Arbor, MI	Ph.D.	2000	Epidemiology

**Professional Experience**

1994	Staff Consultant, Andersen Consulting, Arthur Andersen & Co., Detroit, MI
1994-1996	Graduate Student Research Assistant, Department of Biostatistics, University of Michigan, Ann Arbor, MI
1996-1999	Statistical Consultant, Saint Joseph Mercy Hospital, Ann Arbor, MI
1996-1999	Research Associate II, Department of Biostatistics, University of Michigan, Ann Arbor, MI
1998	Guest Lecturer, "Introduction to Biostatistics," Summer Epidemiology Sessions, University of Michigan, Ann Arbor, MI
2000	Graduate Student Research Assistant, Department of Epidemiology, University of Michigan, Ann Arbor, MI
2000-2001	Instructor, Department of Public Health Sciences, Section on Epidemiology, Wake Forest University School of Medicine, Winston-Salem, NC
2001-2004	Assistant Professor, Department of Public Health Sciences, Section on Epidemiology, Wake Forest University School of Medicine, Winston-Salem, NC
2004-present	Research Assistant Professor, Department of Genetics, University of North Carolina School of Medicine, Chapel Hill, NC

**Honors/Fellowships**

1986-1990	Brunswick Foundation Academic Scholarship
1992-1993	University of Michigan Dean's List
1992	University of Michigan Honors Convocation
1993	Pi Mu Mathematical Honor Society
1997-2000	University of Michigan, Regents Fellowship
2000	University of Michigan, Rackham Dissertation Fellowship

**Journal Articles**

- Weg JG, Anzueto A, Balk RA, Wiedemann HP, Pattishall EN, Schork MA, **Wagner LA**. The relation of pneumothorax and other air leaks to mortality in the acute respiratory distress syndrome. *New England Journal of Medicine* 1998;338:341-346.
- Longo KM, Cowen ME, Flaum MA, Valsania P, Schork MA, **Wagner LA**, Prager RL. Preoperative predictors of cost in medicare-age patients undergoing coronary bypass grafting. *Annals of Thoracic Surgery* 1998;66:740-745.
- Cabrera CL, **Wagner LA**, Schork MA, Bohr DF, Cohan BE. Intraocular pressure measurement in the conscious rat. *Acta Ophthalmologica Scandinavica* 1999;77:33-36.
- Starnes SL, Wolk SW, Lampman RM, Shanley CJ, Prager RL, Kong BK, Fowler JJ, Page JM, Babcock SL, **Lange LA**, Erlandson EE, Whitehouse WM. Non-invasive evaluation of hand circulation prior to radial artery harvest for coronary artery bypass grafting. *Journal of Thoracic and Cardiovascular Surgery* 1999;117:261-266.

**Lange, Leslie**

- Dixit PS, Ghezzi EM, **Wagner-Lange LA**, Ship JA. The influence of hypothyroidism and thyroid replacement therapy on stimulated parotid flow rates. *Journals of Oral Surgery, Oral Medicine, Oral Pathology, Oral Radiology and Endodontics* 1999;87:55-60.
- Kreske ED, Wolk SW, Shanley CJ, Lampman RM, Knake JE, **Lange LA**, Erlandson EE, Whitehouse WM. Duplex ultrasonography to predict internal carotid artery stenoses exceeding 50% and 70% as defined by NASCET: The need for multiple criteria. *Vascular Surgery* 1999;33:497-506.
- Ghezzi EM, **Wagner-Lange LA**, Schork MA, Metter EJ, Baum BJ, Streckfus CF, Ship JA. Longitudinal influence of menopause and hormone replacement therapy on parotid flow rates in healthy women. *Journals of Gerontology: Medical Sciences* 2000;55A:M34-42.
- Ghezzi EM, **Lange LA**, Ship JA. Determination of variation of stimulated salivary flow rates. *Journal of Dental Research* 2000;79(11):1874-1878.
- Flaherty KR, Kazerooni EA, Curtis JL, Iannettoni M, **Lange L**, Schork A, Martinez FJ. Short-term and long-term outcomes after dilational lung volume reduction surgery. *Chest* 2001;119:1337-1346.
- Lange LA**, Bowden DW, Langefeld CE, Wagenknecht LE, Carr JJ, Rich SS, Riley WA, Freedman BI. Heritability of carotid artery intimal medial thickness in type 2 diabetes. *Stroke* 2002; 33(7):1876-1881.
- Lange LA**, Lange EM, Bielak LF, Langefeld CD, Kardina SL, Turner SL, Sheedy PF, Boerwinkle E, Peyser PA. Autosomal genome-wide scan for coronary artery calcification loci. *Arteriosclerosis, Thrombosis and Vascular Biology* 2002;22:418-423.
- Bensen JT, **Lange LA**, Langefeld CD, Chang BL, Bleecker ER, Meyers DA, Xu J. Exploring Pleiotropy using Principal Components. *BMC Genetetics* 2003; Dec 31;4 Suppl 1:S53.
- Hokanson JE, Langefeld CD, Mitchell BD, **Lange LA**, Goff Jr. DC, Haffner SM, Saad MF, Rotter JL. Pleiotropy and heterogeneity in the expression of atherogenic lipoproteins: The IRAS Family Study. *Human Heredity* 2003; 55(1):46-50.
- Basehore MJ, Bleecker ER, Harkins M, Hawkins GA, Howard TD, **Lange LA**, Marsik P, Meyers DA, Moore WC. A comprehensive evaluation of IL-4 variants and their association with total serum IgE levels and asthma in Caucasians. *Journal of Allergy and Clinical Investigation* 2004; Jul;114(1):80-7.
- Bento JL, Palmer ND, Mychaleckyj JC, **Lange LA**, Langefeld CD, Rich SS, Freedman BI, Bowden DW. Association of protein-tyrosine phosphatase 1B gene polymorphisms with type 2 diabetes. *Diabetes* 2004; Nov;53(11):3007-12.
- Lange LA**, Norris J, Langefeld CD, Wagenknecht LE, Saad MF, Bowden DW. Association of adipose tissue deposition and beta-2 adrenergic receptor variants: the IRAS Family study. *International Journal of Obesity and Related Metabolic Disorders* (In press).

**Selected Abstracts**

- Jacobson PA, Ratanatharathorn V, Ma M, Scalzo A, **Wagner L**, Schork MA, Silver SM, Adams PT, Uberti JP. Risk-adjusted dose schedule of ganciclovir is effective for the prevention of cytomegalovirus infection in allogeneic stem cell transplant recipients. *Blood* 1997;90:4410.
- Eagle KA, Sievers JJ, Bolling SF, Pagani FD, Schork MA, **Wagner LA**, Deeb GM. Risk adjustment in coronary surgery: Comparison of validated models in a high risk cohort. *American Heart Association, 70<sup>th</sup> Scientific Sessions*, 1997.
- Cohan BE, **Wagner LA**, Schork MA, Bohr DF. Rat intraocular pressure nonresponse to corticosteroid. *Investigative Ophthalmology and Visual Science* 1997;38:798.
- Bohr DF, **Wagner-Lange LA**, Schork MA, Cohan BE. Intraocular pressure circadian rhythm in rats is strain-specific. *Investigative Ophthalmology and Visual Science* 1998;39:S486.
- Ghezzi EM, **Wagner LA**, Schork MA, Ship JA. Longitudinal influence of age, medications and gender on parotid output. *Journal of Dental Research*. 1998;77:1400.
- Lange LA**, Kardina SLR, Bielak LF, Turner ST, Boerwinkle E, Sheedy PF, Peyser PA (2000) Coronary artery calcification is associated with two polymorphisms in the beta-2 adrenergic receptor gene. American Society of Human Genetics 50<sup>th</sup> Annual Meeting. San Diego, CA.

**Lange, Leslie**

**Lange LA**, Lange EM, Bielak LF, Langefeld CD, Kardia SL, Turner ST, Sheedy PF, Boerwinkle E, Peyser PA. Autosomal genomewide linkage scan for coronary artery calcification loci. The 41<sup>st</sup> Annual Conference on Cardiovascular Disease Epidemiology and Prevention. San Antonio, Texas, 2001.

**Lange LA**, Wagenknecht, LE, Langefeld CD, Freedman BI, Riley WA, Rich SS, Bowden DW. Familial aggregation of cardiovascular disease risk factors in type 2 diabetic families. American Society of Human Genetics 51<sup>st</sup> Annual Meeting. San Diego, CA, 2001.

**Lange LA**, Langefeld CD, Beck SR, Rich SS, Herrington DM, Bowden DW. Familial Aggregation of C-Reactive Protein in Type 2 Diabetes. The 43<sup>rd</sup> Annual Conference on Cardiovascular Disease Epidemiology and Prevention. Miami, Florida, 2003.

**Lange LA**, Carr JJ, Borecki IB, Heiss G, Lewis CE, Wilk JB, Hunt SC, Hixson JE, Arnett DK, Lange EM, Eckfeldt JH, Wagenknecht LE, for the FHS Investigators Genome Scan for Calcified Atherosclerotic Plaque of the Abdominal Aorta: Evidence for Linkage to Chromosomes 7p and 9q in the NHLBI Family Heart Study. American Society of Human Genetics 54<sup>th</sup> Annual Meeting. Toronto, CN, 2004.

**Research Support**  
**Ongoing**

1R01 HL071862-01A1 L. Lange (PI) 07/01/03 – 06/30/08  
NIH/Subcontract with U. of Washington

**Thrombosis/Inflammation Genes and Risk of Cardiovascular Events in Older Adults**

This study will evaluate the association of thrombosis and inflammation genes with a number of cardiovascular measures, including incident MI and stroke, carotid IMT, CRP and D-dimer levels in adults over the age of 65 years who were followed up to 12 years as participants in the Cardiovascular Health Study, a large, bi-racial cohort of older adults.

Role: PI

1 Ro1 CA79596 E. Lange (PI) 08/01/00 – 07/31/04\*  
NIH/Subcontract with the U. of Michigan

**Genetic Analysis of Hereditary Prostate Cancer Families**

The purpose of this project is to examine in an independent set of hereditary prostate cancer families collected at the University of Michigan Medical Center for evidence of linkage to these identified candidate regions. The identification of prostate cancer genes should help facilitate a better understanding of the molecular pathways that lead to prostate cancer and should eventually lead to better preventative measures and potential cures.

Role: Statistician/Genetic Epidemiologist

**\* Currently operating under no cost extension. Grant renewal has been funded with retroactive start date 08/01/04 (awaiting final award notice).**

CFDA No. 93.399 E. Lange (PI) 07/01/02 – 04/30/06  
NIH/Subcontract with the U. of Michigan

**Prostate Cancer Susceptibility: The ICPCG Study**

This is a collaborative study of prostate cancer genetics. This grant allows for continued collection of medical information and DNA from prostate cancer families, genotyping, and collaborative analyses with the other eleven participating ICPCG groups.

Role: Statistician/Genetic Epidemiologist

**Completed in Last 3 years**

RO1 HL48341 Meyers (PI) 07/99-06/04  
NIH

Genetics of Asthma and Bronchial Hyperresponsiveness

**Lange, Leslie**

The major goals of this project are to perform segregation analysis to determine genetic models for asthma and associated phenotypes and to perform a genome screen to detect evidence for linkage for those phenotypes in a population of Dutch families ascertained through an asthmatic proband originally studies 25 years ago.

Role: Co-Investigator

I-R01-HL67895 Wagenknecht (PI)

09/01-08/05\*

NIH

GENCAC - North Carolina Field Center

The purpose of the proposed study is to identify genetic factors that establish susceptibility to (a) coronary and aortic atherosclerosis and (b) inter-individual variability in the inflammatory response.

Role: Co-Investigator

1R01 AG-18702-01A1 Pahor (PI)

08/01-07/04

NIH/NIA

Gene Polymorphisms and Prevention of Disability

The major goals of this project are to explore the interactions of polymorphisms of the angiotensin converting enzyme (ACE) and cytokines genes with behavior and medication use in determining physical function outcomes in older persons.

Role: Co-Investigator

Ohar (PI)

12/01/03-11/30/05\*

Mesothelioma Applied Research Foundation

Phenotypic and Genotypic Determinants to Identify Patients at High Risk for Mesothelioma

The major goal of this proposed project is to test the hypothesis that certain phenotypic and genotypic characteristics can be used to identify a population at high risk for mesothelioma. Potential benefits of this study are early detection and treatment of mesothelioma that may lead to more prolonged survival or cure.

Role: Co-Investigator

\* I left these studies when changing institutions.

## BIOGRAPHICAL SKETCH

NAME		POSITION TITLE	
Jason Dillon Lieb		Assistant Professor	
EDUCATION/TRAINING			
INSTITUTION AND LOCATION	DEGREE <i>(if applicable)</i>	YEAR(s)	FIELD OF STUDY
University of North Carolina, Chapel Hill, NC	B.S.	May, 1994	Biology, Chemistry minor
University of California, Berkeley, CA	Ph.D.	May, 1999	Genetics, <i>C. elegans</i>
Stanford University, Stanford, CA	Postdoctoral	April, 1999 to May 2002	Genomics, Biochemistry in <i>S. cerevisiae</i>

**A. Positions and Honors.****Positions**

1990-1994	Undergraduate, University of North Carolina at Chapel Hill B.S. in Biology, Minor in Chemistry. Graduated May 1994 with Honors. Overall GPA 3.70 (Biology 3.67, Chemistry 3.83). Research advisor: Dr. Patricia Pukkila, Honors Thesis: "DNA Sequence Homology Recognition in <i>Coprinus cinereus</i> "
1992	Student Contractor, US Army Medical Research Institute of Chemical Defense Aberdeen Proving Ground (U.S. Army), Edgewood Area. Edgewood, MD
1993	Laboratory Technician, Burroughs Wellcome (now Glaxo-Smithkline) Research Triangle Park, NC. Experimental Therapy Division, Metabolic Studies Laboratory
1994	Laboratory Technician, University of North Carolina, Chapel Hill, Dr. Patricia Pukkila
1994-1999	Graduate Student, University of California, Berkeley, in Molecular Biology, Division of Genetics Advisor: Dr. Barbara J. Meyer "Dosage Compensation and its Relationship to Chromosome Segregation in <i>Caenorhabditis elegans</i> "
1999-2002	Post-Doctoral Fellow, Stanford University Medical Center Laboratory of Dr. Patrick O. Brown, "Exploring the <i>in vivo</i> specificity of Protein-DNA Interactions with Genome-wide Maps of DNA-Protein Interaction"
2002-	Assistant Professor, University of North Carolina at Chapel Hill, Department of Biology and Carolina Center for Genome Sciences

**Honors**

1990-1994	Dean's List 7 semesters
1994	Phi Beta Kappa, University of North Carolina at Chapel Hill
1997-1999	UC Berkeley Regents Fellowship The Regents Fellowship is a competitive UC Berkeley award that funded the final two years of my thesis research.
1999	John Belling Prize in Genetics The Belling prize is awarded once every five years for the best thesis in the UC Berkeley Department of Genetics in the preceding five years. The award is made on the basis of scholarship, research ability and fundamental contribution to biology.
1999 – 2002	Helen Hay Whitney Post-Doctoral Fellow The goal of the HHW Foundation is to increase the number of imaginative, well-trained, and dedicated medical scientists. The HHWF funded my post-doctoral salary.
2002	The V Foundation for Cancer Research Scholar The <i>V Scholar</i> grant provides funding to young investigators to pursue basic research in cancer biology.

- 2002-2005 The National Human Genome Research Institute Genome Scholar  
The purpose of the NHGRI Genome Faculty Transition Award (K22) is to enable promising new genome researchers to establish an independent research program in genomic research and analysis.
- 2003, 2004 Instructor and Organizer (with Vishy Iyer) of the 10-day Cold Spring Harbor Laboratory Course "Making and Using DNA Microarrays".  
The aim of this course is to provide intensive laboratory training over an eight day period that will prepare the participant to enter directly into research using DNA microarrays.
- 2003 Reviewer for the NHGRI RFA HG-03-003, "Determination of All Functional Elements in Human DNA" and NHGRI RFA HG-03-004, "Technologies to Find Functional Elements in Genomic DNA".  
The "ENCODE" RFAs called for proposals to comprehensively annotate a selected 1% of the human genome, and to develop new technologies for discovering functional elements in DNA. Bethesda, MD.
- 2004 Reviewer, special emphasis panel/initial review group: "The Human Brain Project (neuroinformatics)" and "Innovations in Biomedical Computational Science and Technology Program". Panel 2004/10 zrg1 mdcn-g (55) (s)

*Ad hoc reviewer for: Nature Genetics, Nature Biotechnology, PNAS, Genome Research, Genome Biology, Molecular and Cellular Biology, Molecular Biology of the Cell, Nucleic Acids Research, BMC Bioinformatics, Journal of Biological Chemistry, Chemistry and Biology, and Biotechniques.*

#### B. Peer-reviewed publications (in chronological order).

- Chuang, P.-T., **Lieb, J.D.** and Meyer, B.J. (1996). Sex-specific assembly of a dosage compensation complex on the nematode X chromosome. *Science* **274**: 1736-1739
- Lieb, J.D.**, Capowski, E.E., Meneely, P. and Meyer, B.J. (1996). DPY-26, a link between dosage compensation and meiotic chromosome segregation in the nematode. *Science* **274**: 1732-1736
- Lieb, J.D.**, Albrecht, M., Chuang, P.-T., and Meyer, B.J. (1998). MIX-1: An Essential Component of the *C. elegans* Mitotic Machinery that Executes X-Chromosome Dosage Compensation. *Cell* **92**(2): 265-277
- Lieb, J.D.**, de Solorzano, C.O., Rodriguez, E.G., Jones, A., Angelo, M., Lockett, S., and Meyer, B.J. (2000).  
The *Caenorhabditis elegans* Dosage Compensation Machinery is Recruited to X-Chromosome DNA Attached to an Autosome. *Genetics* **156**: 1603-1621
- Lieb, J.D.**, Liu, X., Botstein, D., and Brown, P.O. (2001). Promoter-Specific Binding of Rap1 Revealed by Genome-wide Maps of Protein-DNA Association. *Nature Genetics* **28**(4):327-334
- Chu, D.S., Dawes, H.E., **Lieb, J.D.**, Chan, R.C., Kuo, A.F., and Meyer, B.J. (2002). A Molecular Link between Gene-Specific and Chromosome-Wide Transcriptional Repression. *Genes and Development* **16**(7):796-805
- Lieb, J. D.** (2003) Genome-wide Mapping of Protein-DNA Interactions by Chromatin Immunoprecipitation and DNA Microarray Hybridization. Chapter 8 of Functional Genomics: Methods and Protocols. pp. 99-110. Humana Press. Edited by Michael J. Brownstein and Arkady B. Khodursky.
- Conlon, E.M, Liu, X. S., **Lieb, J.D.**, and Liu, J.S. (2003) Integrating Regulatory Motif Discovery and Genome-wide Expression Analysis. *Proc Natl Acad Sci U S A.* **100**(6): 3339-3344.
- Nagy, P.L., Cleary, M. Brown, P.O., and **Lieb, J.D.** (2003) Genomewide Demarcation of RNA Polymerase II Transcription Units Revealed by Physical Fractionation of Chromatin. *Proc Natl Acad Sci U S A.* **100**(11): 6364-6369.
- Buck, M. J. and **Lieb, J.D.** (2004) ChIP-chip: Considerations for the Design, Analysis, and Application of Genome-wide Chromatin Immunoprecipitation Experiments. *Genomics.* **83**(3):349-360.



Lee C.K., Shibata Y., Rao B., Strahl B.D., **Lieb J.D.** (2004) Evidence for nucleosome depletion at active regulatory regions genome-wide. *Nature Genetics*. **36(8)**: 900-905.  
 Hanlon, S.E. and **Lieb, J.D.** (2004) Progress and challenges in profiling the dynamics of chromatin and transcription factor binding with DNA microarrays.  
*Current Opinion in Genetics and Development*, **14**:697–705.

### **C. Research Support**

**NIH/NHGRI R-01 Iyer (PI), Lieb (Co-PI/Subcontractor) 09/30/2004 – 09/29/2007**  
 “STAGE and FAIRE for Regulatory Element Identification”

(In response to RFA-HG-04-001, Technologies to find functional elements in genomic DNA)

The overall objective of this proposal is to develop and combine two entirely new genomic technologies for identifying functional elements in non-coding DNA. The first is a genome-wide method for identifying protein-binding loci in any sequenced genome. It is based on high-throughput sequence-tag analysis of DNA that is recovered after Chromatin ImmunoPrecipitation (ChIP). The second method we propose to develop is a procedure for biochemically purifying and identifying all potential regulatory elements from total chromatin without the requirement for antibodies or affinity tags (FAIRE, for Formaldehyde-Assisted Isolation of Regulatory Elements).

**NIH/NHGRI 1 K22 HG002577-01 Lieb (PI) 08-01-2002 through 07-31-2005**

The National Human Genome Research Institute’s Genome Faculty Transition Award, “Understanding Specificity in Protein-Genome Interactions”. The proposed yeast experiments use Rap1p and its associated DNA-binding proteins as a model system to investigate the unaccounted-for determinants of DNA-binding specificity *in vivo*. This grant will expire prior to the proposed start date of funding from this application.

**The V Foundation for Cancer Research Scholar Lieb (PI) 10-01-2002 through 09-30-2004**

The V Scholar grant provides funding to young investigators to pursue basic research in cancer biology. The goal of the work under this grant is to apply the chromatin IP (ChIP) and microarray technology that is firmly established in yeast to a model metazoan, *C. elegans*. We then intend to use this system to investigate the rules governing *in vivo* specificity of protein-DNA interactions in a more complex genome. This grant will expire prior to the proposed start date of funding from this application.

**Startup funds from The Carolina Center for Genome Sciences and the Department of Biology.**  
 There are no restrictions upon which projects or when these funds must be spent.

## BIOGRAPHICAL SKETCH

NAME Rihe Liu	POSITION TITLE Assistant Professor of Medicinal Chemistry		
EDUCATION/TRAINING			
INSTITUTION AND LOCATION	DEGREE (if applicable)	YEAR(s)	FIELD OF STUDY
University of Science and Technology of China, Hefei, China	B. Sc.	1988	Chemistry
University of California at San Diego	M.Sc.	1995	Biochemistry
University of California at San Diego	Ph.D.	1996	Biochemistry
Harvard Medical School, Massachusetts General Hospital, & Howard Hughes Medical Institute	(Postdoctoral Fellow)	1997-2001	Molecular Biology & Genetics

### A. Positions and Honors.

#### Present Position:

Assistant Professor, School of Pharmacy, University of North Carolina at Chapel Hill (12/2001-)  
Assistant Professor, Carolina Center for Genome Sciences, University of North Carolina at Chapel Hill (12/2001-)

#### Previous Positions:

Research Associate with Professor Jack Szostak, Howard Hughes Medical Institute, Harvard Medical School & Massachusetts General Hospital (2000-2001)  
Postdoctoral Fellow with Professor Jack Szostak, Harvard Medical School & Massachusetts General Hospital (1997-2000)

#### Awards and Honors:

Damon Runyon - Walter Winchell Postdoctoral Fellow of The Cancer Research Fund, 1997-2000  
NASA NSCORT Predoctoral Fellow, 1993-1996

### B. Selected peer-reviewed publications (in chronological order).

#### Papers from UNC (\*corresponding author)

Shen, X.†, Valencia, C.†, Szostak, J., Dong, B., and Liu, R.\* "Scanning the human proteome for calmodulin-binding proteins"; *Proceedings of the National Academy of Sciences of US* (Submitted).

Valencia, C. Ju, W., Pang, H., Ke, Y., Gao, W., and Liu, R.\* "Identification of caspase substrates from human proteome"; *Proceedings of the National Academy of Sciences of US* (Submitting).

#### Papers from Doctoral and Postdoctoral studies (\*corresponding author)

Baggio, R., Burgstaller, P., Hale, S., Putney, A., Lane, M., Lipovsek, D., Wright, M., Roberts, R., Liu, R., Szostak, J., and Wagner, R.\* (2002) "Identification of epitope-like consensus motifs using mRNA display". *Journal of Molecular Recognition* **15**:126-34.

Cho, G.†, Keefe, A.†, Liu, R.†, Wilson, D.†, and Szostak, J.\* (2000). "Constructing high complexity synthetic libraries of long ORFs using *in vitro* selection"; *Journal of Molecular Biology*, **297**, 309-319.

†Contributed equally.

**Liu, Rihe**

Liu, R., Barrick, J., Szostak, J.\*, and Roberts, R. (2000) "Optimized synthesis of RNA-protein fusions for *in vitro* protein selection"; *Methods In Enzymology*; **318**, 268-293.

Liu, R. and Orgel, L.\* (1998) "Polymerization on the rocks:  $\beta$ -amino acids and arginine"; *Origins of Life and Evolution of the Biosphere*, **28(3)**, 245-257.

Liu, R. and Orgel, L.\* (1998) "Polymerization of  $\beta$ -amino acids in aqueous solution"; *Origins of Life and Evolution of the Biosphere*, **28(1)**, 47-60.

Liu, R. and Orgel, L.\* (1997) "Oxidative acylation using thioacids"; *Nature*, **389**, 52-54.

Liu, R. and Orgel, L.\* (1997) "Efficient oligomerization of negatively charged  $\beta$ -amino acids at -20 °C"; *Journal of the American Chemical Society*, **119**, 4791-4792.

Ferris, J., Hill A., Liu, R., and Orgel, L.\* (1996) "Synthesis of long prebiotic oligomers on mineral surfaces"; *Nature*, **381**, 59-61.

Liu, R. and Orgel, L.\* (1995) "Enzymatic synthesis of polymers containing nicotinamide mononucleotide"; *Nucleic Acids Research*, **23**, 3742-3749.

Liu, R.\* and Visscher, J. (1994) "A novel preparation of nicotinamide mononucleotide"; *Nucleosides & Nucleotides*, **13**, 1215-1216.

Patent Application from UNC

Liu, R. "High throughput identification of downstream substrates of proteases with high specificity from human proteome" U. S. Patent Application No. 60/575,323.

Patents from Postdoctoral Studies

Szostak, J., Roberts, R., and Liu, R. "Nucleic acid-protein fusion molecules and libraries" U. S. Patent 6,281,344 (2001).

Szostak, J., Roberts, R., and Liu, R. "Method for selection of proteins using RNA-protein fusions" U. S. Patent 6,258,558 (2001).

Szostak, J., Roberts, R., and Liu, R. "Libraries of protein encoding RNA-protein fusions" U. S. Patent 6,214,553 (2001).

Szostak, J., Roberts, R., and Liu, R. "Selection of proteins using RNA-protein fusions" PCT Int. Appl. WO 98/31700, 2000; U. S. Patent 6,207,446 (2001); & U. S. Patent 6,261,804 (2001).

**C. Research Support.**

**Current:**

**1. "Identification of caspase substrates from human proteome"**

Agency: NIH/NINDS

Type: R01 NS047650 (PI: Liu)

Period: 01/01/2004-12/31/2008

The project is aimed at identifying novel substrates of a series of different caspases from human proteome and using them to study the caspase-induced apoptosis pathways. PI is responsible for supervision of the project.

## 2. “Identifying calpain-10 substrates from human proteome”

Agency: NIH/NIDDK

Type: R21 DK067480 (PI: Liu)

Period: 04/01/2004 - 03/31/2006

The major goal of this project is to understand the action mechanism of calpain-10 and its relationship to type 2 diabetes through identification of downstream substrates of calpain-10 on the proteome-wide scale.

## 3. “mRNA-display in proteomic studies”

Agency: Carolina Center for Genome Sciences & School of Pharmacy, UNC

Type: Startup package

Period: 12/2001-

The objective of this project is to develop the mRNA display technology and use it in the proteomic studies of protein-protein interaction, enzyme-substrate interaction, and post-translational modifications. PI is responsible for supervision of the project.

### Completed:

#### 1. “Scanning the human genome for GTP-binding proteins”

Agency: North Carolina Pharmacy Foundation

Type: Seed Fund (PI: Liu)

Period: 09/2002-08/2003

The project is aimed at identifying novel GTP-binding proteins on the proteome-wide scale. PI is responsible for supervision of the project.

#### 2. “Optimization and development of mRNA display”

Agency: The Cancer Research Fund of Damon Runyon – Walter Winchell Foundation

Type: DRG1430, Postdoctoral Fellowship (PI: Liu) Period: 2/1997-02/2000

The aim of the project was successfully achieved to optimize the mRNA display system and further develop it so that it can be used to address problems in proteomics on the whole proteome-wide scale.

### Pending:

#### 1. “Mechanism of action of auxin-binding protein 1”

Agency: IBN/NSF

Type: 0414244 (PI: Jones, Biology; co-PI: Liu) Period: 10/01/2004-09/30/2007

The project is aimed at identifying ABP1-binding targets on the proteome-wide scale using mRNA-display and genetic methods and characterizing the potential targets using various *in vitro* and *in vivo* approaches. Co-PI is responsible for supervision of the *in vitro* selection and characterization part of the project.

#### 2. “Imaging and therapeutic agents based on antibody mimics”

Agency: NIBIB/NIH

Type: R21EB004339 (PI: Lin, Chemistry; co-PI: Liu)

Period: 06/01/2005—5/31/2007

The project is aimed at evolving an <sup>10</sup>F<sub>n</sub>3 scaffold-based single domain antibody mimic that specifically and tightly binds to αvβ3 integrin using mRNA-display technology, and using the evolved antibody mimic as a carrier for the delivery of small molecule imaging and therapeutic agents. PI (Lin, 50% effort) is responsible for supervision of the chemical part and co-PI (Liu, 50% effort) is responsible for supervision of the biological part of the project.

### BIOGRAPHICAL SKETCH

NAME	POSITION TITLE		
Liu, Yufeng	Assistant Professor of Statistics, Operations Research and Genome Sciences		
EDUCATION/TRAINING			
INSTITUTION AND LOCATION	DEGREE <i>(if applicable)</i>	YEAR(s)	FIELD OF STUDY
Nankai University	B.S.	1999	Mathematical Statistics
The Ohio State University	M.S.	2001	Statistics
The Ohio State University	Ph.D.	2004	Statistics

**A. Positions and Honors.** List in chronological order previous positions, concluding with your present position. List any honors. Include present membership on any Federal Government public advisory committee.

#### **Positions and Employment**

2000 Summer Intern, Department of Production Engineering, Techneglas Inc.  
 2000-2003 Graduate Teaching Assistant, Department of Statistics, The Ohio State University  
 2001 Research Assistant in Statistics, The Ohio State University  
 2001-2002 Research Assistant in Biostatistics, The Ohio State University  
 2002 Research Intern, Clinical Biostatistics, Merck Research Laboratories, Merck & Co.  
 2004- Assistant Professor, Department of Statistics and Operations Research, Carolina Center for Genome Sciences, The University of North Carolina at Chapel Hill

#### **Professional Memberships**

2003-present Member of The American Statistical Association  
 2003-present Member of Institute of Mathematical Statistics

#### **Honors**

2003-2004 Ransom and Marian Whitney Research Award, Statistics, The Ohio State University  
 2003 Student Paper Competition Award Winner for the American Statistical Association's Sections on Statistical Computing and Graphics  
 2003 Student Scholarship for Quality and Productivity Conference  
 2003 Student Scholarship for paper competition at Spring Research Conference on Statistics in Industry and Technology Conference  
 2002 Conference on Designs for Generalized Linear Models travel grant, sponsored by National Science Foundation (Grant No: DMS-0207059.)  
 2001 Departmental Research Fellowship, Statistics, The Ohio State University  
 1999-2000 & Distinguished University Fellowship, The Ohio State University  
 2003-2004 Proctor & Gamble Scholarship  
 1999 Most Outstanding Student Award, Nankai University  
 1996-1999 Nankai University Scholarships

**B. Selected peer-reviewed publications (in chronological order).** Do not include publications submitted or in preparation.

**Liu, Yufeng**

Liu, Yufeng and Dean, Angela M. (2004).  $k$ -circulant supersaturated designs. *Technometrics*, 46(1): 32-43.

Liu, Yufeng, Shen, Xiaotong and Doss, Hani (2004). Multicategory  $\psi$ -learning and support vector machine: computational tools. *Journal of Computational and Graphical Statistics*, in press.

- C. Research Support.** List selected ongoing or completed (during the last three years) research projects (federal and non-federal support). Begin with the projects that are most relevant to the research proposed in this application. Briefly indicate the overall goals of the projects and your role (e.g. PI, Co-Investigator, Consultant) in the research project. Do not list award amounts or percent effort in projects.

### BIOGRAPHICAL SKETCH

NAME Robert C. Millikan		POSITION TITLE Associate Professor	
EDUCATION/TRAINING			
INSTITUTION AND LOCATION	DEGREE <i>(if applicable)</i>	YEAR(s)	FIELD OF STUDY
Reed College, Portland OR	BS DVM	1976-78	Chemistry
University of California, San Diego CA		1978-80	Biochemistry
University of California, Davis CA		1982	Veterinary Medicine
University of California, Davis CA		1984	Veterinary Medicine
University of Pennsylvania, Philadelphia PA		1984-85	Intern, Medicine and Surgery
Harvard Medical School, Boston MA		1987-89	Postdoctoral Fellow, Molecular Biology
University of California, Los Angeles CA	MPH	1991	Epidemiology
University of California, Los Angeles CA	PhD	1993	Epidemiology

#### A. Recent employment history

2001- Director, North Carolina Center for Genomics and Public Health  
 2001- Associate Professor, Department of Epidemiology, School of Public Health and Lineberger Comprehensive Cancer Center, Department of Medicine, School of Medicine, University of North Carolina at Chapel Hill  
 1993-2001 Assistant Professor, University of North Carolina, Chapel Hill  
 1998-2004 Director, High Throughput Genotyping Core Laboratory, Lineberger Comprehensive Cancer Center, UNC.

#### B. Peer-reviewed publications (selected from past 5 years only)

W-Y Huang, B Newman, **R Millikan**, K Conway, B Hulka, M Schell, E Liu. Risk of breast cancer according to the status of HER-2/neu oncogene amplification. Cancer Epidemiol Biomarkers Prev 9:65-71 (2000).  
**R Millikan**. NAT1\*10 and NAT1\*11 polymorphisms and breast cancer risk. Cancer Epidemiol Biomarkers Prev 9: 217-19 (2000).  
 C Guillemette, **R Millikan**, B Newman, D Housman. Genetic polymorphism in uridine diphospho-glucuronosyltransferase IA1 (UGT1A1) and association with breast cancer among African Americans. Cancer Res 60: 950-56 (2000).  
 M Tseng, **R Millikan**, K Maurer, M Khare, J Everhart, R Sandler. Country of birth and prevalence of gallbladder disease in Mexican Americans. Ethnicity & Disease 10: 96-105 (2000).  
 P Marcus, B Newman, P Moorman, **R Millikan**, D Baird, B Qaqish, B Sternfeld. The association of adolescent cigarette smoking, alcoholic beverage consumption, environmental tobacco smoke, and ionizing radiation with subsequent breast cancer risk (United States). Cancer Causes and Control 11: 271-78 (2000).  
 W-Y Huang, B Newman, **R Millikan**, M Schell, B Hulka, P Moorman. Hormone-related factors and risk of breast cancer by estrogen receptor and progesterone receptor status. Am J Epidemiol 151: 703-14 (2000).  
 I Hall, B Newman, **R Millikan**, P Moorman. Body size and breast cancer risk in black and white women: The Carolina Breast Cancer Study. Am J Epidemiol 151: 754-64 (2000).  
 P Moorman, H Kuwabara, **R Millikan**, B Newman. Menopausal hormones and breast cancer in a biracial population. Am J Public Health 90: 966-71 (2000).

**Millikan, Robert**

- A Kinney, **R Millikan**, Y Lin, P Moorman, B Newman. Alcohol consumption and breast cancer among black and white women in North Carolina. *Cancer Causes Control* 11: 345-57 (2000).
- R Millikan**, G Pittman, C-K Tse, D Savitz, B Newman, D Bell. Glutathione-S-transferases M1, T1 and P1 and breast cancer. *Cancer Epidem Biomark Prev* 9: 567-73 (2000).
- A Kinney, Y-A Choi, B DeVellis, **R Millikan**, E Kobetz, R Sandler. Attitudes toward genetic testing among colorectal cancer patients. *Cancer Practice* 8: 178-86 (2000).
- E Duell, **R Millikan**, D Savitz, B Newman, J Smith, M Schell, D Sandler. A population-based case-control study of farming and breast cancer in North Carolina. *Epidemiology* 11: 523-31 (2000).
- R Millikan**, E DeVoto, EJ Duell, C-K Tse, D Savitz, J Beach, S Edmiston, S Jackson, B Newman. Dichlorodiphenyldichloroethene, Polychlorinated Biphenyls, and Breast Cancer among African-American and White Women in North Carolina. *Cancer Epidem Biomarkers Prev* 9: 1233-1240 (2000).
- Kinney A, DeVellis B, Skryznia C, **Millikan R**. Genetic testing for colorectal cancer susceptibility. *Cancer* 91: 57-65 (2001).
- Moorman P, Jones B, **Millikan R**, Hall I, Newman B. Race, anthropometric factors, and stage at diagnosis of breast cancer. *Am J Epidem* 153: 284-91 (2001).
- Duell E, **Millikan R**, Savitz D, Schell M, Newman B, Tse C-K, Sandler D. Reliability of reported farming activities and pesticide use among breast cancer cases and controls: A comparison of two modes of data collection. *Ann Epidem* 11: 178-185 (2001).
- Duell E, **Millikan R**, Pittman G, Winkel S, Lunn R, Tse C-K, Eaton A, Mohrenweiser H, Newman B, Bell D. Polymorphisms in the DNA repair gene XRCC1 and breast cancer. *Cancer Epidem Biomark Prev* 10: 217-222 (2001).
- van Wijngaarden E, Nylander-French LA, **Millikan RC**, Savitz DA, Loomis D. Population-based case-control study of occupational exposure to magnetic fields and female breast cancer. *Annals of Epidemiology* 11:297-303 (2001).
- Moorman P, Ricciuti M, **Millikan R**, Newman B. Vitamin supplement use and breast cancer in a North Carolina population. *Public Health Nutr* 4: 821-7 (2001)
- Moorman P, **Millikan R**, Newman B. Oral contraceptives and breast cancer among African-American women and white women. *J Natl Med Assoc* 93:329-34 (2001).
- Furberg H, **Millikan R**, Dressler L, Newman B, Geradts J. Tumor characteristics in African American and white women. *Breast Cancer Res Treat* 68:33-43 (2001).
- Tseng M, Yeatts K, **Millikan R**, Newman B. Area-level characteristics and smoking in women. *Am J Public Health* 91:1847-50 (2001).
- Plummer P (et al), **Millikan R**. Making Epidemiologic Studies Responsive to the Needs of Participants and Communities: The Carolina Breast Cancer Study Experience. *Environmental and Molecular Mutagenesis* 39: 96-101 (2002).
- Platner J, Bennett LM, **Millikan R**, Barker M. The Partnership between Breast Cancer Advocates and Scientists. *Environmental and Molecular Mutagenesis* 39: 102-107 (2002).
- Conway K, Edmiston S, Cui L, Drouin S, Pang J, He M, Tse C-K, Geradts J, Dressler L, Liu E, **Millikan R**, Newman B. Prevalence and spectrum of p53 mutations associated with smoking in breast cancer. *Cancer Res* 62: 1987-95 (2002).
- Millikan R**. The changing face of epidemiology in the genomics era. *Epidemiology* 13: 472-80 (2002).
- Furberg H, **Millikan RC**, Geradts J, Gammon MD, Dressler LG, Ambrosone CB, Newman B. Environmental Factors in Relation to Breast Cancer Characterized by p53 Protein Expression. *Cancer Epidemiol Biomarkers Prev* 11:829-35 (2002).
- Cooper G, Savitz D, **Millikan R**, Tse C-K. Organochlorine exposure and age at natural menopause. *Epidemiology* 13: 729-33 (2002).
- Keku T, **Millikan R**, Worley K, Winkel S, Eaton A, Biscocho L, Martin C, Sandler R. Methylenetetrahydrofolate reductase codon 677 and 1298 polymorphisms and colon cancer in African Americans and whites. *Cancer Epidem Biomark Prev* 11:1611-1621(2002).



- Keku T, **Millikan R**, Martin C, Rakhra-Burris T, Sandler R. Family history of colon cancer: What does it mean and how is it useful? Am J Prev Med 24: 170- 76 (2003).
- Butler LM, Sinha R, **Millikan RC**, Martin CF, Newman B, Gammon MD, Ammerman AS, Sandler RS. Heterocyclic Amines, Meat Intake, and Association with Colon Cancer in a Population-based Study. Am J Epidemiol 157:434-45 (2003).
- Charles LE, Loomis D, Shy CM, Newman B, **Millikan R**, Nylander-French LA, Couper D. Electromagnetic fields, polychlorinated biphenyls, and prostate cancer mortality in electric utility workers. Am J Epidemiol 157: 683-91 (2003).
- Roberts MC, **Millikan RC**, Galanko JA, Martin C, Sandler RS. Constipation, laxative use, and colon cancer in a North Carolina population. Am J Gastroenterol 98: 857-864 (2003).
- Moorman P, Grubber J, **Millikan RC**, Newman B. Antidepressant medications and their association with invasive breast cancer and carcinoma in situ of the breast. Epidemiology 14: 307-14 (2003).
- Millikan R**, Eaton A, Worley K, Biscocho L, Hodgson E, Huang W-Y, Geradts J, Iacocca M, Cowan D, Conway K, Dressler L. *HER2* codon 655 polymorphism and risk of breast cancer in African Americans and whites. Breast Cancer Research and Treatment 79:355-64 (2003).
- Furberg H, **Millikan RC**, Geradts J, Gammon MD, Dressler LG, Ambrosone CB, Newman B. Reproductive factors in relation to breast cancer characterized by p53 protein expression (United States). Cancer Causes Control. 14:609-18 (2003).
- Moorman P, Grubber J, **Millikan R**, Newman B: Association between non-steroidal anti-inflammatory drugs (NSAIDs) and invasive breast cancer and carcinoma in situ of the breast. Cancer Causes and Control 14: 915-922 (2003).
- Kinney A, Bloor L, Dudley W, **Millikan R**, Marshall E, Martin C, Sandler R. Roles of religious involvement and social support in the risk of colon cancer among blacks and whites. Am J Epidemiol 158: 1097-1107 (2003).
- Miller E, Pankow J, **Millikan R**, Bray M, Ballantyne C, Bell D, Heiss G, Li R. Glutathione-S-transferase genotypes, smoking and their associations with markers of inflammation, hemostasis, and endothelial function: The atherosclerosis in communities (ARIC) study. Atherosclerosis 171: 265-72 (2003).
- Aoki V, **Millikan RC**, Rivitti EA, Hans-Filho G, Eaton DP, Warren SJ, Li N, Hilario-Vargas J, Hoffmann RG, Diaz LA. Environmental risk factors in endemic pemphigus foliaceus (fogo selvagem). J Invest Dermatol Symp Proc. 9:34-40 (2004).
- Thomas N, Alexander A, Edmiston S, Parrish E, **Millikan R**, Berwick M, Groben P, Ollila D, Conway. Tandem BRAF mutations in primary invasive melanoma. J Invest Derm (in press).
- Millikan R**, Player J, de Cotret A R, Moorman P, Pittman G, Vannappagari V., Tse C-K , Keku T. Manganese Superoxide Dismutase (*MnSOD*) Ala-9Val polymorphism and risk of breast cancer in a population-based case-control study of African Americans and whites. Breast Cancer Research 6:R264-R174 (2004).
- Thomas N, Alexander A, Edmiston S, Parrish E, **Millikan R**, Berwick M, Groben P, Ollila D, Conway. Tandem BRAF mutations in primary invasive melanomas. Invest Derm 122:1245-50 (2004).
- Li Y, **Millikan R**, Bell D, Cui L, Tse C-K, Newman B, Conway K. Cigarette smoking, cytochrome P4501A1 (CYP1A1) polymorphisms, and breast cancer among African American and white women. Breast Cancer Res 6: R460-R473 (2004).
- Hodgson E, Newman B, **Millikan R**. Birthweight, birth order and parental age and breast cancer risk in African American and white women: A population-based case-control study Breast Cancer Res 6: R656-667 (2004).
- Li Y, **Millikan R**, Bell D, Cui L, Tse C-K, Newman B, Conway K. Polychlorinated Biphenyls, Cytochrome P4501A1 Polymorphisms, and Breast Cancer Risk among African-American Women and White Women in North Carolina: A Population-based Case-Control Study. Breast Cancer Res 7: R12-R18 (2004).
- Begg C, Hummer A, Mujumdar U, Armstrong B, Kricker A, Marrett LD, **Millikan RC**, Gruber SB, Anton-Culver H, Klotz JB, Zanetti R, Gallagher RP, Dwyer T, Rebbeck TR, Berwick MR. Familial

aggregation of melanoma risks in a large population-based sample of melanoma cases. Cancer Causes Control 15: 957-65 (2004).

Hall I, Moorman P, **Millikan R**, Newman B. Comparative analysis of breast cancer risk factors among African-American women and white women. Am J Epidemiol 161: 40-51 (2005).

### **C. Research Support**

1-U24-CA78157-02 (Evans) 8/01/98 - 7/31/2003

National Cancer Institute Cancer Genetics Network - UNC component

The goal is to design and develop infrastructure at UNC to recruit participants for research sponsored by the Cancer Genetics Network, a nationwide collaborative investigation of genetic and environmental factors in high-risk cancer families.

(Berwick) 19/01/99 - 9/30/04

Sloan Kettering Cancer Center Genes Environment Melanoma Study

The goal of this international collaborative study is to investigate risk factors for malignant melanoma, including genetic and environmental factors. A subcontract to UNC funds a population-based, case-control study of malignant melanoma in North Carolina, the North Carolina Melanoma Study.

5-P-CA16086-25S5 (Earp, III) 05/05/01-04/30/2006

National Cancer Institute

NCCU/UNC Lineberger Partnership in Cancer Research - Cancer Center Support Grant Supplement

The goal is to initiate a five-year partnership between North Carolina Central University and the UNC Lineberger Cancer Center to expand NCCU's programs in biotechnology and health education by promoting interdisciplinary cancer research focussed on health disparities in minorities.

5-P30-CA16086-25 (Earp) 12/01/99 - 11/30/2004

National Cancer Institute

Cancer Center Core Support Grant - Staff Investigators.

The goal of the program is to fund staff investigators.

5-P30-CA16086-26 (Earp) 12/01/99 - 11/30/2004

National Cancer Institute

Cancer Center Core Support Grant - High Throughput Genotyping Laboratory

The goal of the Core Laboratory Facility is to provide high throughput genotyping for Cancer Center members.

1-P42-ES05948-09 (Swenberg) 4/1/2000 - 3/21/2005

National Inst. of Environmental Health Sciences

Environmental Exposure and Effect of Hazardous Chemicals (Superfund Basic Research Program):

Molecular Epidemiology Core. Director: R Millikan

The goal of the Core Facility is to provide technical support and consultation in the design, conduct and analysis of biomarker and epidemiologic studies.

R01-CA65910 (Cance) 7/01/00-6/30/05

National Institutes of Health

Focal Adhesion Kinase Tumor Biology and Therapeutics

The goal of the project is to define survival signals that make specific tumor cell lines more resistant to the effects of FAK downregulation. The identification of these molecular mechanisms will allow the ultimate development of FAK-based therapies for human malignancies.

5-R01-AR32599-19--19 (Diaz) 7/1/88-6/30/06

Arth. Muscular Skeletal and Skin

Etiology and Pathogenesis of Pemphigus

The goal of the program is to conduct a case-control study identify risk factors for Fogo Selvagem and other autoimmune diseases among indigenous persons living in Mato Grosso, Brazil.

1-P30-ES10126-01A1 (Swenberg) 4/01/01 - 3/21/06

National Institute of Environmental Health Sciences

UNC-CH Center for Environmental Health & Susceptibility

The High Throughput Genotyping Laboratory will conduct PCR-based genotyping assays in support of Center Investigators.

1-P50-CA58223-08 (Earp) 08/01/01-07/31/2006

SPORE in Breast Cancer – Project 1

Carolina Breast Cancer Study: DNA repair and breast cancer risk.

The goal of the study is to explore interactions between polymorphisms in DNA repair genes and environmental factors in the etiology of breast cancer in African American and white women in North Carolina. Genotyping will be performed in the High Throughput Genotyping Laboratory.

1-P50-CA58223-08 (Earp) 08/01/01-07/31/2006

SPORE in Breast Cancer-Project 2

Carolina Breast Cancer Study: Estrogen Receptor mutations and breast cancer risk.

The goal of the study is to determine the frequency of estrogen receptor gene mutations in the etiology and progression of breast cancer.

2-R01-CA66635-05A2 (Sandler) 07/01/01-06/30/06

Case-Control Study of Rectal Cancer

The goal of this population –based case-control study is to identify risk factors for colorectal cancer in African Americans and whites in North Carolina. Polymorphisms in carcinogen metabolism genes will be determined in the High Throughput Genotyping Laboratory.

S1958-21/21 (Millikan) 10/01/01-09/30/03

Association of Schools of Public Health

North Carolina Center for Genomics and Public Health

To develop the UNC Center for Genomics and Public Health. The project addresses the need for education, training programs and research into the application of genomics to public health practice.

#### OVERLAP

There is no overlap.

### BIOGRAPHICAL SKETCH

NAME		POSITION TITLE	
Karen L. Mohlke		Assistant Professor of Genetics	
EDUCATION/TRAINING			
INSTITUTION AND LOCATION	DEGREE (if applicable)	YEAR(s)	FIELD OF STUDY
Cornell University, Ithaca, NY	B.S.	1991	Biological Sciences
University of Michigan, Ann Arbor, MI	Ph.D.	1996	Human Genetics
University of Michigan, Ann Arbor, MI	Postdoctoral fellow	1996-1998	Human Genetics
National Human Genome Research Institute, Bethesda, MD	Research fellow	1998-2004	Human Genetics

#### A. Positions and Honors.

##### Positions

1991-1996	Graduate student, Laboratory of Dr. David Ginsburg Department of Human Genetics, University of Michigan, Ann Arbor, MI
1996-1998	Postdoctoral training, Laboratory of Dr. David Ginsburg Department of Human Genetics, University of Michigan, Ann Arbor, MI Postdoctoral training, Laboratory of Dr. Francis Collins National Human Genome Research Institute, National Institutes of Health, Bethesda, MD
2004-	Assistant Professor of Genetics, University of North Carolina, Chapel Hill, NC
2004-	Member, Carolina Center for Genome Sciences, University of North Carolina, Chapel Hill, NC

##### Honors

1991	Cum laude with distinction, Cornell University
1991-1993	Fellow, NIH genetics training grant, University of Michigan
1992	James V. Neel Fellowship for Academic Excellence
1995-1996	University of Michigan Rackham Predoctoral Fellowship
1998-2001	NIH Intramural Research Training Award fellowship
2000-2006	Recipient, Burroughs Wellcome Career Development Award in the Biomedical Sciences
2003	NHGRI Intramural Research Award

#### B. Selected peer-reviewed publications (in chronological order).

Nichols WC, Cooney KA, **Mohlke KL**, Ballew JD, Yang A, Bruck ME, Reddington M, Novak EK, Swank RT, and Ginsburg D (1994) von Willebrand disease in the RIIS/J mouse is caused by a defect outside of the von Willebrand factor gene. Blood 83, 3225-3231

**Mohlke KL**, Nichols WC, Rehemtulla A, Kaufman RJ, Fagerström HM, Ritvanen KL, Kekomäki R, and Ginsburg D (1996) A common frameshift mutation in von Willebrand factor does not alter mRNA stability but interferes with normal propeptide processing. Br J Haematol 95, 184-191

**Mohlke KL**, Nichols WC, Westrick RJ, Novak EK, Cooney KA, Swank RT, and Ginsburg D (1996) A novel modifier gene for plasma von Willebrand factor level maps to distal mouse chromosome 11. Proc Natl Acad Sci 93, 15352-15357

**Mohlke, Karen**

- Mohlke KL** and Ginsburg D (1997) von Willebrand disease and quantitative variation in von Willebrand factor. J Lab Clin Med 130, 252-261
- Mohlke KL**, Purkayastha AA, Westrick RJ, and Ginsburg D (1998) Comparative mapping of distal murine chromosome 11 and human 17q213 in a region containing a modifying locus for murine plasma von Willebrand factor level. Genomics 54, 19-30
- Mohlke KL**, Purkayastha AA, Westrick RJ, Smith PL, Petryniak B, Lowe JB, and Ginsburg D (1999) Mvwf, a dominant modifier of murine von Willebrand factor, results from altered lineage-specific expression of a glycosyltransferase. Cell 96, 111-20
- Mohlke KL**, Nichols WC, and Ginsburg D (1999) The molecular basis of von Willebrand disease. Int J Clin Lab Res 29, 1-7
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- Silander K, Valle TT, Scott LJ, **Mohlke KL**, Stringham HM, Wiles KR, Duren WL, Doheny K, Pugh E, Chines P, Narisu N, White PP, Watanabe RM, Fingerlin TE, Jackson AU, Li C, Colby K, Hollstein, P, Humphreys KM, Lambert J, Lazaridis KN, Lin G, Morales-Mena A, Patzkowski K, Pfahl C, Porter R, Rha D, Segal L, Suh Y, Tovar J, Unni A, Welch C, Douglas JA, Epstein M, Hauser ER, Hagopian W, Buchanan TA, Bergman RN, Tuomilehto J, Collins FS, Boehnke M (2004) A large

set of Finnish affected sibling pair families with type 2 diabetes mellitus suggests susceptibility loci on chromosomes 6, 11, and 14. Diabetes 53, 821-829

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### **C. Research Support**

#### **Ongoing Research Support**

Career Award in the Biological Sciences (Mohlke) 1/01/04-12/31/06

Burroughs Wellcome Fund

Genetic analysis of type 2 diabetes susceptibility

This study investigates chr 20q DNA variants associated with type 2 diabetes to identify the allele(s) responsible for increased susceptibility.

Role: PI

### BIOGRAPHICAL SKETCH

NAME		POSITION TITLE	
Joseph Muenzer		Associate Professor of Pediatrics and Genetics	
EDUCATION/TRAINING			
INSTITUTION AND LOCATION	DEGREE <i>(if applicable)</i>	YEAR(s)	FIELD OF STUDY
Kalamazoo College, Kalamazoo, MI	B.A.	1970	Chemistry
Case Western Reserve University, Cleveland, OH	Ph.D.	1976	Biochemistry
Case Western Reserve University, Cleveland, OH	M.D.	1979	
University of Wisconsin Hospital, Madison, WI		1979-1982	Pediatric Residency
Human Genetics Branch, NICHD, Bethesda, MD		1982-1986	Endocrine/Genetics Fellowship

### Employment and Professional Experience

- 1970-1971: **Chemist**, National Institute of Arthritis, Metabolic and Digestive Diseases, Bethesda, MD
- 1982-1985: **Medical Staff Fellow**, Human Genetics Branch National Institute of Child Health and Human Development, Bethesda, MD
- 1984: Certified by the American Board of Pediatrics
- 1985-1986: **Senior Staff Fellow**, Human Genetics Branch National Institute of Child Health and Human Development Bethesda, MD
- 1986-1993: **Assistant Professor**, Department of Pediatrics University of Michigan School of Medicine
- 1990: Diplomate of the American Board of Medical Genetics as a Clinical Biochemical/Molecular Geneticist
- 1993-present: **Associate Professor**, Department of Pediatrics University of North Carolina at Chapel Hill
- 2001-present: **Research Associate Professor**, Department of Genetics University of North Carolina at Chapel Hill

### Publications

- Muenzer, J., Bildstein, C., Gleason, M., and Carlson, D.M. Purification of proline-rich proteins from parotid gland of isoproterenol-treated rats. *J Biol Chem* 1979; 254: 5623.
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7. Abrams, S.A., Sidbury, J.B., Muenzer, J., Esteban, N.V., Vieira, N.E., and Yergey, A.L. Stable isotopic measurement of endogenous fecal calcium excretion in children. *J Pediatr Gastroenterol Nutr* 1991, 12:469-473.
8. Muenzer, J., Neufeld, E.F., Contanopolus, G.G. et al. Attempted enzyme replacement using human amnion membrane implantations in mucopolysaccharidosis. *J Inher Metab Dis* 1992, 15:25-37.
9. Muenzer, J., Beekman, R.H., Profera, L.M., and Bove, E.L. Severe mitral insufficiency in mucopolysaccharidosis type III-B (Sanfilippo syndrome). *Pediatr Cardiol* 14:130-132, 1993.
10. Marowitz, AJ, Chen, YT, Muenzer, J, Delbunono, EA, and Lucey, MR. A man with Type III glycogenosis associated with cirrhosis and portal hypertension. *Gastroenterology* 1993, 105: 1882-5.
11. Van Hove, JL, Kishnani, P, Muenzer, et al. Benzoate therapy and carnitine deficiency in non-ketotic hyperglycinemia. *Am. J. Medical Genetics* 1995, 59:444-53.
12. Reitnauer, PJ, Chaing, S and Muenzer, J. Why do critically ill newborns not get mandated screening? *North Carolina Medical Journal* 1999, 60: 256-58.
13. Weston, BW, Lin, J, Muenzer, J, et al. Glucose-6-phosphate mutation G188R confers an atypical glycogen storage disease type 1b phenotype. *Pediatric Research* 2000, 48: 329-34.
14. Andresen BS, Dobrowolski SF, O'Reilly L, Muenzer J, et al. Medium-chain acyl-CoA dehydrogenase (MCAD) mutations identified by MS/MS-based prospective screening of newborns differ from those observed in patients with clinical symptoms: identification and characterization of a new, prevalent mutation that results in mild MCAD deficiency. *American Journal of Human Genetics*. 68(6):1408-18, 2001
15. Kakkis, ED, Muenzer, J, Tiller, GE, et al. Enzyme-replacement therapy in mucopolysaccharidosis I. *NEJM* 2001, 344:182-8.
16. Fu, H, Samulski, RJ, McCown, TJ, Picornel, YJ, Fletcher, D and Muenzer, J. Neurological correction of lysosomal storage in a mucopolysaccharidosis IIIB mouse model by adeno-associated virus-mediated gene delivery. *Molecular Therapy* 2002, 5:42-9.
17. Muenzer J, Lamsa JC, Garcia A, Dacosta J, Garcia J, Treco DA. Enzyme replacement therapy in mucopolysaccharidosis type II (Hunter syndrome): a preliminary report. *Acta Paediatr Suppl*. 2002;91(439):98-9.
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19. Fu H, Muenzer J, Samulski RJ, Breese G, Sifford J, Zeng X, McCarty DM. Self-complementary adeno-associated virus serotype 2 vector: global distribution and broad dispersion of AAV-mediated transgene expression in mouse brain. *Mol Ther*. 2003 Dec;8(6):911-7.
20. Wraith JE, Clarke LA, Beck M, Kolodny EH, Pastores GM, Muenzer J, Rapoport DM, Berger KI, Swiedler SJ, Kakkis ED, Braakman T, Chadbourne E, Walton-Bowen K, Cox GF. Enzyme replacement therapy for mucopolysaccharidosis I: a randomized, double-blinded, placebo-controlled, multinational study of recombinant human alpha-L-iduronidase (Iaronidase). *J Pediatr*. 2004;144(5):581-8.
21. Muenzer J. The mucopolysaccharidoses: a heterogeneous group of disorders with variable pediatric presentations. *J Pediatr*. 2004;144:S27-34.
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23. Matheus MG, Castillo M, Smith JK, Armao D, Towle D, Muenzer J. Brain MRI findings in patients with mucopolysaccharidosis types I and II and mild clinical presentation. *Neuroradiology*. 2004;46:666-72.



**Muenzer, Joseph****Chapters in Books:**

1. Yergey, A.L., Vieira, N.E., Covell, D., and Muenzer, J. Studies of human calcium kinetics with stable isotopic kinetics, In: Synthesis and Application of Isotopically Labeled Compounds, 1985, R.R. Mucino (Ed.) Elsevier Science Publishers, Amsterdam p. 343-348, 1986.
2. Muenzer, J. Mucopolysaccharidosis. In Advances in Pediatrics Vol. 33: 269, 1986.
3. Neufeld, E.F. and Muenzer, J. The Mucopolysaccharidosis. In Metabolic Basis of Inherited Disease, 6th edition, Chapter 61, 1989.
4. Muenzer, J., Catastrophic metabolic disease in the newborn. In Neonatal Emergency, Ed., Donn, S.M. and Faix, R.G., Futura Publishing, NY Chapter 28: 501-511, 1991.
5. Neufeld, E.F. and Muenzer, J. The Mucopolysaccharidosis. In Metabolic Basis of Inherited Disease, 7th edition, Chapter 78, 1995.
6. Muenzer, J. Mucopolysaccharidoses. Nelson Textbook of Pediatrics, 16th edition, Chapter 85: 420-423, 2000.
7. Neufeld, E.F. and Muenzer, J. The Mucopolysaccharidosis. In Metabolic Basis of Inherited Disease, 8th edition, Chapter 136, 2001.

**Abstracts:**

1. Muenzer, J, Frazier, DM, Chace, DH, Naylor, EW, Moore, EG and Chaing, SH. Newborn screening by tandem mass spectrometry: A North Carolina Pilot Study. The 14<sup>th</sup> National Neonatal Screening Symposium, 1999.
2. Muenzer, J and Fu, H. Targeted disruption of the mouse iduronate sulfatase gene. Am J Human Genetics 65: A427, 1999.
3. McCandless, SE, Muenzer, J, Chaing SH et al. Tandem mass spectrometry newborn screening for medium-chain acyl-CoA dehydrogenase deficiency in North Carolina. Am J Human Genetics 67: 3, 2000.
4. Muenzer, J, Frazier, DM, Weavil, SD et al. Incidence of metabolic disorders detected by newborn screening in North Carolina using tandem mass spectrometry. Am J Human Genetics 67: 36, 2000.
5. Fu, H and Muenzer, J. In vitro correction of glycosaminoglycan storage in human and mouse MPS IIIB cell cultures using AAV-mediated recombinant  $\alpha$ -N-acetylglucosaminidase. Am J Human Genetics 67: 428, 2000.
6. Fu, H, Picornell, Y, Sifford, J and Muenzer, J. Long-term liver correction of lysosomal storage in adult mucopolysaccharidosis II knock-out mice by intravenous delivery of a single dose of AAV viral vector expressing iduronate sulfatase. Molecular Therapy 5:S12, 2002.
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8. Muenzer, J, Towle, D, Calikoglu, M, McCandless, S. A phase I/II clinical study evaluating the safety and clinical activity of enzyme replacement therapy in Mucopolysaccharidosis II. Am J Hum Genet 71:S582, 2002.
9. Muenzer J, Towle D, Calikoglu, M, McCandless S. Enzyme replacement for mucopolysaccharidosis II (Hunter syndrome) - The 12-month experience. ASHG 2003 meeting.
10. Fu H, Muenzer J, Samulski RJ, Lu K, Jennings JS, McCarty DM. Targeting endothelial cells in mice with AAV serotype 1 vector. American Society of Gene Therapy annual meeting 2004.
11. Lu K, Jennings JS, Muenzer, J and Fu H. AAV-2-Mediated Expression of  $\alpha$ -N-Acetyl-Glucosaminidase in Peripheral Tissues and the CNS in Mucopolysaccharidosis IIIB Mice by Combined Intravenous and Intracisternal Vector Delivery. American Society of Gene Therapy annual meeting 2004.
12. Muenzer J, Jennings JS and Fu H. **Long-Term Correction of Lysosomal Storage in CNS and Somatic Tissue in Adult MPS II Mice by Intravenous Administration of AAV.** American Society of Gene Therapy annual meeting 2004.

**Muenzer, Joseph**

13. Muenzer J, Jennings JS and Fu H. Long-term CNS and somatic correction of lysosomal storage in Mucopolysaccharidosis II mice by AAV-mediated gene transfer after pretreatment with mannitol. ASHG annual meeting 2004.

### BIOGRAPHICAL SKETCH

NAME	POSITION TITLE		
Daniel K. Nelson	Associate Professor of Social Medicine and Pediatrics Director, Office of Human Research Ethics		
EDUCATION/TRAINING			
INSTITUTION AND LOCATION	DEGREE <i>(if applicable)</i>	YEAR(s)	FIELD OF STUDY
Luther College, Decorah, IA	BA (honors)	1975-79	Biology & Psychology
Southern Illinois University, Carbondale, IL	Graduate Study	1979-80	Zoology
Southern Illinois University, Carbondale, IL	MS	1980-84	Medical Physiology and Pharmacology
University of Ulm Medical Center, Germany	Fellowship	1991-92	Medical Physiology
Poynter Center, Indiana University	Summer Course	1998	Teaching Research Ethics

### **POSITIONS AND EMPLOYMENT**

1982-1984	Researcher, Professional Staff, Department of Medical Physiology and Pharmacology, School of Medicine; Consultant, Biomechanics Laboratory; Southern Illinois University, Carbondale, IL
1984-1992	Supervisor, Gastroenterology Research Unit (NIH Digestive Diseases Core Center), Mayo Clinic and Foundation, Rochester, MN
1991-1992	Visiting Scientist, Department of Internal Medicine I, University of Ulm Medical Center, Ulm, Germany
1993-1994	Assistant Professor of Medicine, Mayo Medical School, Mayo Clinic and Foundation, Rochester, MN
1994-1998	Assistant Professor of Medicine, University of Rochester School of Medicine and Dentistry; Director of Research, Isaac Gordon Center for Digestive Diseases and Nutrition; Chairman, Institutional Review Board, The Genesee Hospital, Rochester, NY
current	Associate Professor of Social Medicine and Pediatrics; Director, Office of Human Research Ethics, University of North Carolina at Chapel Hill, Chapel Hill, NC

### **PROFESSIONAL ACTIVITIES AND HONORS**

1990-present	Invited lecturer to universities in Switzerland, Germany, France, Italy, Hungary, Canada, China and U.S.
1993	Young Investigator Award, International Symposium on Gastrointestinal Motility
1994	Abstract Prize, American Gastroenterological Association
1996	Session Chair, International Brain-Gut Society, Hungary
1997	Focus Group on informed consent documents, National Cancer Institute
1998-2000	Consultant, Department of Health and Human Services, State of North Carolina (established new IRB)
1998	Discussant, national working group on "Central IRB Review in Multi-Site Clinical Trials"
1999-present	Founding member, Council for Certification of IRB Professionals (CCIP). Vice Chair in 2002.
1999	Invited participant, Revising the <i>Declaration of Helsinki</i> , International conference in London (25 countries)
2000	Governor's Task Force on Social and Ethical Issues, Office of Science and Technology, State of N.C.
2000-2001	Liaison to the President's National Bioethics Advisory Commission (NBAC)
2000	Conference Director, OPRR/FDA/VA Town Meeting: "Evolving Concern for Protection of Human Subjects"

**Nelson, Daniel**

- 2000-present Public Responsibility in Medicine and Research (PRIMR): Have served on Board of Directors, Executive Committee, Program Committee, and as national faculty for "IRB 101" curriculum.
- 2000-present Associate, Center for the Study of Medical Ethics and Humanities, Duke University Medical Center
- 2001 Chair, Policy Forum on "Ethical Issues in Clinical Research," National Meeting of General Clinical Research Centers (GCRC), NIH
- 2001-2002 IRB Advisory Committee, Project to examine human research protection programs in the VA system
- 2001-present Advisory Board, IRB Benchmarking Consortium, Center for Bioethics, University of Pennsylvania
- 2001-present Council Member and Site Visitor, Association for the Accreditation of Human Research Protection Programs (AAHRPP)
- 2002 President, Applied Research Ethics National Association (ARENA)
- 2002-present Expert Consultant, Office for Human Research Protections (OHRP), DHHS
- 2003-present Advisory Group on Ethical, Legal and Social Implications (ELSI), Carolina Center for Genome Sciences
- 2004-present Co-Chair, Subpart A (federal regulations) Subcommittee, Secretary's Advisory Committee on Human Research Protections (SACHRP), DHHS

**PUBLICATIONS (Selected from a total of 194 articles, book chapters and abstracts, published 1979-2004)**

- Nelson DK, Service JE, Studelska DR, Brimijoin S and Go VLW: Gastrointestinal neuropeptide concentrations following guanethidine sympathectomy. Journal of the Autonomic Nervous System 22:203-210, 1988
- Pieramico O, Malfertheiner P, Nelson DK, Glassbrenner B and Ditschuneit H: Interdigestive cycling and postprandial release of pancreatic polypeptide in severe obesity. International Journal of Obesity 14:1005-1011, 1990
- Nelson DK, Furlow BL, Go VLW and Sarr MG: Enteroendocrine peptides in a canine model of orthotopic jejunoileal autotransplantation. Regulatory Peptides 45:421-434, 1993
- Nelson DK, Coulson RL, Myers JH and Browning RA: Neuroanatomical differentiation in the brain of the spontaneously hypertensive rat (SHR): I. Volumetric comparisons with WKY control. Clinical and Experimental Hypertension 15:867-894, 1993
- Nelson DK: Is there an editorial trade embargo on scientific imports? Gastroenterology 106:821-822, 1994
- Nelson DK, Pieramico O and Malfertheiner P: Gastrointestinal motility and hormones in obesity. American Journal of Gastroenterology 89:1120-1, 1994
- Nelson DK, Talley NJ, Camilleri M, Thomforde GM, Evans JM, Fleming KC: Pathophysiologic basis of functional bowel disease (FBD) in the elderly. Presented at The World Congresses of Gastroenterology, Los Angeles, CA, October, 1994
- Nelson DK, Maringhini A and DiMagno EP: Diagnostic accuracy of the amino acid consumption test for pancreatic insufficiency. German Journal of Gastroenterology (Zeitschrift für Gastroenterologie) 32:367, 1994
- Adler G, Nelson DK, Katschinski M and Beglinger C: Neurohormonal control of human pancreatic exocrine secretion. Pancreas 10:1-13, 1995
- Owens DM, Nelson DK and Talley NJ: The irritable bowel syndrome: long-term prognosis and the physician-patient interaction. Annals of Internal Medicine 122:107-112, 1995
- Nelson DK, Benarroch EE, and Camilleri M: Neuroendocrine control in a model of peripheral adrenergic neuropathy: studies on gastrointestinal peptides, motility, and immune response. In: Singer MV, Ziegler R and Rohr G, editors. Gastrointestinal Tract and Endocrine System. Lancaster, UK: Kluwer Academic Publishers, pp. 264-278, 1995

- Nelson DK, Glasbrenner B, Dahmen G, Riepl RL, Malfertheiner P and Adler G: M1-muscarinic mechanisms regulate intestinal-phase gallbladder physiology in man. American Journal of Physiology 271:G824-830, 1996
- Nelson DK, Pieramico O, Dahmen G, Dominguez-Munoz JE, Malfertheiner P and Adler G: M1-muscarinic mechanisms regulate interdigestive cycling of motor and secretory activity in human upper gut. Digestive Diseases and Sciences 41:2006-2015, 1996
- Hsu JJ, Clark-Glena R, Nelson DK and Kim CH: Nasogastric enteral feeding in the management of hyperemesis gravidarum. Obstetrics and Gynecology 88:343-346, 1996
- Nelson DK: Neuroendocrine abnormalities of upper gut function in chronic pancreatitis: lessons for physiology and pathophysiology. In: Malfertheiner, et al., editors. Diagnostic Procedures in Pancreatic Disease Berlin/Heidelberg: Springer-Verlag, pp. 233-247, 1997
- Dean RS and Nelson DK: Prospective randomized comparison of Stonetome combination catheter versus conventional endoscopic clearance of common bile duct. American Journal of Gastroenterology 92:1121-1124, 1997.
- Kim CH and Nelson DK: Venting percutaneous gastrostomy in the treatment of refractory idiopathic gastroparesis. Gastrointestinal Endoscopy 47:67-70, 1998
- Nelson DG and Nelson DK: Teacher and student satisfaction with freefield FM amplification systems. The Volta Review (Journal of the Alexander Graham Bell Association for the Deaf ) 99:133-170, 1999
- Nelson DK: Balance society's needs with patients' rights (point-counterpoint debate on medical records research, with NMP King). Endeavors 15:28-29, 1999
- Locke GR, Talley NJ, Nelson DK, et al.: *Helicobacter pylori* and dyspepsia: A population-based study of the organism and host. American Journal of Gastroenterology 95:1906-13, 2000
- Nelson DK (contributing author): In: T. Hartnett, ed. The Complete Guide to Informed Consent in Clinical Trials Springfield, VA: PharmSource Information Services, 164 pages, 2000
- Nelson DK: Conflict of Interest (three chapters). In: Amdur RJ and Bankert EA, eds. Institutional Review Board: Management and Function Sudbury, MA: Jones and Bartlett Publishers, pp. 197-213, 2002
- Wagner TH, Bhandari A, Chadwick GL and Nelson DK: The cost of operating institutional review boards (IRBs), Academic Medicine 78:638-644, 2003
- Califf RM, Morse MA, Wittes J, Goodman SN, Nelson DK, DeMets D, Iafate RP and Sugarman J: Toward protecting the safety of participants in clinical trials. Controlled Clinical Trials 24:256-271, 2003
- Churchill LR, Nelson DK, Henderson GE, King, NMP, Davis AM, Leahey E, Wilfond BS: Assessing benefits in clinical research: Why diversity in benefit assessment can be risky. IRB: Ethics and Human Research 25:1-8, 2003
- Henderson GE, Davis AM, King NMP, Easter ME, Zimmer CR, Rothschild BB, Wilfond BS, Nelson DK, Churchill LR: Uncertain Benefit:: Investigators' Views and Communications in Early Phase Gene Transfer Trials. Molecular Therapy 10:225-231, 2004

## **RESEARCH AND TRAINING SUPPORT**

2 RO1 HG 02087 (G. Henderson)

Funded 2004-2006 by the National Human Genome Research Institute (NHGRI), NIH

TITLE: The Social Construction of Benefit in Gene Transfer Research

This competing continuation project involves three activities: 1) development of a multi-factorial model of influence in gene transfer research (GTR), to replace the static and problematic notion of vulnerability, based on research relationships, analyzing research participation as a form of social exchange, and delineating a dynamic continuum of influences, ranging from 'due' to 'undue', affecting all parties to research relationships; 2) development of a benefit threshold for assessing what may be offered as a "reasonable prospect of direct benefit" for subjects in early-phase GTR, including how

study endpoints relate to direct benefit, specificity in discussion of direct benefit in early-phase research, the effects of trial design features on direct benefit, and assessment of collateral (“inclusion”) and societal benefit; and 3) application of our influence model and benefit threshold to a close examination of the “vulnerable” population of children in GTR studies, where special regulatory guidance, the dual problems of inclusion and access, and growth and change in the field of GTR affect how benefit in pediatric GTR is viewed by IRBs, investigators, and families.

Role: Co-Investigator

P60 MD000244-01 (P. Godley, PI and Center Director)

Funded 2003-2008 by the National Center for Minority Health and Health Disparities (NCMHD), NIH

TITLE: Carolina-Shaw Partnership for the Elimination of Health Disparities

This newly established Center will receive funding over the next five years through the “Project EXPORT” RFA. This research, conducted in partnership with a nearby historically black institution, Shaw University, seeks to address differences in minority health care and status at several levels, including: training minorities in the field of health research, enhancing curricula in minority health disparities at both UNC-Chapel Hill and Shaw University, and investigating innovative outlets such as local churches in minority communities as data-gathering “nodes” to better address community health needs. In addition, the project will help build the infrastructure (including IRB and related oversight functions) necessary to sustain ongoing research efforts at Shaw University.

Role: Co-Investigator and Co-Director, Research Infrastructure Core

S07-RR18214-01 (R. Lowman)

Funded 2002-2004 by the National Institutes of Health

TITLE: Enhancing Human Subjects Research Protections

This program enhancement grant will develop and improve the systems for human research protections at UNC-Chapel Hill. Projects include enhanced training in research ethics, informed consent process improvement, refinement of standard operating procedures for IRBs, and implementation of information systems to manage IRB review. In addition, outreach activities will share these products with institutions across the state of North Carolina, including Historically Black Colleges and Universities.

Role: Co-Investigator, Project Leader

1 P20 HG 03387-01 (D. Bailey)

Funded 2004-2006 by National Human Genome Research Institute, NIH

TITLE: ELSI Scale-Up: Large Sample Gene Discovery and Disclosure

This proposal rests on the assumption that rapid expansion of large sample gene discovery and disclosure projects raise major ethical, legal, social, and policy challenges, to such an extent that it constitutes a significant and urgent public health need. By utilizing three unique projects at UNC-CH involving large-sample gene discovery and disclosure, we are proposing a two-year Exploratory (P20) grant to conduct the planning necessary to create a Center of Excellence on ELSI Issues in Large Sample Gene Discovery and Disclosure. Our goal is to develop an infrastructure to maximize collaborative research, create partnerships with relevant constituencies, identify critical issues that must be addressed, and collect sufficient pilot data to propose a well-integrated center in which state-of-the-art ELSI research can be conducted to inform public policy.

Role: Co-Investigator

**BIOGRAPHICAL SKETCH**

NAME Kari E. North		POSITION TITLE Assistant Professor	
EDUCATION/TRAINING			
INSTITUTION AND LOCATION	DEGREE <i>(if applicable)</i>	YEAR(s)	FIELD OF STUDY
University of South Florida, Tampa, FL	BA	1992	Anthropology
University of Kansas, Lawrence, KS	MA	1995	Anthropology
University of Kansas, Lawrence, KS	PhD	2000	Anthropological Genetics
Southwest Foundation for Biomedical Research, San Antonio, TX	Post-Doc	2001	Genetic Epidemiology

**A. Positions and Honors**

**Positions and Employment**

1990	Archaeology Field Work, Department of Anthropology, University of South Florida, Tampa, FL
1990	Lab Assistant, Department of Anthropology, University of South Florida, Tampa, FL
1991-92	Tutor, University of South Florida, Tampa, FL
1992	Summer Fellowship, National Institutes of Health, Animal Research Center, Poolesville, MD
1992-94	Editorial Assistant, <i>Human Biology</i> , University of Kansas, Lawrence, KS
1992-94	Research Assistant, Department of Pharmacology, University of Kansas, Lawrence, KS
1994-95	Teaching Assistant, Department of Anthropology, University of Kansas, Lawrence, KS
1995-96	Instructor, Department of Anthropology, University of Kansas, Lawrence, KS
1996-97	Teaching Assistant, Department of Anthropology, University of Kansas, Lawrence, KS
1997-00	Senior Research Assistant, Department of Genetics, Southwest Foundation for Biomedical Research, San Antonio, TX
2000-2002	Post-doctoral Scientist, Department of Genetics, Southwest Foundation for Biomedical Research, San Antonio, TX
2002-present	Assistant Professor, Department of Epidemiology, School of Public Health, University of North Carolina at Chapel Hill

**Other Experience and Professional Memberships**

1994-Present	Member American Association of Anthropological Geneticists
1997-Present	Member Human Biology Association
1998-Present	Reviewer for American Journal of Physical Anthropology, American Journal of Hypertension, Atherosclerosis, BMC Genetics, Circulation, Diabetes Metabolism Research and Reviews, Epidemiology, Gastroenterology, Human Biology, Human Genetics, Obesity Research
2000-Present	Member International Genetic Epidemiological Society
2002-Present	Member American Heart Association

**Honors**

1990-92	Pi Gamma Mu National Science Honors Society
1994	Recipient of Carroll D Clark award to present a poster at the annual meeting of the American Association of Physical Anthropologists. Department of Anthropology, University of Kansas
2004	Winner of Roger R Williams award for excellence in genetics research

**B. Selected Peer Reviewed Publications (in chronological order).**

1. North K.E., Crawford M.H., and Relethford J.H. Spatial variation of anthropometric traits in Ireland.

*Human Biology* 1999; 77(5): 823-845.

2. North K.E., Martin L.J., Crawford M.H. The origins of the Irish Travellers and the genetic structure of Ireland. *Annals of Human Biology* 2000; 27(5): 453-465.
3. North K.E., MacCluer J.W., Cowan L.D., Howard B.V. Gravidity and parity in post-menopausal American Indian women: The Strong Heart Study. *Human Biology* 2000; 72(3): 397-414.
4. Martin L.J., Comuzzie A.G., North K.E., Williams J.T., Blangero J. The utility of Bayesian model averaging approach for detecting known oligogenic effects. *Genetic Epidemiology* 2001; 21(Suppl 1): S789-S793.
5. Williams J.T., North K.E., Martin L.J., Comuzzie A.G., Goring H.H., Blangero J. Distribution of LOD scores in oligogenic linkage analysis. *Genetic Epidemiology* 2001; 21(Suppl 1): S805-S810.
6. Bella J.N., MacCluer J.W., Roman M.J., Almasy L., North K.E., Welty T.K., Lee E.T., Fabsitz R.R., Howard B.V., Devereux R.B. Genetic Influences to Aortic Size in American Indians: The Strong Heart Study. *Arteriosclerosis, Thrombosis, and Vascular Biology* 2002;22(6):1008-11.
7. North K.E., MacCluer J.W., Devereux R.B., Howard B.V., Welty T.K., Best L.G., Lee E.T., Fabsitz R.R., Roman M.J. Heritability of carotid artery structure and function: The Strong Heart Family Study. *Arteriosclerosis, Thrombosis, and Vascular Biology* 2002; 22(10): 1698-1703.
8. North K.E., Howard B.V., Welty T.K., Best L.G., Lee E.T., Yeh J.L., Fabsitz R.R., MacCluer J.W. The Strong Heart Family Study: Genetic and Environmental Contributions to Cardiovascular Disease Factors in American Indians. *American Journal of Epidemiology* 2003; 157 (4): 303-314.
9. North K.E., MacCluer J.W., Williams J.T., Welty T.K., Best L.G., Lee E.T., Fabsitz R.R., Howard B.V. Evidence for Distinct Genetic Effects on Obesity and Lipid Related CVD Risk Factors in Diabetic compared to Non-diabetic American Indians: The Strong Heart Family Study. *Diabetes/Metabolism Research Reviews* 2003;19: 140-147.
10. North K.E., Williams J.T., Welty T.K., Best L.G., Lee E.T., Fabsitz R.R., Howard B.V., MacCluer J.W. Evidence for Joint Action of Genes and Diabetes Status and CVD Risk Factors in American Indians: The Strong Heart Family Study. *International Journal of Obesity* 2003; 27: 491-497.
11. Bataller R., North K.E., Brenner D.A. Host Genetic Factors and the Progression of Liver Fibrosis. *Hepatology* 2003; 37: 493-503.
12. North K.E., Martin L.J., Dyer, T, Comuzzie A.G, Williams J.T. HDL cholesterol in females in the Framingham Heart Study is linked to a region of chromosome 2q. *BMC Genetics* 2003: 4 (Suppl 1): S95.
13. Martin L.J., North K.E., Dyer, T, Williams J.T., Blangero J., Comuzzie A.G. Comparison of factor loadings extracted from phenotypic, genetic, environmental, and genome wide LOD score correlation matrices. *BMC Genetics* 2003: 4 (Suppl 1): S98.
14. Goldin, LR, Camp, N.J., Keen, K.J., Martin, L.J., Moslehi, R., Ghosh, S., North, K.E., Wyszynski, D.F., Blacker, D. Analysis of Metabolic Syndrome Phenotypes in Framingham Heart Study Families from Genetic Analysis Workshop 13. *Genetic Epidemiology* 2003; 25 Suppl 1: S78-89.
15. North K.E., Rose, K.M., Borecki, I.B., Miller M., Oberman, A., Almasy, L., Blangero, J., Hunt SC, and Pankow JS. Evidence for a gene influencing postural systolic blood pressure change and body mass index on chromosome 13. *Hypertension* 2004; 43(4): 780-784.
16. North K.E., Williams K., Welty T.K., Best L.G., Lee E.T., Fabsitz R.R., Howard B.V., Gray P.S., MacCluer J.W. Genetic factors underlying the metabolic syndrome in American Indians: The Strong Heart Family Study. *Obesity Research* 2003 11(12): 1444-1448.
17. Tang, W., Rich, S.S., North, K.E., Pankow J.S., Miller M.B., Borecki, I.B., Myers R.H., Hopkins P.N., Leppert M., Arnett, D.K. Linkage analysis of a composite factor for the multiple metabolic syndrome (MMS): The NHLBI Family Heart Study. *Diabetes* 2003: 52(11):2840-2847.
18. Bella J.N., MacCluer J.W., Roman M.J., Almasy L., North K.E., Welty T.K., Lee E.T., Fabsitz R.R., Howard B.V., Devereux R.B. Heritability of left ventricular dimensions and mass: The Strong Heart Study. *Journal of Hypertension* 2004: 22: 281-286.



## North, Kari

19. Best L., Davidson, M., North, K.E., MacCluer, J.W., Zhang, Y., Lee, E.T., Howard, B.V., DeCroo, S., Ferrell, R. A prospective analysis of mannose binding lectin genotypes and coronary artery disease in American Indians: The Strong Heart Study. *Circulation* 2004; 109: 471-475.
20. Rose KM, North KE, Arnett DK, Ellison C, Hunt S, Lewis EC, Tyroler, HA. Difference in estimates of blood pressure response to three stressors. *Journal of Human Hypertension* 2004; 18: 333-341.
21. Avery CL, Freedman BI, Heiss G, Kraja A, Rice T, Arnett D, Miller MB, Pankow JS, Lewis CE, Myers R, Hunt SC, Almasy L, North KE (in press 2004) Linkage analysis of diabetes status among hypertensive families: the HyperGEN Study. *Diabetes*.

### C. Research Support

#### Ongoing Research Support

HL-94-011 Heiss (PI) 09/29/00–06/30/05

NIH/NHLBI

HyperGEN – Forsyth Co. Field Center (Genetic Determinants of High Blood Pressure)

The major goals of this project are to identify genetic and (interacting) non-genetic determinants of hypertension in African American and White middle-aged individuals of both sexes.

Role: Co-Investigator

1 R01 HL67893-01 Heiss (PI) 09/17/01-08/31/05

NIH/NHLBI

Family Heart Study-Subclinical Coronary Atherosclerosis Network (FHS-SCAN) (formerly known as Genetics of Coronary and Aortic Calcification (GENCAC))

The major goals of this project are to identify genetic factors that establish susceptibility to (a) coronary and aortic atherosclerosis and (b) inter-individual variability in the inflammatory response.

Role: Co-Investigator

Project # 1 R01 HL074377-01 North (PI) 07/01/03 – 06/30/06

NIH/NHLBI

Gene-by-Smoking Interaction and Risk of Atherosclerosis.

The major goal of this project is to evaluate common genetic polymorphisms that, in combination with exposure to tobacco smoke, may modify the risk of atherosclerosis and its clinical sequelae.

Role: Principal Investigator

Project # ES025034-08, LPP Zeldin (PI) 07/01/03 – 06/30/05

NIEHS

Role of Cytochrome P450- Derived Eicosanoids in Endothelial Dysfunction and Cardiovascular Disease.

The major goals of this project are to determine whether variation in *CYP2J2*, *CYP2C8* and/or *sEH* are significantly associated with cardiovascular morbidity or mortality in patients with atherosclerotic disease.

Role: Co-Investigator

Project #1 R01 DK68336-01 North (PI) 09/27/04 - 11/30/07

Subcontract to Washington University

Mapping Adiposity QTLs in the NHLBI Family Heart Study

The major goals of this project are to identify DNA polymorphisms associated with increased BMI, with the goal of identifying genes involved in obesity.

## North, Kari

**Completed Research Support**

Project # 5 U01 HL56563 04 Heiss (PI)

08/15/96-07/31/03

NIH/NHLBI

(No-Cost Extension)

FHS: Molecular Genetics &amp; Genetic Epidemiology-NC

The major goals of this project are to identify the genomic regions linked and/or associated with CHD, atherosclerosis burden measured by ultrasound, and their risk factors.

Role: Co-Investigator

Project # RO 1 HL56567 Heiss (PI)

09/04/01-08/31/04

Subcontract Washington University

FHS: Molecular Genetics and Genetic Epidemiology-NC

The major goals of this project are to identify the genomic regions linked and/or associated with CHD, atherosclerosis burden measured by ultrasound, and their risk factors.

Role: Co-Investigator

## BIOGRAPHICAL SKETCH

NAME		POSITION TITLE	
Fernando Pardo Manuel de Villena		Assistant Professor of Genetics	
EDUCATION/TRAINING			
INSTITUTION AND LOCATION	DEGREE <i>(if applicable)</i>	YEAR(s)	FIELD OF STUDY
University of Leon (Spain)	Baccalaureate	1984-89	Biology
University Complutense of Madrid (Spain)	Ph.D.	1990-1994	Biology
Temple University (Philadelphia PA)	Postdoctoral	1994-2000	Genetics

**A. Positions and Honors****Positions and Employment**

Member of the Curriculum of Genetics and Molecular Biology. UNC-Chapel Hill. 2001

Member of the Lineberger Comprehensive Cancer Center. UNC-Chapel Hill. 2002

Member of the Carolina Center for Genome Sciences, UNC-Chapel Hill, 2004

Assistant Professor: Department of Genetics, University of North Carolina at Chapel Hill, Chapel Hill NC. January 2001.

Associate Scientist: Fels Institute for Cancer Research and Molecular Biology, Temple University School of Medicine, Philadelphia, Pennsylvania. 1998-2001.

Postdoctoral: Fels Institute for Cancer Research and Molecular Biology, Temple University School of Medicine, Philadelphia Pennsylvania. 1994 –1998.

Graduate fellow: Department of Immunology, Centro de Investigaciones Biológicas, CSIC, Madrid, Spain. 1989-1994

Practice contract: Quality Control Laboratory, Antibioticos S.A. Leon, Spain. 1989.

**Honors**

1990 - 1993. Fellow of the Plan Nacional de Formación del Personal Investigador. Ministerio de Educación y Ciencia. Spain

1995 - 1997. Fellow of the Programa Sectorial de Formación de Profesorado y Personal Investigador. Subprograma General en el Extranjero. Ministerio de Educación y Ciencia. Spain

**B. Selected peer reviewed publications (selected out of total of 32)**

1. **Pardo-Manuel F**, Rey-Campos J, Hillarp A, Dahlback B and Rodriguez de Córdoba S. 1990. Human genes for the  $\alpha$  and  $\beta$  chains of complement C4b-binding protein are closely linked in a head-to tail arrangement. *Proc. Natl. Acad. Sci. (USA)* 87: 4529-4532.
2. Fernandez Ruiz E, **Pardo-Manuel de Villena F**, Rodriguez de Córdoba S and Sanchez-Madrid F. 1993. Regional localization of the human vitronectin receptor  $\alpha$  subunit gene (*VNRA*) to chromosome 2q31-q32. *Cytogenet. Cell Genet.* 62: 26-28.
3. Sánchez-Corral P, **Pardo-Manuel de Villena F**, Rey-Campos J and Rodriguez de Córdoba S. 1993. *C4BPAL1*, a member of the human regulator of complement activation (RCA) gene cluster that resulted from the duplication of the gene coding for the  $\alpha$ -chain of C4b-binding protein. *Genomics* 17: 185.
4. Hillarp A, **Pardo-Manuel F**, Ramos-Ruiz R, Rodriguez de Córdoba S and Dahlback B. 1993. The human C4b-binding protein  $\beta$ -chain gene. *J. Biol. Chem.* 268: 15017-15023.
5. Rodriguez de Córdoba S, Perez-Blas M, Ramos-Ruiz R, Sánchez-Corral P, **Pardo-Manuel de Villena F** and Rey-Campos J. 1994. The gene encoding for the  $\beta$ -chain of C4b-binding protein (*C4BPB*) has become a pseudogene in the mouse. *Genomics* 21: 501-509.

6. **Pardo-Manuel de Villena F** and Rodriguez de Córdoba S. 1995. *C4BPAL2*: a second duplication of the *C4BPA* gene in the RCA human gene cluster. *Immunogenetics* 41:139-143.
7. **Pardo-Manuel de Villena F** and Sapienza C. 1996. Genetic mapping of *DXYMov15*-associated sequences in the pseudoautosomal region of the C57BL/6J strain. *Mamm. Genome* 7: 237-239
8. **Pardo-Manuel de Villena F**, Slamka C, Fonseca M, Naumova AK, Paquete J, Panunzio P, Smith M, Verner AE, Morgan K, and Sapienza C. 1996. Transmission-ratio distortion through F1 females at chromosome 11 loci linked to *Om* in the mouse DDK syndrome. *Genetics* 142: 1299-1304
9. **Pardo-Manuel de Villena F**, Heine Suñer D and Rodriguez de Córdoba S. 1996. Ordering of the human regulator of complement activation gene cluster on 1q32 by two-colour FISH. *Cytogenet. Cell Genet.* 72: 339-341.
10. Heine Suñer D, Diaz-Guillen MA, **Pardo-Manuel de Villena F**, Robledo M, Benitez J and Rodriguez de Córdoba S. 1997. A high resolution map of the regulator of complement activation (RCA) gene cluster on 1q32 that integrates new genes and markers. *Immunogenetics* 45: 422-427.
11. **Pardo-Manuel de Villena F**, Naumova AK, Verner AE, Jin WH and Sapienza C. 1997. Confirmation of transmission ratio distortion at *Om* and direct evidence that the maternal and paternal "DDK syndrome" genes are linked. *Mamm. Genome* 8, 642-646.
12. **Pardo-Manuel de Villena F**, de la Casa-Esperon E, Verner AE, Morgan K and Sapienza C. 1999. The DDK syndrome maternal phenotype is determined by modifier genes that are not linked to *Om*, *Mamm. Genome* 10, 492-497.
13. **Pardo-Manuel de Villena F**, de La Casa-Esperon E, Briscoe TL and Sapienza C. 2000. A genetic test to determine the origin of maternal transmission ratio distortion: meiotic drive at mouse *Om* locus. *Genetics* 154, 333-342
14. **Pardo-Manuel de Villena F**, de la Casa-Esperon E, Briscoe TL, Malette JM and Sapienza C. 2000. Male offspring-specific, haplotype-dependent, nonrandom cosegregation of alleles at loci on two chromosomes. *Genetics* 154, 351-356.
15. **Pardo-Manuel de Villena F**, de La Casa-Esperon E, Williams J, Malette JM, Rosa M and Sapienza C. 2000. Heritability of the maternal meiotic drive system linked to *Om* and high resolution mapping of the *Responder* locus in mouse. *Genetics* 155, 283-289.
16. **Pardo-Manuel de Villena F**, de la Casa-Esperon E and Sapienza C. 2000. Natural selection and the function of genome imprinting: Beyond the silenced minority. *Trends in Genetics* 16, 573-579.
17. Paz-Miguel JE, **Pardo-Manuel de Villena F**, Sanchez-Velasco P and Leyva-Cobian F. 2001. *H2*-haplotype dependent unequal transmission of the 17<sup>16</sup> translocation chromosome from Ts65Dn females. *Mamm. Genome* 12, 83-85
18. **Pardo-Manuel de Villena F** and Sapienza C. 2001. Transmission ratio distortion in offspring of heterozygous female carriers of Robertsonian translocations. *Hum. Genet.* 108, 31-36.
19. **Pardo-Manuel de Villena F** and Sapienza C. 2001. Recombination is proportional to the number of chromosome arms in mammals. *Mamm. Genome* 12, 318-322.
20. **Pardo-Manuel de Villena F** and Sapienza C. 2001. Nonrandom segregation during meiosis: The unfairness of females. *Mamm. Genome* 12, 331-339.
21. **Pardo-Manuel de Villena F** and Sapienza C. 2001. Transmission of Robertsonian translocations through human female meiosis. *Cytogenet. Cell Genet* 92, 342-344.
22. **Pardo-Manuel de Villena F** and Sapienza C. 2001. Female meiosis drives karyotypic evolution in mammals. *Genetics* 159, 1179-1189.
23. de la Casa-Esperon E, Loredó-Osti J C , **Pardo-Manuel de Villena F**, Briscoe T L, Malette J M, Vaughan J, Morgan K and Sapienza C. 2002. X chromosome effect on maternal recombination and meiotic drive in the mouse. *Genetics* 161, 1651-1659
24. Mager JC, Montgomery ND, **Pardo-Manuel de Villena F** and Magnuson T. 2003. Genome imprinting regulated by a mouse Polycomb group protein. *Nat. Genet* 33, 502-507.
25. **Pardo-Manuel de Villena F**. 2003. Mammalian karyotype: Evolution. *The Encyclopedia of the Human Genome*. Nature Publishing Group.

## Pardo Manuel de Villena, Fernando

26. Ideraabdullah FY, De la Casa-Esperon E, Bell TA, Detwiler DA, Magnuson T, Sapienza C, **Pardo-Manuel de Villena F**. 2004. Genetic and haplotype diversity among wild derived mouse inbred strains. *Genome Res.* 14, 1880-1887.
27. Kim K, Thomas S, Howard IB, Bell TA, Doherty HE, Ideraabdullah F, Detwiler D, **Pardo-Manuel de Villena. F** 2004. Meiotic drive at the *Om* locus in wild derived mouse inbred strains. *Biological Journal of the Linnean Society* (in press).

### D. Research Support

#### Ongoing Research Support

MCB-0133526                      Pardo Manuel de Villena (PI)                      2/01/2002-1/31/2007  
 National Science Foundation. Faculty Early Career Development (CAREER) Program.  
 The limits of Mendelian Genetics: Sperm influences female chromosome segregation  
 The goal of this project is the cloning and characterization of the *Shade* locus in the mouse. *Shade* is a sperm gene that influences the segregation of chromatids during the second meiotic division of female meiosis. *Shade* maps to a 5 cM interval on mouse chromosome 11. The Specific Aims in this proposal are:

- 1) Determine the mode of inheritance and map the *Shade* locus responsible for the effect of the sire on nonrandom segregation of chromatids during female meiosis.
- 2) Define a 1 cM candidate interval and characterize candidate genes located within it.
- 3) Clone and characterize the gene responsible for the effect on chromatid segregation; and
- 4) Generate a congenic strain to test whether the gene identified is responsible for nonrandom segregation in other systems.

Role: PI

Junior Investigator Award. CONRAD Program.                      Pardo Manuel de Villena (PI)                      4/01/2002-3/31/2005

Andrew W. Mellon Foundation.

Genetic and molecular characterization of a sperm factor involved in egg activation.

The Specific Aims of this study are:

- 1) Identification of candidate genes in the interval using Celera Genomics Database: a) Tissue specificity; b) Postnatal development in juvenile mouse testes to monitor the initial appearance of the message and its levels during postnatal development; and c) In isolated male germ cells (including round spermatids, condensing spermatids, pachytene spermatocytes, and Sertoli cells).
- 2) Functional characterization of candidate genes and identification of the sperm factor using targeted mutation approaches.
- 3) Characterization of the role of the sperm factor in egg activation with special emphasis in determining the pathway in which the sperm factor is involved and its molecular partners.

Role: PI

### BIOGRAPHICAL SKETCH

NAME	POSITION TITLE		
Charles Maurice Perou	Assistant Professor of Genetics and Pathology Member, Lineberger Comprehensive Cancer Center University of North Carolina at Chapel Hill		
EDUCATION/TRAINING			
INSTITUTION AND LOCATION	DEGREE <i>(if applicable)</i>	YEAR(s)	FIELD OF STUDY
Bates College, Lewiston, ME	B.S.	1987	Biology
University of Utah, Salt Lake City, UT	Ph.D.	1996	Cell Biology

#### A. Positions and Honors.

- 1992-1995 Recipient, National Institutes of Health Genetics Predoctoral Training Grant, Jerry Kaplan Lab, University of Utah, Salt Lake City, UT (Ph.D advisor)
- 1996-1997 Recipient, National Institutes of Health Postdoctoral Hematology Training Grant, Kaplan Lab
- 1997-2000 Postdoctoral Fellow, David Botstein Lab, Department of Genetics, Stanford University, CA
- 1997-2000 Recipient, Life Sciences Research Foundation Postdoctoral Fellowship (Botstein Lab)
- 1999 Awarded U.S. Patent No. US5952223, "Compositions for the diagnosis and treatment of Chediak-Higashi syndrome"
- 2000-present Assistant Professor of Genetics and Member of the Lineberger Comprehensive Cancer Center, University of North Carolina at Chapel Hill, Chapel Hill, NC
- 2001-present Member, American Association for Cancer Research
- 2001-present Co-Director of the UNC-CH Genomics and Bioinformatics Core Facility
- 2002-present Adjunct appointment as Assistant Professor of Pathology and Laboratory Sciences, UNC-CH
- 2002-present Member, The Cancer and Leukemia Group B (CALGB) and Member of the CALGB Breast Cancer Correlative Sciences Committee
- 2003-present Member of the Komen Foundation Breast Health Advisory Committee

#### B. Selected Peer-reviewed publications (in chronological order).

1. **C. M. Perou** and J. Kaplan. Complementation analysis of Chediak-Higashi syndrome: The same gene may be responsible for the defect in all patients and species, **Som. Cell Mol. Gen.** 19, 459-468 (1993).
2. D. McVey Ward, **C. M. Perou**, M. L. Lloyd, and J. Kaplan. Synchronized endocytosis and intracellular sorting in Alveolar Macrophages: The early sorting endosome is a transient organelle, **J. Cell Biol.** 129, 1229-1240 (1995).
3. **C. M. Perou**, M. J. Justice, R. J. Pryor and J. Kaplan. Complementation of the *beige* mutation in cultured cells by episomally replicating murine Yeast Artificial Chromosomes, **Proc. Natl. Acad. Sci. U.S.A.** 93, 5905-5909 (1996).
4. **C. M. Perou**, K. J. Moore, D. L. Nagle, D. J. Misumi, E. A. Woolf, S. H. McGrail, L. Holmgren, T. H. Brody, B. J. Dussault Jr., C. A. Monroe, G. M. Duyk, R. J. Pryor, L. Li, M. J. Justice, and J. Kaplan. Identification of the murine *beige* gene by YAC complementation and positional cloning, **Nature Genetics** 13, 303-308 (1996).

5. D. J. Nagle, M. A. Karim, E. A. Wolf, L. Holmgren, P. Bork, D. Misumi, S. H. McGrail, B. J. Dussault Jr., **C. M. Perou**, R. E. Boissy, G. M. Duyk, R. A. Spritz, and K. J. Moore. Identification and mutation analysis of the complete gene for Chediak-Higashi syndrome, **Nature Genetics** 14, 307-311 (1996).
7. **C. M. Perou**, R. J. Pryor, T. P. Naas, and J. Kaplan. The *bg* Allele Mutation is due to a LINE1 Element Retrotransposition, **Genomics** 42, 366-368 (1997).
8. **C. M. Perou**, J. D. Leslie, W. Green, L. Li, D. McVey-Ward, and J. Kaplan. The Beige/Chediak-Higashi gene encodes a widely expressed cytosolic protein, **J. Biol. Chem.** 272, 29790-29794 (1997).
9. **C. M. Perou**, S. S. Jeffrey, M. van de Rijn, M. B. Eisen, D. T. Ross, A. Pergamenschikov, C. A. Rees, C. F. Williams, S. X. Zhu, J. C. F. Lee, D. Lashkari, D. Shalon, P. O. Brown, and D. Botstein. Distinctive Gene Expression Patterns in Human Mammary Epithelial Cells and Breast Cancers, **Proc. Natl. Acad. Sci. U.S.A.** 96, 9212-9217 (1999).
10. J. R. Pollack, **C. M. Perou**, A. Alizadeh, M. B. Eisen, A. Pergamenschikov, C. F. Williams, S. S. Jeffrey, D. Botstein and P. O. Brown. Genome-Wide Analysis of DNA Copy Number Variations Using cDNA Microarrays, **Nature Genetics** 23, 41-46 (1999).
11. D. T. Ross, U. Scherf, M. B. Eisen, **C. M. Perou**, P. Spellman, V. Iyer, S. S. Jeffrey, M. van de Rijn, M. Waltham, A. Pergamenschikov, J. C. F. Lee, D. Lashkari, D. Shalon, T. G. Myers, J. N. Weinstein, D. Botstein, and Patrick O. Brown. Systematic Variation in Gene Expression Patterns in Human Cancer Cell Lines, **Nature Genetics**, 24, 227-35 (2000).
12. **C. M. Perou**, T. Sørlie, M. B. Eisen, M. van de Rijn, S. S. Jeffrey, C. A. Rees, J. R. Pollack, D. T. Ross, H. Johnsen, L. A. Akslen, Ø. Fluge, A. Pergamenschikov, C. Williams, S. X. Zhu, P. E. Lønning, A.-L. Børresen-Dale, Patrick O. Brown, and David Botstein. Molecular Portraits of Human Breast Tumors, **Nature**, 406, 747-52 (2000).
13. T. Sørlie, **C. M. Perou**, R. Tibshirani, T. Aas, S. Geisler, H. Johnsen, T. Hastie, M. B. Eisen, M. van de Rijn, S. S. Jeffrey, T. Thorsen, H. Quist, C. A. Rees, P. O. Brown, D. Botstein, P. E. Lønning, A.-L. Børresen-Dale. Gene expression patterns of breast carcinomas distinguish tumor subclasses with potential clinical implications, **Proc. Natl. Acad. Sci. U.S.A.** 19, 10869-10874 (2001).
14. B. S. Finlin, C.-L. Gau, G. A. Murphy, H. Shao, T. Kimel, R. S. Seitz, Y.-F. Chiu, D. Botstein, P. O. Brown, C. J. Der, F. Tamanoi, D. A. Andres and **C. M. Perou**. *RERG*, an estrogen-regulated and growth-inhibitory gene, encodes a novel Ras-related protein, **J. Biol. Chem.** 276, 42259-67 (2001).
15. M. E. Garber, O. G. Troyanskaya, K. Schluens, S. Petersen, Z. Thaessler, M. Pacyna-Gengelbach, M. van de Rijn, G. D. Rosen, **C. M. Perou**, R. I. Whyte, R. B. Altman, P. O. Brown, D. Botstein and I. Petersen. Diversity of gene expression in adenocarcinoma of the lung, **Proc. Natl. Acad. Sci. U.S.A.** 98, 13784-9 (2001).
16. D. T. Ross and **C. M. Perou**. A comparison of gene expression signatures from breast tumors and breast tissue derived cell lines, **Disease Markers** 17, 99-109 (2001).
17. **C. M. Perou**. Show Me The Data! **Nature Genetics** 29, 373 (2001).
18. M. W. Whitfield, G. Sherlock, A. Saldanha, J. Murray, C. A. Ball, K. E. Alexander, J. C. Matese, **C. M. Perou**, M. M. Hurt, P. O. Brown and D. Botstein. Identification of genes periodically expressed in the human cell cycle and their expression in tumors, **Molecular Biology of the Cell** 13, 1977-2000 (2002).

19. J. R. Pollack, T. Sørli, **C. M. Perou**, C. A. Rees, P. E. Lønning, R. Tibshirani, D. Botstein, A.-L. Børresen-Dale and P. O. Brown. Microarray analysis reveals a major direct role of DNA copy number alteration in the transcriptional program of human breast tumors, **Proc. Natl. Acad. Sci. U.S.A.**, 99, 12963-12968 (2002).
20. M. van de Rijn, **C. M. Perou**, R. Tibshirani, P. Haas, O. Kallioniemi, J. Kononen, J. Torhorst, G. Sauter, M. Zuber, O. R Köchli, F. Mross, H. Dieterich, S. S. Jeffrey, R. Seitz, D. T. Ross, D. Botstein and P. O. Brown. Expression of cytokeratins 17 and 5 identifies a group of breast carcinomas with poor clinical outcome, **Amer. J. of Pathology**, 161 1991-1996 (2002).
21. C. H. Chung, P. S. Bernard and **C. M. Perou**, Molecular Portraits and the Family Tree of Cancer, **Nature Genetics**, 32, 533-540 (2002).
22. T. Sørli, R. Tibshirani, J. Parker, T. Hastie, J. S. Marron, A. Nobel, S. Deng, H. Johnsen, R. Pesich, S. Geisler, **C. M. Perou**, P. E. Lønning, P. O. Brown, A.-L. Børresen-Dale and D. Botstein. Repeated Observation of Breast Tumor Subtypes in Independent Gene Expression Data Sets **Proc. Natl. Acad. Sci.** 100, 8418-23 (2003).
23. S. Ramaswamy and **C. M. Perou**, DNA Microarrays in Breast Cancer: The Promise of Personalized Medicine, **Lancet** 361, 1576-7 (2003).
24. M. Benito, J. Parker, Q. Du, J. Wu, D. Xiang, **C. M. Perou** and J. S. Marron, Adjustment of systematic microarray data biases, **Bioinformatics** 20, 105-14 (2004).
25. T. Grushko, J. Dignam, S. Das, A.M. Blackwood, **C. M. Perou**, K.K. Ridderstrale, K.N. Anderson, M.-J. Wei, A.J. Adams, F.G. Hagos, L. Sveen, H.T. Lynch, B.L. Weber and O.I. Olopade. MYC is Amplified in BRCA1-Associated Breast Cancers, **Clinical Cancer Research** 10, 499-507 (2004).
26. N. Novoradovskaya, M. L. Whitfield, L. S. Basehore, A. Novoradovsky, R. Pesich, J. Usary, M. Karaca, O. Aprelikova, W. K.Wong, M. Fero, **C.M. Perou**, D. Botstein and J. Braman. Universal RNA reference as a standard for microarray experiments, **BMC Genomics** 5:50 (2004).
27. C.H. Chung, J.S. Parker, G. Karaca, J. Wu, W.K. Funkhouser, D. Moore, D. Butterfoss, D. Xiang, A. Zanation, X. Yin, W.W. Shockley, M.C. Weissler, L.G. Dressler, C.G. Shores, W.G. Yarbrough and **C.M. Perou**. Molecular Classification of Head and Neck Squamous Cell Carcinomas using Patterns of Gene Expression, **Cancer Cell** 5, 489-500 (2004).
28. M.A. Troester, K.A. Hoadley, T. Sørli, A.-L. Børresen-Dale, P.E. Lønning, B. Shea-Herbert, J.W. Shay, and **C.M. Perou**. Cell-type Specific Responses to Chemotherapeutics in Breast Cancer, **Cancer Research**, 64, 4218-26 (2004).
29. J. Usary, V. Llaca, G. Karaca, S. Presswala, M. Karaca, X. He, A. Langerød, R. Kåresen, D.S. Oh, L.G. Dressler, P.E. Lønning, R.L. Strausberg, S. Chanock, A.-L. Børresen-Dale and **C.M. Perou**. Mutations of GATA3 in human breast tumors, **Oncogene**, In Press (2004).
30. T.O. Nielsen, F.D. Hsu, K. Jensen, M. Cheang, G. Karaca, Z. Hu, T. Hernandez-Boussard, C. Livasy, D. Cowan, L. Dressler, L A. Akslen, Joseph Ragaz, A.M. Gown, C.B. Gilks, M. van de Rijn and **C.M. Perou**. Immunohistochemical and Clinical Characterization of the Breast Basal-like Subtype of Invasive Carcinoma, **Clinical Cancer Research** 10, 5367-74 (2004).
31. A. Szabo, **C.M. Perou**, M. Karaca, L. Perreard, J.F. Quackenbush and PS Bernard. Statistical Modeling for Selecting Housekeeper Genes. **Genome Biology**, 5 R59 (2004).



32. Z. Hu, M.A. Troester and **C.M. Perou**. High Reproducibility using Sodium Hydroxide-Stripped Long Oligonucleotide DNA Microarrays, **Biotechniques**, In Press (2004).
33. J. M. Thomson, J. Parker, **C. M. Perou** and S. M. Hammond. A Custom Microarray Platform for Analysis of MicroRNA Gene Expression, **Nature Methods**, In Press (2004).
34. M.A. Troester, K.A. Hoadley, J.S. Parker and **C.M. Perou**. Prediction of Toxicant-Specific Gene Expression Signatures following Chemotherapeutic Treatment of Breast Cell Lines, **Environmental Health Perspectives**, In Press (2004).

### C. Research Support.

#### ACTIVE

5-P50-CA58223-09A1 (Earp, III) 08/01/01 7/31/06

National Cancer Institute

**SPORE in Breast Cancer, Project 6 Breast Tumor Molecular "Profiling" Using cDNA Microarrays**

Aim: To identify biologically and clinically relevant breast tumor subtypes using cDNA microarrays, and searching for molecular "signatures" of response or resistance to chemotherapy.

5-P50-CA58223-09A1 (Earp, III) 08/01/01 7/31/06 2.50%

National Cancer Institute

**SPORE in Breast Cancer, Project 5: Correlation of Molecular Markers with Response to Neoadjuvant Chemotherapy**

Aim: To collect serial samples from primary breast cancers before, during and after neoadjuvant chemotherapy (anthracycline-based) followed by a taxane with or without Herceptin) to identify markers correlated with response.

5-P50-CA58223-09A1 (Earp, III) 08/01/01 7/31/06 2.50%

National Cancer Institute

**SPORE in Breast Cancer, Core 2 Genomics and Microarray Core**

The Genomics and Microarray Core provides scientific services and computational support for SPORE projects using DNA microarrays.

2-P50-CA58223-09A1 (Earp, III) 08/01/01 7/31/03

National Cancer Institute

**SPORE: Correlation of Molecular Markers with Response to Neoadjuvant Chemotherapy**

Aim: Define molecular and imaging characteristics of tumor cells in order to identify the expected benefit from standard and experimental therapy and to generate tumor profiles to evaluate addition novel therapeutics.

1-U19-ES11391-02 (Kaufmann and Perou) 09/01/01 8/31/06

National Inst. of Health

**Profiles of Susceptibility to Toxicant Stress: Project #1**

Aim: to use cDNA microarrays to examine the changes in gene expression that are induced by various chemotherapeutic agents and other toxicants in various lines of human mammary epithelial cells to identify patterns of response

1-U19-ES11391-02 (Kaufmann and Perou) 09/01/01 8/31/06

National Inst. of Health

**Profiles of Susceptibility to Toxicant Stress: Core A - Administration**

Drs. Kaufmann and Perou will provide leadership and oversight of the Administrative Core through regular meetings of an Executive Committee composed of the program investigators.

1-RO1-CA-101227-01(Perou)      04/01/03      3/31/08  
National Inst. of Health

**Molecular Characterization of Breast Basal-like Tumors**

Aim: To identify using gene expression profiling, and then characterize breast basal-like tumors using molecular genetics and immunohistochemistry. Tissue arrays will also be used to characterize the progression of basal-like tumors and determine if any of the commonly used chemoprevention targets are present within these lesions.

2-RO1-CA69577-06 (Der)    03/01/02      2/28/07  
National Cancer Institute

**Ras Signal Transduction and Transformation**

Aim: The primary goal of this project will be to determine the gene targets important for oncogenic Ras growth transformation of rodent and human epithelial cells.

2-R01-HL072347-01 (Patterson)    09/30/02      9/29/06  
National Inst. of Health

**Carolina Cardiopulmonary Gene Expression Services**

Aim: to supply NHBLI funded investigators at UNC-CH with complete microarray services including bioinformatics.

1-R33-CA97769-01 (Bernard and Perou)    07/01/02      6/30/05  
National Cancer Institute

**Molecular Diagnostic Tests for Breast Cancer - Subcontract with University of Utah**

Aim: To develop and test quantitative RT-PCR based tests to score for breast tumor gene expression defined subtypes, and to test these classifications for clinical significance.

Research Services contract from Eli Lilly      (Perou)      07/01/02      6/30/04

**Molecular Profiling of Gemcitabine Treated Breast Tumor Patients**

Aim: to perform gene expression profiling on breast tumor patients before, during and after treatment with Gemcitabine in order to identify patterns of response that will predict response or resistance to therapy.

### BIOGRAPHICAL SKETCH

NAME	POSITION TITLE		
Daniel Pomp	Professor		
EDUCATION/TRAINING			
INSTITUTION AND LOCATION	DEGREE <i>(if applicable)</i>	YEAR(s)	FIELD OF STUDY
Hebrew University of Jerusalem	B.S.	1983	Animal Sciences
University of Wisconsin – Madison	M.S.	1986	Genetics and Reproduction
North Carolina State University	Ph.D.	1989	Quantitative Genetics
University of California – Davis	Postdoctoral	1989-1991	Molecular Genetics

#### **A. Positions and Honors**

##### **POSITIONS**

1989-1991	Lecturer and Postdoctoral Researcher	Department of Animal Science, University of California - Davis
1991-1995	Assistant Professor	Department of Animal Science, Oklahoma State University
1995-1997	Assistant Professor	Department of Animal Science, University of Nebraska - Lincoln
1997-2002	Associate Professor	Department of Animal Science, University of Nebraska - Lincoln
2002-2005	Professor	Department of Animal Science, University of Nebraska – Lincoln
2005 (April)	Professor	Department of Nutrition (School of Public Health), Department of Cell and Molecular Physiology (School of Medicine), Carolina Center for Genome Sciences, University of North Carolina – Chapel Hill

##### **HONORS**

1989	Elected to Sigma Xi; Elected to Gamma Sigma Delta
1994	Editorial Board, Journal of Animal Science
1997	Editorial Board, Animal Biotechnology
1998	Outstanding Young Researcher Award (ASAS/ADSA); Kraft Lecturer, University of Wisconsin
1998	Elected Chair, National Animal Genome Project; Editor, Journal of Animal Science Molecular Genetics Section
2001	Advisory Board, California Polytechnic State University, San Luis Obispo
2002	Board of Directors, Alliance for Animal Genomics Research
2002	FASS Scientific Advisory Committee, Committee on Biotechnology
2002	CRC (Australia) Scientific Advisory Board
2004	Editorial Board, Genetics-Selection-Evolution
2004	Visiting Scholar, University of Tibet

#### **B. Selected peer-reviewed publications (out of ~90 total); alphabetical within year.**

- Cowley DE, **Pomp D**, Atchley WR, Eisen EJ, Hawkins-Brown D (1989) The impact of maternal uterine genotype on postnatal growth and adult body size in mice. *Genetics* 122:193-203.
- Pomp D**, Cowley DE, Eisen EJ, Atchley WR, Hawkins-Brown D (1989) Donor and recipient genotype and heterosis effects on prenatal survival and growth of transferred mouse embryos. *J Reprod Fert* 86:493-500.
- Eisen EJ, **Pomp D** (1990) Replicate differences in lines of mice selected for body composition. *Genome* 33:294-301.
- Pomp D**, Eisen EJ (1990) Genetic control of survival of frozen mouse embryos. *Biol Reprod* 42:775-86.
- Medrano JF, **Pomp D**, Sharrow L, Bradford GE, Downs TR, Frohman L (1991) Growth hormone and IGF-I measurements in high growth (hg) mice. *Genet Res, Cambridge* 58:67-74.

- Pomp D**, Medrano JF (1991) Organic solvents as facilitators of PCR. *BioTechniques* 10:58-9.
- Pomp D**, Nancarrow CD, Ward KA, Murray JD (1992) Growth, feed efficiency and body composition of mice expressing a sheep metallothionein 1a-sheep growth hormone fusion gene. *Livestock Prod Sci* 31:335-350.
- Vogl C, Atchley WR, Cowley D, Crenshaw P, Murray JD, **Pomp D** (1993) Epigenetic influences of growth hormone on skeletal development. *Growth, Development and Aging* 57:163-182.
- Murray JD, **Pomp D** (1995) Interaction between reproductive performance and dietary energy levels fed to female oMt1a-oGH transgenic mice. *Transgenics* 1:553-563.
- Pomp D**, Geisert R, Durham CM, Murray JD (1995) Rescue of pregnancy and maintenance of corpora lutea in infertile, transgenic mice expressing an ovine metallothionein 1a-ovine growth hormone fusion gene. *Biol Reproduction* 52:170-8
- Clutter A, **Pomp D**, Murray J (1996) Quantitative genetics of growth in oMT1a-oGH transgenic mice. *Genetics* 143:1753-60.
- Pomp D**, Oberbauer AM, Murray JD (1996) Development of obesity following inactivation of a growth hormone transgene in mice. *Transgenic Research* 5:13-23.
- Moody DE, **Pomp D**, Nielsen MK (1997) Variability in metabolic rate, feed intake and fatness among selection and inbred lines of mice. *Genetical Research* 70:225-235
- Oberbauer AM, Stern JS, Johnson PR, Horwitz BA, German JB, Phinney SD, Beermann DH, **Pomp D**, Murray JD (1997) Body composition of inactivated growth hormone (oMt1a-oGH) transgenic mice: generation of an obese phenotype. *Growth Dev Aging* 61:169-179.
- Pomp D** (1997) Genetic dissection of obesity in polygenic animal models. *Behavior Genetics* 27:285-306.
- Yelich J, **Pomp D**, Geisert R. (1997) Ontogeny of elongation and gene expression in the early developing porcine conceptus. *Biol Reprod* 57:1256.
- Moody DE, **Pomp D**, Nielsen MK, Van Vleck LD (1999) Identification of QTL influencing traits related to energy balance in mice. *Genetics* 152:699-711.
- Pomp D**. (1999) Animal models of obesity. *Molecular Medicine Today* 5:459-60.
- Pomp D**, Nielsen MK (1999) Quantitative genetics of energy balance: Lessons from animal models. *Obesity Res* 7:106-110.
- Allan MF, **Pomp D**, MK Nielsen (2000) Gene Expression in Hypothalamus and Brown Adipose Tissue in Mice Selected for Heat Loss. *Physiological Genomics* 3:149-56.
- Leamy L, Cheverud J, Eisen EJ, **Pomp D** (2000) Quantitative trait loci for directional but not fluctuating asymmetry of mandible characters in mice. *Theor Appl Genet* 76:27-40.
- Allan MF, J Knoop, **Pomp D**, MK Nielsen (2001) Comparative mapping of Rpl3, a gene overexpressed in multiple mouse obesity models. *Animal Biotechnology* 12:167-71.
- Cargill EJ, Happold TR, Lou MF, **Pomp D**, Nielsen MK (2001) Localization of a recessive juvenile cataract mutation to proximal chromosome 7 in mice. *Human Heredity* 52:77:82.
- Cassady JP, RK Johnson, **D Pomp**, GA Rohrer, LD Van Vleck, EK Spiegel, KM Gilson (2001) Identification of quantitative trait loci affecting reproduction in pigs. *J Anim Sci* 79:623-33.
- Rocha JL, **Pomp D**, L D Van Vleck, M K Nielsen (2001) Predictors of marker-informativeness for an outbred F2 design. *Animal Genetics* 32:365-70.
- Childs KD, DW Goad, MF Allan, **D Pomp**, C Krehbiel, RD Geisert, JB Morgan, JR Malayer (2002) Expression of the NAT1 translational repressor in intramuscular adipocytes of Angus X Hereford steers. *Physiological Genomics* 10:49-56.
- Leamy L, **Pomp D**, Eisen EJ, Cheverud J (2002) Pleiotropy of quantitative trait loci for organ weights and limb bone lengths in mice. *Physiol. Genomics* 10:21-29.
- Rocha JL, **Pomp D**, LD Van Vleck (2002) QTL analysis in livestock. *Methods Mol Biol.* 195:311-46.
- Bertani G, Johnson RK, **Pomp D** (2003) Mapping of porcine ESTs putatively differentially expressed in anterior pituitary. *Animal Genetics* 34:132-134.
- Caetano A, RK Johnson, **Pomp D** (2003) Generation and sequence characterization of a normalized cDNA library from swine ovarian follicles. *Mammalian Genome* 14:65-70.

**Pomp, Daniel**

- Abiola O, et al. (**D Pomp** among many other authors) (2003) The nature and identification of quantitative trait loci: a community's view. *Nature Genetics Reviews* 4:911-916.
- Risatti GR, **D Pomp**, RO Donis (2003) Patterns of cellular gene expression in cells infected with cytopathic or non-cytopathic bovine diarrhea virus. *Animal Biotechnology* 14:31-49.
- Tuggle C, Green JA, Fitzsimmons C, Woods R, Prather RS, Malchenko S, Soares MB, Tack D, Robinson N, O'Leary B, Scheetz T, Casavant T, **Pomp D**, Edeal JB, Zhang Y, Rothschild MF, Garwood K, Beavis W (2003) EST-Based Gene Discovery in Pig: Virtual Expression Patterns and Comparative Mapping to Human. *Mammalian Genome* 14:565-579.
- Wesolowski S, Allan MF, Nielsen MK, **Pomp D** (2003) Evaluation of hypothalamic gene expression in mice selected for heat loss. *Physiological Genomics* 13:129-137.
- Allan MF, Eisen EJ, **Pomp D**. (2004) The M16 Mouse: An outbred animal model of polygenic obesity and obesity induced diabetes (diabesity). *Obesity Research* 12:1397-1407.
- Bertani G, Gladney C, Johnson RK, **Pomp D** (2004) Evaluation of gene expression in pigs selected for enhanced reproduction. II: Anterior Pituitary. *J Anim Sci* 82:32-40.
- Caetano A, J Ford, RK Johnson, **D Pomp** (2004) Microarray profiling for differential gene expression in ovaries and ovarian follicles of pigs selected for increased ovulation rate. *Genetics* (In Press).
- Churchill GA (**D Pomp** among many other authors) (2004) The Collaborative Cross: A community resource for the genetic analysis of complex traits. *Nature Genetics* (In Press)
- Gladney C, G Bertani, MK Nielsen, **D Pomp** (2004) Evaluation of gene expression in pigs selected for enhanced reproduction. I: Ovarian Follicles. *J Anim Sci* 82:17-31.
- Jerez-Timaure NC, Eisen EJ, **Pomp D**. (2004) Characterization of quantitative trait loci with major effects on fatness and growth on mouse chromosome 2. *Obesity Research* 12:1408-1420.
- Moller M, Berg F, Riquet J, **Pomp D**, Archibald A, Anderson S, Fève K, Zhang Y, Rothschild MF, Milan D, Andersson L, Tuggle C (2004) High-resolution comparative mapping across pig chromosome 4 (SSC4), emphasizing the *FAT1* region. *Mammalian Genome* 15:771-31.
- Pomp D**, Allan MF, Wesolowski S (2004) Quantitative Genomics: Exploring the genetic architecture of complex trait predisposition. *J Anim Sci* 82:E300–E312.
- Rocha J, Eisen EJ, Van Vleck DL, **Pomp D** (2004) A large sample QTL study in mice. I: Growth. *Mamm Genome* 15:83-99.
- Rocha J, Eisen EJ, Van Vleck DL, **Pomp D** (2004) A large sample QTL study in mice. II: Body Composition. *Mamm Genome* 15:100-115.
- Rocha J, Eisen EJ, Van Vleck DL, Siewerdt F, **Pomp D**. (2004) A large sample QTL study in mice. III: Reproduction. *Mammalian Genome* (In Press).
- Leamy LJ, Elo K, Nielsen MK, Van Vleck LD, **Pomp D**. (2005) Genetic variance and covariance patterns for body weight and energy balance traits in an advanced intercross population of mice. *Genetics-Selection-Evolution* (In Press).

**C. Research Support..****ONGOING**

Integrative Genetics of Cancer Susceptibility

NIH - NCI (MMHCC)

PI: D Threadgill

Co-PIs: **D Pomp**, K Manley.

2004-09

10% effort

This grant funds development of a program to collect and integrate various sources of global phenotypic data (e.g., transcriptome, proteome, metabolome) into comprehensive models of cancer susceptibility using different genetic and carcinogen models of colon and mammary cancer in mice.

The major goal is to identify data sources that are strongly associated with heightened susceptibility to the development of cancer. There is no overlap as the new proposal will be targeting markers of obesity and exercise that might be associated with cancer risk.

Large Scale eQTL Analysis of Obesity in Mice  
Rosetta Inpharmatics (Merck & Co.)  
PI: **D Pomp**  
Co-PI: EE Schadt  
2004-06  
30% effort

Using a large (n=1200) F2 population we developed by crossing a polygenic obesity line with a control line, Rosetta/Merck is applying their high-throughput microarray platform to evaluate gene expression in liver, adipose, hypothalamus and muscle. Data will be jointly analyzed for expression QTL (eQTL) and identification of genes underlying predisposition to obesity, hyperphagia and NIDDM. The cross used in this project is different from the one to be used in the current proposal, and no exercise phenotypes were collected or evaluated. Despite this lack of overlap, expression data will be highly synergistic across the two projects.

Identifying Genes Controlling Litter Size in Pigs  
Biotechnology Research Development Corporation  
PI: **D Pomp**  
2003-05  
10% effort

Large-scale, population-based SNP association studies to find genetic markers for ovarian function. The genes being targeted were found by our lab to be differentially expressed using microarrays in lines selected for enhanced reproduction.

### **COMPLETED**

Fine Mapping of Genes Regulating Heat Loss in Mice  
NIH – NIGMS  
R01 GM60029-02  
PI: **D Pomp**  
1999-04  
30% effort

The major goal of this project was to understand the polygenic control of obesity in a mouse model. Our specific aims were to 1) identify chromosomal regions harboring quantitative trait loci (QTL) regulating components of energy balance and fatness in mice and to 2) use fine-mapping to identify candidate gene homologs that may influence energy balance and obesity in humans.

### BIOGRAPHICAL SKETCH

NAME		POSITION TITLE	
Cynthia M. Powell		Associate Professor of Pediatrics and Genetics	
EDUCATION/TRAINING			
INSTITUTION AND LOCATION	DEGREE <i>(if applicable)</i>	YEAR(s)	FIELD OF STUDY
Cornell University, Ithaca, NY	B.A.	1972-1976	Biology
Sarah Lawrence College, Bronxville, NY	M.S.	1976-1978	Human Genetics
Medical College of Virginia, Virginia Commonwealth University, Richmond, VA	M.D.	1983-1987	Medicine

#### **A. Positions and Honors**

##### **Positions and Employment**

1978-1983	Genetic Counselor, Department of Clinical Genetics, Children's Hospital National Medical Center, Washington, DC
1987-1990	Medical Residency, Pediatrics, Children's National Medical Center, Washington, DC
1990-1993	Fellow in Clinical Genetics and Cytogenetics, Children's National Medical Center, Washington, DC and National Institutes of Health, Bethesda, MD
1993-2000	Assistant Professor of Pediatrics, Division of Genetics and Metabolism, University of North Carolina at Chapel Hill, Chapel Hill, NC
1995-	Medical Director, Cytogenetics Laboratory, UNC Hospitals, Chapel Hill, NC
2000-	Associate Professor of Pediatrics, Division of Genetics and Metabolism, University of North Carolina at Chapel Hill, Chapel Hill, NC
2001-	Research Associate Professor of Genetics, University of North Carolina at Chapel Hill, Chapel Hill, NC
2001-	Medical Genetics Residency Program Director, Department of Genetics, University of North Carolina at Chapel Hill
2004-	Division Chief, Division of Genetics and Metabolism, Department of Pediatrics, University of North Carolina at Chapel Hill

##### **Other Experience and Professional Memberships**

1978-	Member, American Society of Human Genetics
1990-	Member, American College of Genetic Counselors
1993-	Member, American Academy of Pediatrics
1994-	Member, American College of Medical Genetics
1996-1998	Consultant, The Hastings Center, Project on Prenatal Testing for Genetic Disability, funded by the ELSI division of the National Human Genome Research Institute, grant 5R01HG01168
1998-1999	President, North Carolina Medical Genetics Association
2002	Advisory Panel for Association of State and Territorial Health Officers Genomics Toolkit Project, North Carolina site visit February 21, 2002
2002-	Advisory Board, North Carolina Collaborative Project for Surveillance, Prevention and Treatment of Birth Defects. Project funded by the National Center on Birth Defects and Developmental Disabilities and the Centers for Disease Control and Prevention

##### **Honors**

1986	Elizabeth J. Harbison Memorial Award in Pediatrics, Medical College of Virginia
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**B. Selected peer-reviewed publications (in chronological order)**

1. Powell CM, Chandra RS, Saal HM. PHAVER syndrome: an autosomal recessive syndrome of limb pterygia, congenital heart anomalies, vertebral defects, ear anomalies, and radial defects. *Am J Med Genet* 1993; 47:807-811.
2. Murphy DGM, DeCarli C, Daly E, Haxby JV, Allen G, White BJ, McIntosh AR, Powell CM, Horwitz B, Rapoport SI, Schapiro MB. X-chromosome effects on female brain: a magnetic resonance imaging study of Turner's syndrome. *Lancet* 1993; 342:1197-1200.
3. Powell CM, Taggart RT, Drumheller TC, Wangsa D, Qian C, Nelson LM, White BJ: Molecular and cytogenetic studies of an X;autosome translocation in a patient with premature ovarian failure and review of the literature. *Am J Med Genet* 1994; 52:19-26.
4. Murphy DG, Allen G, Haxby JV, Largay KA, Daly E, White BJ, Powell CM, Schapiro MB: The effects of sex steroids, and the X chromosome, on female brain function: a study of the neuropsychology of adult Turner syndrome. *Neuropsychologia* 1994; 32(11):1309-23.
5. Bartsch O, Wuyts W, Van Hul W, Hecht JT, Meinecke P, Hogue D, Werner W, Zabel B, Hinkel GK, Powell CM, Shaffer LG, Willems PJ: Delineation of a contiguous gene syndrome with multiple exostoses, enlarged parietal foramina, craniofacial dysostosis, and mental retardation, caused by deletions on the short arm of chromosome 11. *Am J Hum Genet* 1996; 58:734-742.
6. Murphy DG, Mentis MJ, Pietrini P, Grady C, Daly E, Haxby JV, De La Granja M, Allen G, Largay K, White BJ, Powell CM, Horwitz B, Rapoport SI, Schapiro MB: A PET study of Turner's syndrome: effects of sex steroids and the X chromosome on brain. *Biol Psychiatry* 1997; 41(3):285-98.
7. Eubanks SR, Kuller JA, Amjadi D, Powell CM: Prenatal diagnosis of mosaic trisomy 13: a case report. *Prenat Diagn* 1998; 18: 971-974.
8. Powell CM, Michaelis RC: Townes-Brocks syndrome. *J Med Genet* 1999; 36:89-93.
9. Parens E, Asch A, Baily MA, Bianchi D, Biesecker BB, Botkin J, Crigger B-J, Dreher D, Ferguson P, Gartner A, Kittay EF, Lipsky DK, Jennings B, Murray TH, Nelson JL, Ossorio P, Powell C, Press N, Pinales-Morejon D, Ralston S, Ruddick W, Saxton M, Steinbock B, Wertz D, Wilfond B: The disability rights critique of prenatal genetic testing. *Hastings Center Report-Special Supplement*, September-October 1999.
10. Ashley-Koch A, Wolpert CM, Menold MM, Zaeem L, Basu S, Donnelly SL, Ravan SA, Powell CM, Qumsiyeh MB, Aylsworth AS, Vance JM, Gilbert JR, Wright HH, Abramson RK, DeLong GR, Cuccaro, Pericak-Vance MA: Genetic studies of autistic disorder and chromosome 7. *Genomics* 1999; 61:227-236.
11. Mah ML, Wallace, DK, Powell CM: Ophthalmic manifestations of Angelman syndrome. *J AAPOS* 2000; 4(4):248-249.
12. Kaiser-Rogers KA, Rao KW, Michaelis RC, Lese CM, Powell CM: Usefulness and limitations of FISH to characterize partially cryptic complex chromosome rearrangements. *Am J Med Genet* 2000; 95:28-35.

**C. Research Support**

**Ongoing Research Support**

MM-0645-04/04 Powell (PI)  
CDC/AAMC

10/01/2003-09/30/2005

Genetic Services for Congenital Hearing Loss.

This is a population study of how many infants identified with congenital hearing loss through a state newborn hearing screening program are having genetic evaluations, factors that determine access to genetic services, parents' understanding of genetic information provided, and parental attitudes regarding this information.

Role: PI



### BIOGRAPHICAL SKETCH

NAME Ramsey, John Michael		POSITION TITLE Goldby Distinguished Professor of Chemistry		
EDUCATION/TRAINING				
INSTITUTION AND LOCATION		DEGREE <i>(if applicable)</i>	YEAR(s)	FIELD OF STUDY
Bowling Green State Univ., Bowling Green, OH		BS	1974	Chemistry
Indiana University, Bloomington, IN		PhD	1979	Chemistry

#### **A. Positions and Honors.**

##### **Positions and Employment**

1979-1986 Staff Scientist, Optical Spectroscopy Group, Analytical Chemistry Division, Oak Ridge National Lab

1986-2004 Group Leader, Laser Spectroscopy & Microinstrumentation Group, Chemical and Analytical Sciences Division, Oak Ridge National Laboratory

1995-2003 Co-founder and Scientific Advisory Board Member, Caliper Technologies, Mountain View, CA

1997-2004 Corporate Research Fellow, Oak Ridge National Laboratory

2004-present Professor of Chemistry, Institute for Advanced Materials, Nanoscience, and Technology, Carolina Center for Genome Sciences, University of North Carolina at Chapel Hill, NC

##### **Other Experience and Professional Memberships**

Chair, 18<sup>th</sup> International Symposium on MicroScale Bioseparations, 2005

Scientific Committee, International Symposium on Capillary Chromatography, 2004-

Editorial Board, *Combinatorial Chemistry & High Throughput Screening*, 2004-

Scientific Committee, 28<sup>th</sup> Intl. Symp. on High Perf. Liquid Phase Separations, 2004

Co-Chair, NSF Workshop on Miniaturization of Mass Spectrometry, 2003

Editorial Advisory Board, *Assay and Drug Development Technologies*, 2002-present

Editorial Board, *Journal of Proteome Research*, 2001-2004

Associate Editor, *Journal of Microcolumn Separations*, 2001

Chair, 5th Intl. Conf. On Miniaturized Chemical and Biochemical Analysis Systems, 2001

Scientific Committee, International Microreactors Conference, 2000-present

Scientific Committee, MicroTAS, 1997-present

Chair, Gordon Research Conference on Analytical Chemistry, 1999

Editorial Board, *Chromatographia*, 1999-present

Editorial Board, *Electrophoresis*, 1998-present

Editorial Board, *Biomedical Microdevices*, 1997-present

Chair, Division of Analytical Chemistry, ACS, 1997-1999

Permanent Scientific Committee, High Performance Capillary Electrophoresis, 1996-present

Editorial Advisory Board, *Analytical Chemistry*, 1995-1999

##### **Honors**

Federal Laboratory Consortium Excellence in Technology Transfer Award, 2004

R&D 100 Award,  $\mu$ TrapMS, 2003

ACS Division of Analytical Chemistry Award in Chemical Instrumentation, 2003

Battelle Distinguished Inventor Award, 2003

Marcel J.E. Golay Award in Capillary Chromatography, 2003

Jacob Heskel Gabbay Award in Biotechnology and Medicine, 2001

Appendix Page

A.J.P. Martin Gold Medal for Separation Science, 2001  
 R&D 100 Top 40, 2001  
 Energy @ 23 Award, 2001  
 Frederick Conference on Capillary Electrophoresis Award, 2000  
 Desty Memorial Lecture, Royal Institution, 2000  
 UT-Battelle Development Award, 2000  
 National Academy of Engineering Frontiers, 1999  
 Senior Alexander von Humboldt Award, 1999  
 Bayer Lecturer in Chemistry, University of New Hampshire, 1999  
 Fellow, Optical Society of America, 1998  
 Lockheed Martin Corporate Research Fellow, 1998  
 Lockheed Martin Energy Systems Scientist of the Year Award, 1996

**B. Selected Peer-Reviewed Publications (in chronological order).**

(Publications selected from over 200 peer-reviewed publications)

1. M. B. Barnes, C.-Y. Kung, W. B. Whitten, J. M. Ramsey, S. Arnold, and S. Holler, "Fluorescence of Oriented Molecules in a Microcavity," *Phys. Rev. Lett.*, **76**, 3931 (1996).
2. S. C. Jacobson and J. M. Ramsey, "Integrated Micro-Device for DNA Restriction Fragment Analysis," *Anal. Chem.* **68**, 720 (1996).
3. J. P. Kutter, S. C. Jacobson, and J. M. Ramsey, "Electrokinetic Solvent Mixing for Isocratic and Gradient Elution in MEKC on Microfabricated Devices," *Anal. Chem.* **69**, 5165 (1997).
4. A. G. Hadd, D. E. Raymond, J. W. Halliwell, S. C. Jacobson, and J. M. Ramsey, "Microchip Device for Performing Enzyme Assays," *Anal. Chem.*, **69**, 3407 (1997).
5. S. C. Jacobson and J. M. Ramsey, "Electrokinetic Focusing in Microfabricated Channel Structures," *Anal. Chem.*, **69**, 3212 (1997).
6. R. S. Ramsey and J. M. Ramsey, "Generating Electrospray from Planar Glass Chips Using Electroosmotic Pumping," *Anal. Chem.*, **69**, 1174 (1997).
7. C. T. Culbertson, S. C. Jacobson, and J. M. Ramsey, "Dispersion Sources for Compact Geometries on Microchips," *Anal. Chem.*, **70**, 3781 (1998).
8. S. Ermakov and J. M. Ramsey, "Computer Simulations of Electrophoresis in Microfabricated Channel Structures," *Anal. Chem.*, **70**, 4494 (1998).
9. S.C. Jacobson and J.M. Ramsey, "Microchip Structures for Submillisecond Electrophoresis," *Anal. Chem.*, **70**, 3476 (1998).
10. J. P. Kutter, S. C. Jacobson, N. Matsubara, and J. M. Ramsey, "Solvent Programmed Microchip Open Channel Electrochromatography," *Anal. Chem.*, **70**, 3291 (1998).
11. J. P. Kutter, R. S. Ramsey, S. C. Jacobson, and J. M. Ramsey, "Determination of Metal Cations in Microchip Electrophoresis using On-Chip Complexation and Sample Stacking," *J. Microcolumn Separations* **10**, 313 (1998).
12. L. C. Waters, S. C. Jacobson, N. Kroutchinina, Y. Khandurina, R. S. Foote, and J. M. Ramsey, "Microchip Device for Cell Lysis, Multiplex PCR Amplification and Electrophoretic Sizing," *Anal. Chem.* **70**, 5172 (1998).
13. O. Kornienko, P. T. A. Reilly, W. B. Whitten, "Electron Impact Ionization in a Micro Ion Trap Mass Spectrometer," *Rev. Sci. Instrum.*, **70**, 3907 (1999).
14. I. M. Lazar, R. S. Ramsey, S. Sundberg, and J. M. Ramsey, "Zeptomole sensitivity microchip nanoelectrospray source with time-of-flight mass spectrometry detection," *Anal. Chem.*, **71**, 3627 (1999).
15. J. M. Ramsey, "The burgeoning power of the shrinking laboratory," *Nature Biotech.*, **17**, 1061 (1999).
16. S. C. Jacobson, T. E. McKnight, and J. M. Ramsey, "Microdevices for effecting parallel and serial dilutions using a single voltage source," *Anal. Chem.*, **71**, 4455 (1999).
17. D. P. Schrum, C. T. Culbertson, S. C. Jacobson, and J. M. Ramsey, "Microchip Flow Cytometry Using Electrokinetic Focusing," *Anal. Chem.*, **71**, 4173 (1999).

## Ramsey, J. Michael

18. J. Khandurina, S. C. Jacobson, L. C. Waters, R. S. Foote, J. M. Ramsey, "Microfabricated Porous Membrane Structure for Sample Concentration and Electrophoretic Analysis," *Anal. Chem.*, **71**, 1815 (1999).
19. O. Kornienko, P.T.A. Reilly, W. B. Whitten, and J. M. Ramsey, "Micro Ion Trap Mass Spectrometry," *Rapid Comm. Mass Spectrom.*, **13**, 50 (1999).
20. R. D. Rocklin, R. S. Ramsey, and J. M. Ramsey, "A Microfabricated Fluidic Device for Performing Two-Dimensional Liquid-Phase Separations," *Anal. Chem.*, **72**, 5244 (2000).
21. Y. Liu, R. S. Foote, S. C. Jacobson, R. S. Ramsey, and J. M. Ramsey, "Electrophoretic Separation of Proteins on a Microchip with Noncovalent, Postcolumn Labeling," *Anal. Chem.*, **72**, 4608 (2000).
22. I. M. Lazar, R. S. Ramsey, S. C. Jacobson, R. S. Foote, and J. M. Ramsey, "Novel Microfabricated Device for Electrokinetically Induced Pressure Flow and Electrospray Ionization Mass Spectrometry," *J. Chrom. A*, **892**, 195 (2000).
23. Y. Liu, R. S. Foote, C. T. Culbertson, S. C. Jacobson, R. S. Ramsey, and J. M. Ramsey, "Electrophoretic Separation of Proteins on Microchips," *J. Microcolumn Separations*, **12(7)**, 407 (2000).
24. C. T. Culbertson, R. S. Ramsey, and J. M. Ramsey, "Electroosmotically Induced Hydraulic Pumping on Microchips: Differential Ion Transport," *Anal. Chem.* **72**, 2285 (2000).
25. S. V. Ermakov, S. C. Jacobson, and J. M. Ramsey, "Computer simulations of electrokinetic injection techniques in microfluidic devices," *Anal. Chem.* **72**, 3512 (2000).
26. Y. Liu, R.S. Foote, C.T. Culbertson, S.C. Jacobson, R.S. Ramsey, and J.M. Ramsey, "Electrophoretic Separation of Proteins on Microchip," *J. Microcol. Separations*, **12**, 407 (2000).
27. J.S. Soughayer, T. Krasieva, S.C. Jacobson, J.M. Ramsey, B.J. Tromberg, and N.L. Allbritton, "Characterization of Cellular Optoporation with Distance," *Analytical Chemistry*, **72**, 1342-1347, 2000.
28. J. Khandurina, T. E. McKnight, S. C. Jacobson, L. C. Waters, R. S. Foote, and J. M. Ramsey, "Integrated System for Rapid PCR-based DNA Analysis in Microfluidic Devices," *Anal. Chem.*, **72(13)**; 2995-3000 (2000).
29. N. Gottschlich, C. T. Culbertson, T. E. McKnight, S. C. Jacobson, and J. M. Ramsey, "Integrated Microchip-Device for the Digestion, Separation and Postcolumn Labeling of Proteins and Peptides," *J. Chromatogr. B*, 745 (2000).
30. C. T. Culbertson, S. C. Jacobson, and J. M. Ramsey, "Microchip Devices for High Efficiency Separations," *Anal. Chem.*, **72**, 5814 (2000).
31. T. E. McKnight, C. T. Culbertson, S. C. Jacobson, and J. M. Ramsey, "Electroosmotically Induced Hydraulic Pumping with Integrated Electrodes on Microfluidic Devices," *Anal. Chem.*, **73**, 4045 (2001).
32. J. P. Alarie, S. C. Jacobson, and J. M. Ramsey, "Electrophoretic Injection Bias in Microchip Valving," *Electrophoresis*, **22**, 312 (2001).
33. N. Gottschlich, S. C. Jacobson, C. T. Culbertson, and J. M. Ramsey, "Two Dimensional Electrochromatography/ Capillary Electrophoresis Microchip Device," *Anal. Chem.*, **73**, 2669 (2001).
34. M. A. McClain, C. T. Culbertson, S. C. Jacobson, and J. M. Ramsey, "Flow Cytometry of *E. Coli* on Microfluidic Devices," *Anal. Chem.*, **73**, 5334 (2001).
35. C. T. Culbertson, S. C. Jacobson, and J. M. Ramsey, "Diffusion Coefficient Measurements in Microfluidic Devices," *Talanta*, **56**, 365 (2002).
36. Jeremy Moxom, Peter T. A. Reilly, William B. Whitten, and J. Michael Ramsey, "Double Resonance Ejection in a Micro Ion Trap Mass Spectrometer," *Rapid Commun. Mass Spectrom*, **16**, 755-760 (2002).
37. C. Tsouris, C. T. Culbertson, D. W. DePaoli, S. C. Jacobson, and J. M. Ramsey, "Electrohydrodynamic Mixing in Microchannels," *AIChE J*, **49**, 2181 (2003).
38. M.A. McClain, C.T. Culbertson, S.C. Jacobson, N.L. Allbritton, C.E. Sims, and J.M. Ramsey, "Microfluidic Devices for the High Throughput Chemical Analysis of Cells," *Anal. Chem.*, **75**, 5646 (2003).

- 39.
40. B.S. Broyles, S.C. Jacobson, and J.M Ramsey, "Sample Filtration, Concentration, and Separation on Microchips," Anal. Chem. 75, 2761 (2003).
41. J.D. Ramsey, S.C. Jacobson, C.T. Culbertson, and J.M. Ramsey, "High Efficiency, Two-Dimensional Separations of Protein Digests Using Microfluidic Devices," Anal. Chem., 75, 3758 (2003).

### **C. Research Support.**

#### **Ongoing Research Support**

078-NX-39 Greene (PI) FY03-FY09  
 NHLBI: Development of Novel Mass Spectrometry Tools for Individual Cell Proteome Analysis  
 Goals: Develop tools to extract and analyze proteins from single cells.  
 Role: Co-PI

T8199W Ramsey (PI) FY02-FY05  
 NASA: Cellular and Macromolecular Biotechnology (NRA-00-HEDS-03)  
 Automated Microfluidic Devices for Monitoring Biological Systems in Space  
 Goals: Develop microfabricated flow cytometry and biochemical analysis system to monitor to interface with JSC bioreactor systems to monitor biological consequences of space environments.  
 Role: PI

DE-AC00OR22725 Ramsey (PI) 09/27/04 – 12/31/04  
 UT-Battelle/DOE: Develop Low and High Pressure Microfluidic Pumps  
 Goals: Develop integrated microfluidic pumps  
 Role: PI

DE-AC05-00OR22725 Ramsey (PI) 09/27/04 – 12/31/07  
 UT-Battelle/DOE: Develop a Miniaturized Mass Spectrometric Detector  
 Goals: Develop mass spectrometry technology that for gas phase monitoring with a volume of a few cm<sup>3</sup> and power consumption of a few mW.  
 Role: PI

1R01GM067905-01A1 Ramsey (PI) 09/04 – 08/08  
 NIH-EBT: High Throughput Measurement of Cellular Signaling  
 Goals: Development of microfluidic devices for high throughput measurement of single cell signaling cascades.  
 Role: PI

### BIOGRAPHICAL SKETCH

NAME		POSITION TITLE		
Kathleen Waldron Rao		Professor		
EDUCATION/TRAINING				
INSTITUTION AND LOCATION		DEGREE <i>(if applicable)</i>	YEAR(s)	FIELD OF STUDY
College of William and Mary, Williamsburg, VA		BS	1970	Biology
Univ. of North Carolina, Chapel Hill, NC		PhD	1980	Genetics

#### Research and/or Professional Experience

9/01/80 - 6/30/81	Instructor, Department of Pediatrics; Director, Cytogenetics Laboratory, East Carolina University, Greenville, N.C.
7/01/81 - 5/14/84	Assistant Professor, Department of Pediatrics; Director, Cytogenetics Laboratory, East Carolina University, Greenville, N.C.
5/14/84 - 5/14/91	Assistant Professor, Departments of Pediatrics and Pathology; Director, Cytogenetics Laboratory; Research Scientist, Biological Sciences Research Center, University of North Carolina at Chapel Hill
5/15/91 – 11/30/99	Associate Professor, Departments of Pediatrics and Pathology; Director, Cytogenetics Laboratory; Research Scientist, Biological Sciences Research Center, University of North Carolina at Chapel Hill
12/01/99 – present	Professor, Dept of Pediatrics and Pathology and Lab Medicine; Director, Cytogenetics Laboratory; Research Scientist, Biological Sciences Research Center, University of North Carolina at Chapel Hill
11/1/01 – present	Research Professor, Department of Genetics, University of North Carolina at Chapel Hill

#### Committees

Cytogenetics Steering Committee, Southeastern Regional Genetics Group, (Member) 1986-1998; Co-Chairman (1995 - 1998)

Cancer and Leukemia Group B (CALGB) Cytogenetics Committee (Member), 1986-present

Cancer and Leukemia Group B (CALGB) Central Review Committee for Cytogenetics (Member), 1988-present

Childrens Oncology Group (Formerly Children's Cancer Group - CCG) Central Review Committee for Cytogenetics (Member), 1995 – present

College of American Pathologists/American College of Medical Genetics (CAP/ACMG) Cytogenetics Committee (Member), 1998-present, (Vice-Chair) 2003-present.

American College of Medical Genetics Laboratory Quality Assurance Committee (Member), 2003-present

#### Publications

Estabrooks, Laurel L., Rao, Kathleen W., Driscoll, Deborah, A., et al: A Preliminary Phenotypic Map of Chromosome 4p16 Based on 4p Deletions. American Journal of Medical Genetics. 57:581-586, 1995.

**Rao, Kathleen**

- Pettenati, M.J., Rao, P.N., Phelan, M.C., Grass, F., Rao, K.W., et al: Paracentric Inversions in Man: A Review of 446 Paracentric Inversions with Presentation of 120 New Cases. American Journal of Medical Genetics. 55:171-187, 1995.
- Wells, S.R., Kuller, J.A., Rao, K.W., & Aylsworth, A.S.: Multiple congenital malformations in an infant prenatally diagnosed with mosaicism for dup (1q) and del (Xq). Clinical Genetics. 49: 216-219, 1996.
- Slack, J.L., Arthur, D.C., Lawrence, D., Mrózek, K., Mayer, R.J., Davey, F.R., Tantravehi, R., Pettenati, M.J., Bigner, S., Carroll, A.J., Rao, K.W., Schiffer, C.A. & Bloomfield, C.D. Secondary cytogenetic changes in acute promyelocytic leukemia: Prognostic importance and association with the intron 3 breakpoint of the PML gene. A Cancer and Leukemia Group B study. Journal of Clinical Oncology. 15(5):1786-95, 1997 May.
- Hansen, Wendy F., Bernard, Lynn E., Langlois, Sylvie, Rao, Kathleen W., Chescheir, Nancy C., Aylsworth, Arthur S., Smith, Ian D., Robinson, Wendy P., Barrett, Irene J., Kalousek, Dagmar K. Maternal uniparental disomy of chromosome 2 and confined placental mosaicism for trisomy 2 in a fetus with intrauterine growth restriction, hypospadias and oligohydramnios. Prenatal Diagnosis. Vol. 17:5:443-450, 1997.
- Kai-Ling Fu, Jerome R. Lo Ten Foe, Hans Joenje, Kathleen W. Rao, Johnson M. Liu, and Christopher E. Walsh: Functional Correction of Fanconi Anemia Group A Hematopoietic Cells by Retroviral Gene Transfer Blood, Vol 90:9:3296-3303, 1997.
- K. Mrozek, K. Heinonen, D. Lawrence, A.J. Carroll, P.R.K. Koduru, K.W. Rao, M.P. Strout, R.E. Hutchison, J.O. Moore, R.J. Mayer, C.A. Schiffer, C.D. Bloomfield: Adult patients with de novo acute myeloid leukemia and t(9;11)(p21-22;q23) has a superior outcome to patients with other translocations involving band 11q23: A Cancer and Leukemia Group B study. Blood, Vol. 90:11:4532-4538, 1997.
- Priest, J. and Rao, K.W.: Prenatal Chromosome Diagnosis. In: The AGT Cytogenetics Laboratory Manual, Third Edition. M.Barch, T. Knutsen, J. Spurbeck, Eds., Lippencott-Raven, New York, pp199-258, 1997.
- Woodward K., Palmer R., Rao K., Malcolm S. Prenatal diagnosis by FISH in a family with Pelizaeus-merzbacher disease caused by duplication of PLP gene. Prenatal Diagnosis. Vol. 19(3):266-8, 1999.
- Park, Jonathan, Arthur Brothman, Merlin Butler, Linda Cooley, Gordon Dewald, Kurt Lundquist, Catherine Palmer, Shivanand Patil, Kathleen Rao, Irene Saikevych, Nancy Schneider, Gail Vance: Extensive Analysis of Mosaicism in a Case of Turner Syndrome: The Experience of 287 Cytogenetic Laboratories. Archives of Pathology & Laboratory Medicine, 123(5):381-5, 1999 May.
- K.A. Kaiser-Rogers, K.W. Rao, R.C. Michaelis C.M. Lese, C.M. Powell. The Usefulness and limitations of FISH to Characterize Partially Cryptic Complex Chromosome Rearrangements. Am. J. Med. Genet, 6 (1): 28-35, 2000.
- K.Yamada, J.C. Olsen, M. Patel, K.W. Rao, C.E. Walsh. Functional Correction of Fanconi Anemia Group C Hematopoietic Cells by the Use of a Novel Lentiviral Vector. Molecular Therapy, Vol.3, No. 4, April 2001
- R. R. Tubbs, L. Cooley, P. C. Roche, E. D. His, M. D. Linden, N. M. Pettigrew, R. R. Rickert, J. W. Said, I. B. Bayer-Garner, R. B. Nagel, A. R. Brothman, D. L. Persons, G. Habegger Vance, J. T. Mascarello, K. W. Rao, M. Herrmann, G. DeWald and J. P. Park. Clinical laboratory assays for Her 2/Neu amplification and overexpression: Quality Assurance, Standardization, and Proficiency Testing. Archives of Pathology & Laboratory Medicine 2002;126: 803-808.
- James T. Mascarello, PhD; Arthur R. Brothman, PhD; Keri Davison; Gordon W. Dewald, PhD; Marille Herrman, MD, PhD; Danette McCandless, MD; Jonathan P. Park, PhD; Diane L. Persons, MD; Kathleen W. Rao, PhD; Nancy Schneider, MD, PhD; Gail H. Vance, MD; Linda D. Cooley, MD. Proficiency Testing for Laboratories Performing Fluorescence in Situ Hybridization with Chromosome-Specific DNA Probes. Archives of Pathology & Laboratory Medicine. 126:1458-1462, 2002.

- John C. Byrd, Krzysztof Mrozek, Richard K. Dodge, Andrew J. Carroll, Colin Edwards, Diane C. Arthur, Mark J. Pettenati, Shivanand R. Patil, Kathleen W. Rao, Micheal S. Watson, Joseph O. Moore, Richard M. Stone, Robert J. Mayer, Frederick R. Davey, Charles A. Schiffer, Richard A. Larson, Clara D. Bloomfield. Pre-Treatment Cytogenetic Abnormalities are Predictive of Induction Success, Cumulative Incidence of Relapse, and Overall Survival in Adult Patients with de novo Acute Myeloid Leukemia: Results from Cancer and Leukemia Group B (CALGB 8461). Blood 100(13):4325-36, 2002.
- Amgad L. Nashed, Kathleen W. Rao, Margaret Gulley. Clinical Applications of BCR-ABL Molecular Testing in Acute Leukemia. Journal of Molecular Diagnostics. Vol. 5, No. 2, May 2003.
- Cherie H. Dunphy, MD, Hendrik W. Van Deventer, MD, Kathryn J. Carder MT(ASCP)-SH, Kathleen W. Rao, PhD, Georgette Dent, MD. Mature B-Cell Acute Lymphoblastic Leukemia With Associated Translocations (14;18)(q32;q21) and (8;9)(q24;p13): A Burkitt Variant? Arch Pathol Lab Med. Vol. 127, May 2003.
- Mascarello JT, Cooley LD, Davison K, Dewald GW, Brothman AR, Herrman M, Park JP, Persons DL, Rao KW, Schneider NR, Vance GH; Cytogenetics Resource Committee, College of the American Pathologist Cytogenetics Resource Committee, American College of Medical Genetics. As currently formulated, ISCN FISH nomenclature make it not practical for use in clinical test reports or cytogenetics databases. Genet Med. 2003, September-October; 5(5): 370-7.
- Denise I. Quigley, Kathleen Kaiser-Rogers, Arthur S. Aylsworth, Kathleen W. Rao; Submicroscopic deletion 9(q34.3) and duplication 19(p13.3): Identified by subtelomere specific FISH probes. American Journal of Medical Genetics, Published Online: August 29, 2003 (Early View). In press, December 2003.
- William Blum, M.D., Krzysztof Mrozek, M.D., Amy S. Ruppert, M.A.S., Andrew J. Carroll, Ph.D., Kathleen W. Rao, Ph.D., Mark J. Pettenati, Ph.D., John Anastasi, M.D., Richard A. Larson, M.D., and Clara D. Bloomfield, M.D.; Early allogeneic transplantation should be considered for adults with de novo acute myeloid leukemia presenting with t(6;11)(q27;q23): results from Cancer and Leukemia Group B study 8461 and review of the literature. Cancer and Leukemia May 2004.

## **OTHER SUPPORT**

### **ACTIVE**

**PI:** Arthur S. Aylsworth [CON# 05201006 (00781)]  
**Title of Research:** Genetic counseling Program Contract (3% of salary)  
**Objective:** To provide Genetic Counseling Services  
**Dates:** 7/1/01 – 06/30/02  
**Source of Support & Grant#:** NC Dept of Health and Human Services, Div of Public Health

**PI:** Kathleen Rao (477)  
**Title of Research:** Provision of Genetic Counseling Services (Support of 1/2 time genetic counselor)  
**Objective:** To provide Genetic Counseling Services  
**Source of Support & Grant#:** UNC Hospitals  
**Annual Period:** 7/1/01 – 6/30/02

### BIOGRAPHICAL SKETCH

NAME Stephen L. Rogers		POSITION TITLE Assistant Professor	
EDUCATION/TRAINING			
INSTITUTION AND LOCATION	DEGREE <i>(if applicable)</i>	YEAR(s)	FIELD OF STUDY
Purdue University, West Lafayette, IN	B.S.	1991	Molecular Biology
University of Illinois, Urbana, IL	Ph.D.	2000	Cell Biology

#### **A. Positions and Employment**

##### Professional Positions

2004 - present   Assistant Professor, Department of Biology and The Carolina Center for Genome Sciences, University of North Carolina, Chapel Hill, North Carolina

##### Honors and Professional Memberships

1995 - present   American Society for Cell Biology  
 1996                University of Illinois Travel Grant  
 1997                Second place winner, Nikon Small World Photomicrography Competition  
 1997                Runner-up, Olympus-Current Biology Photomicrography Competition

#### **B. Selected Peer Reviewed Publications** (from 50)

1. Rogers, S.L., Tint, I.S., Fanapour, P.C., & Gelfand, V.G. 'Regulated bidirectional motility of melanophore pigment granules along microtubules in vitro.' *Proceedings of the National Academy of Sciences USA* 94: 3720-3725 (1997).
2. Rogers, S.L., Tint, I.S., & Gelfand, V.G. 'In vitro motility assay for melanophore pigment organelles.' *Methods in Enzymology* 298: 361-372 (1998).
3. Rogers, S.L. & Gelfand, V.G. 'Myosin cooperates with microtubule motors during organelle transport in melanophores.' *Current Biology* 8: 161-164 (1998).
4. Szczesna-Skorupa, E., Chen, C.D., Rogers, S., & Kemper, B. 'Mobility of cytochrome p450 in the endoplasmic reticulum membrane.' *Proceedings of the National Academy of Sciences USA* 95: 14793-14798 (1998).
5. Rogers, S.L., Karcher, R.L., Roland, J.T., Minin, A.A., Steffen, W., & Gelfand, V.I. 'Regulation of melanosome movement in the cell cycle by reversible association with myosin V.' *Journal of Cell Biology* 146: 1265-1276 (1999).
6. Rogers, S.L. & Gelfand, V.G. 'Membrane trafficking, organelle transport, and the cytoskeleton.' *Current Opinion in Cell Biology* 12: 57-62 (2000).
7. Reilein, A.R., Rogers, S.L., Tuma, C.T., & Gelfand, V.G. 'Regulation of organelle transport.' *International Review of Cytology and Cell Biology* 204: 179-238 (2001).
8. Klopfenstein, D.R., Vale, R.D. & Rogers, S.L. 'Motor protein receptors: moonlighting on other jobs.' *Cell* 103: 537-540 (2001).



**Rogers, Stephen**

9. Rogers, G.C., Rogers, S.L., Sharp, D.J., & Scholey, J.M. 'Dynein.' Wiley Encyclopedia of Molecular Medicine, Volume 2, pp. 1108-1116 (New York: John Wiley & Sons, 2002).
10. Rogers, S.L., Rogers, G.C., Sharp, D.J., & Vale, R.D. 'Drosophila EB1 is essential for proper assembly dynamics, and positioning of the mitotic spindle.' *Journal of Cell Biology* 158:873-884 (2002).
11. Rothenberg, M.E., Rogers, S.L., Vale, R.D., Jan, L.Y., & Jan, Y.N. 'Drosophila Pod-1 controls the targeting but not outgrowth of axons and cross-links both actin and microtubules.' *Neuron*. 39:779-791 (2003).
12. Rogers, S.L., Weidemann, U., Stuurman, N. & Vale, R.D. 'Molecular requirements for actin-based lamella formation in Drosophila S2 cells.' *Journal of Cell Biology*. 162: 1079-1088 (2003).
13. Rogers, S.L. & Scholey, J.M. 'Motility assays for microtubule motor proteins'. *Encyclopedia of Life Sciences/www.els.net*. (Nature Publishing Group, 2003).
14. Rogers, G.C., Rogers, S.L., Schwimmer, T.A., Stubbart, J., Walczak, C.E., Vale, R.D., Scholey, J.M., & Sharp, D.J. 'Identification and characterization of three Kin I family members in Drosophila: evidence that mitosis in this system involves the coordinated action of functionally distinct classes of Kin I motors.' *Nature*. 427: 364-370 (2004).
15. Rogers, S.L., Weidemann, U., Hacker, U., & Vale, R.D. 'Drosophila RhoGEF2 associates with microtubule plus ends in an EB1-dependent manner'. *Current Biology*. 14: 1827-1833 (2004).

**C. Research Support**

5F32 GM064966-02 (PI: Rogers) 2002 - 2004  
 NIH  
 Understanding the Cellular Roles of EB1 Proteins  
 Role: PI

## BIOGRAPHICAL SKETCH

NAME	POSITION TITLE		
Ivan Rusyn	Assistant Professor		
EDUCATION/TRAINING			
INSTITUTION AND LOCATION	DEGREE <i>(if applicable)</i>	YEAR(s)	FIELD OF STUDY
Ukrainian State Med. University, Kiev, Ukraine	M.D. (w. Hons.)	1994	Medicine
Inst. Physiol. Chem. I, University of Dusseldorf	Postdoctoral	1995 - 96	Free radical biology
University of North Carolina at Chapel Hill	Ph.D.	2000	Toxicology
University of North Carolina at Chapel Hill	Postdoctoral	2000 - 01	DNA damage &
Massachusetts Institute of Technology	Postdoctoral	2001 - 02	repair, toxicogenomics

### Positions and Employment:

1994 – 1995	Intern, Department of Otolaryngology, Kiev Regional Clinical Hospital, Ukraine
1995 – 1996	Guest Researcher & Fellow of German Academic Exchange Service (DAAD), Institute for Physiological Chemistry I, University of Dusseldorf, Germany
1996 – 2000	Grad. Res. Assist., Curric. in Toxicology, Lab. of Hepatobiology & Toxicology, UNC-Chapel Hill
2000 – 2001	Postdoctoral Fellow, Laboratory of Molecular Carcinogenesis and Mutagenesis, Department of Environmental Sciences & Engineering, UNC-Chapel Hill
2001 – 2002	Postdoctoral Associate, Biological Engineering Division, MIT, Cambridge, MA
2002 –	Assistant Professor, Department of Environmental Sciences & Engineering, UNC-Chapel Hill
2002 –	Assistant Professor, Curriculum in Toxicology, School of Medicine, UNC-Chapel Hill
2002 –	Member, Carolina Center for Genome Sciences, UNC-Chapel Hill
2003 –	Full Member, Lineberger Comprehensive Cancer Center, UNC-Chapel Hill

### Awards and Honors:

1994	First Class Honors Diploma, Ukrainian State Medical University, Kiev, Ukraine
1995-96	Research Fellowship, German Academic Exchange Service (DAAD)
1998/99/2001	Young Investigator Award, Oxygen Society
2000	Young Investigator Award, Society for Free Radical Research International
2000	AACR - Bristol Myers Squibb Oncology Young Investigator Scholar Award
2000	Carl C. Smith Mechanisms Specialty Section Award, Society of Toxicology
2000-01	Leon & Bertha Golberg Memorial Postdoctoral Fellowship, UNC-Chapel Hill
2000-02	Individual Postdoctoral National Research Service Award, NIEHS
2002-05	Transition to Independent Position Award, NIEHS

### Publications (from a list of 41):

- Hays, T., **Rusyn, I.**, Burns, A.M., Kennett, M.J., Ward, J.M., Gonzalez, F.J., and Peters, J.M. Role of peroxisome proliferator-activated receptor- $\alpha$  (PPAR $\alpha$ ) in bezafibrate-induced hepatocarcinogenesis and cholestasis. **Carcinogenesis** (In Press).
- Rusyn, I.**, Asakura, S., Pachkowski, B., Bradford, B.U., Denissenko, M., Peters, J.M., Holland, S., Reddy, J., Cunningham, M., and Swenberg J.A. Expression of base excision DNA repair genes is a sensitive biomarker for *in vivo* detection of chemical-induced chronic oxidative stress: Identification of the molecular source of radicals responsible for DNA damage by peroxisome proliferators. **Cancer Res** 64:1050-1057, 2004.

- Wheeler, M.D., Smutney, O.M., Check, J.F., **Rusyn, I.**, Schulte-Hermann, R., and Thurman, R.G. Impaired Ras membrane-association and activation in PPAR(alpha) knockout mice following partial hepatectomy. *Am J Physiol* 284:G302-312, 2003.
- Yin, M., Zhong, Z., Connor, H.D., Bunzendahl, H., Finn, W.F., **Rusyn, I.**, Li, X., Raleigh, J.A., Mason, R.P., and Thurman, R.G. Protective effect of glycine on renal injury induced by ischemia-reperfusion *in vivo*. *Am J Physiol* 282:F417-F423, 2002.
- Rusyn, I.**, Kadiiska, M.B., Dikalova, A., Kono, H., Yin, M., Tsuchiya, K., Mason, R.P., Peters, J.M., Gonzales, F.J., Segal, B.H., Holland, S.M., and Thurman, R.G. Phthalates rapidly increase production of reactive oxygen species *in vivo*: Role of Kupffer cells. *Mol Pharmacol* 59:744-750, 2001.
- Kono, H., **Rusyn, I.**, Uesugi, T., Connor, H.D., Dikalova, A., Mason, R.P., and Thurman, R.G. Diphenyleneiodonium sulfate, an NADPH oxidase inhibitor, prevents early alcohol-induced liver injury in the rat. *Am J Physiol* 280:G1005-G1012, 2001.
- Kono, H., Arteel, G.E., **Rusyn, I.**, Sies, H., and Thurman, R.G. Ebselen prevents early alcohol-induced liver injury in rats. *Free Radic Biol Med* 30:403-412, 2001.
- Kono, H., Nakagami, M., **Rusyn, I.**, Connor, H.D., Stefanovic, B., Brenner, D.A., Mason, R.P., Arteel, G.E., and Thurman, R.G. Development of an animal model of chronic alcohol-induced pancreatitis in the rat. *Am J Physiol* 280:G1289-1295, 2001.
- Wheeler, M.D., Kono, H., Yin, M., **Rusyn, I.**, Connor, H.D., Mason, R.P., Samulski, R.J., and Thurman, R.G. Delivery of the Cu/Zn-superoxide dismutase gene with adenovirus reduces early alcohol-induced liver injury in rats. *Gastroenterology* 120:1241-50, 2001.
- Wheeler, M.D., Yamashina, S., Froh, M., **Rusyn, I.**, and Thurman, R.G. Adenoviral gene delivery can inactivate Kupffer cells: role of oxidants in NF- $\kappa$ B activation and cytokine production. *J Leukoc Biol* 69:622-630, 2001.
- Yin, M., Gabele, E., Wheeler, M.D., Connor, H., Bradford, B.U., Dikalova, A., **Rusyn, I.**, Mason, R., and Thurman, R.G. Alcohol-induced free radicals in mice: Direct toxicants or signaling molecules? *Hepatology* 34:935-942, 2001.
- Wheeler, M.D., Kono, H., Yin, M., Nakagami, M., Uesugi, T., Arteel, G.E., Gabele, E., **Rusyn, I.**, Yamashina, S., Froh, M., Adachi, Y., Iimuro, Y., Bradford, B.U., Smutney, O.M., Connor, H.D., Mason, R.P., Goyert, S.M., Peters, J.M., Gonzalez, F.J., Samulski, R.J., and Thurman, R.G. The role of Kupffer cell oxidant production in early ethanol-induced liver disease. *Free Radic Biol Med* 31:1544-1549, 2001.
- Rusyn, I.**, Denissenko, M., Wong, V., Butterworth, B., Cunningham, M., Upton, P., Thurman, R., and Swenberg, J.A. Expression of base excision repair enzymes in rat and mouse liver is induced by peroxisome proliferators and is dependent upon carcinogenic potency. *Carcinogenesis* 21:2141-45, 2000.
- Rusyn, I.**, Yamashina, S., Segal B.H., Schoonhoven, R., Holland, S.M., Cattley, R.C., Swenberg, J.A., and Thurman, R.G. Oxidants from NADPH oxidase are involved in triggering cell proliferation in the liver due to peroxisome proliferators. *Cancer Res* 60:4798-4803, 2000.
- Rusyn, I.**, Rose, M.L., Bojes, H.K., and Thurman, R.G. Novel role of oxidants in the molecular mechanism of action of peroxisome proliferators. *Antioxid Redox Signal* 2:607-621, 2000.
- Peters, J.M., **Rusyn, I.**, Rose, M.L., Gonzales, F.J., and Thurman, R.G. Peroxisome proliferator activated receptor  $\alpha$  is restricted to hepatic parenchymal cells, not Kupffer cells: Implications for the mechanism of action of peroxisome proliferators in hepatocarcinogenesis. *Carcinogenesis* 21:823-826, 2000.
- Kono, H., **Rusyn, I.**, Yin, M., Gabele, E., Yamashina, S., Dikalova, A., Kadiiska, M.B., Connor, H.D., Mason, R.P., Segal, B.H., Bradford, B.U., Holland, S.M., and Thurman, R.G. NADPH oxidase-derived free radicals are key oxidants in alcohol-induced liver disease. *J Clin Invest* 106:867-872, 2000.

- Yin, M., **Rusyn, I.**, Schoonhoven, R., Graves, L.M., Rusyn, E.V., Li, X., Li, F., Cox, A.D., Harding, T.W., Bunzendahl, H., Swenberg, J.A., and Thurman, R.G. Inhibition of chronic rejection of aortic allografts by dietary glycine. *Transplantation* 69:773-780, 2000.
- Kono, H. **Rusyn, I.**, Bradford, B.U., Dikalova, A., Kadiiska, M.B., Mason, R.P., and Thurman, R.G. Allopurinol prevents early alcohol-induced liver injury in rats. *J Pharmacol Exp Ther* 293:296-303, 2000.
- Rose, M.L., **Rusyn, I.**, Bojes, H.K., Graves, L.M., Rivera, C.A., Germolec, D.R., Luster, M.I., and Thurman, R.G. Peroxisome proliferators directly stimulate mitogenic cytokine production by Kupffer cells. *Mutation Res* 448:179-192, 2000.
- Rusyn, I.**, Bradham, C.A., Cohn, L., Schoonhoven, R., Swenberg, J.A., Brenner, D.A., and Thurman, R.G. Corn oil rapidly activates nuclear factor  $\kappa$ B in hepatic Kupffer cells by oxidant-dependent mechanisms. *Carcinogenesis* 20:2096-2100, 1999.
- Rose, M.L., **Rusyn, I.**, Bojes, H.K., Germolec, D.R., Luster, M.I. and Thurman, R.G. Role of Kupffer Cells in Peroxisome Proliferation-Induced Hepatocyte Proliferation, *Drug Metab Rev* 31:87-116, 1999.
- Rusyn, I.**, Tsukamoto, H., and Thurman, R. G. WY-14,643 rapidly activates nuclear factor  $\kappa$ B in Kupffer cells before hepatocytes. *Carcinogenesis* 19:1217-1222, 1998.
- Rusyn, I.**, Briviba, K., Masumoto, H., and Sies, H. Selenium-containing compounds protect DNA from single-strand breaks caused by peroxynitrite. *Arch Biochem Biophys* 330:216-218, 1996.
- Ongoing Research Support:**
- 07/04–06/08 Molecular Mechanisms of Phthalate-Induced Carcinogenesis (R01 ES12686)  
Rusyn, I. – P.I. (20%)  
The long term goal of this project is to evaluate the peroxisome proliferator-induced molecular pathways that lead to production of oxidants, activation of Kupffer cells, and increased proliferation of rodent liver parenchymal cells.
- 09/01–08/06 Profiles of Susceptibility to Toxicant Stress (U19 ES11391)  
Kaufmann, W.K. – P.I.
- Project 4: Genomic Profiling in Nuclear Receptor-Mediated Toxicity  
Rusyn, I. – P.I. (30%)  
The major goal of the research project #4 of UNC-CH Toxicogenomics Research Consortium grant is to determine the profiles of altered gene expression *in vivo* in mouse livers and *in vitro* in mouse and human parenchymal cells following treatments with non-genotoxic carcinogens that act via activation of nuclear receptors PPAR $\alpha$ , CAR and AhR.
- 08/02–07/05 DNA Repair and Susceptibility to Environmental Agents (K22 ES11660)  
Rusyn, I. – P.I. (20%)  
This project is set to test a hypothesis that the extent of induction of DNA repair in response to oxidative and alkylation damage varies in different species and tissues, and that such variation contributes to species- and site-specific mutagenic and cytotoxic effects of environmental chemicals. The ultimate goal is to understand the cellular and molecular changes induced by xenobiotics that will provide a strong scientific basis for or against the extrapolation of animal findings to humans in risk assessment.
- 02/04–01/05 Genetic Analysis of Transcriptional Regulation in Liver (P30 ES10126)  
Rusyn, I. – P.I. (5%)  
This Pilot Project from the UNC Center for Environmental Health and Susceptibility aims to combine microarray-based assays of mRNA level with gene mapping methods to detect polymorphic loci that co-regulate extensive molecular networks in mouse liver. Our specific experimental approach is to analyze the variation in basal gene expression among genetically controlled mice by using a panel of BXD recombinant inbred (RI) strains derived from C57BL/6J and DBA/2J.
- 07/04–06/06 Genomic and Genetic Analysis of Liver Effects of Alcohol (P60 AA11605)  
Rusyn, I. – P.I. (5%)

This Pilot Project from the UNC Bowles Center for Alcohol Studies will test the hypothesis that genetic predisposition to liver damage due to alcohol can be predicted by a specific gene expression profile in normal liver. Six mouse inbred lines with varying degree of sensitivity to alcohol-induced liver injury will be compared (naïve, single bolus dose, sub-chronic intragastric administration of ethanol). Gene expression will be correlated with phenotypic signs of injury, haplotype differences, and or knowledge of the mechanisms of liver damage by ethanol.

### BIOGRAPHICAL SKETCH

NAME		POSITION TITLE	
Patrick Francis Sullivan		Professor of Genetics, Psychiatry, & Epidemiology	
EDUCATION/TRAINING			
INSTITUTION AND LOCATION	DEGREE <i>(if applicable)</i>	YEAR(s)	FIELD OF STUDY
University of Notre Dame, Notre Dame, Indiana	BS	1981	Biology
University of California, San Francisco, California	MD	1988	Medicine
University of Pittsburgh	-	1992	Residency in Psychiatry
Royal Australian & New Zealand College of Psychiatrists	FRANZCP	1994	Psychiatry

#### **A. Positions & Honors**

##### Positions & Employment

1988-1992	Resident, Western Psychiatric Institute & Clinic, Univ. Pittsburgh School of Medicine, PA
1991-1994	Registrar Psychological Medicine, Christchurch School of Medicine, Christchurch, New Zealand
1992-1995	Health Research Council Training Fellow, Christchurch School Med., Christchurch, New Zealand
1995-1996	Senior Lecturer, Christchurch School of Medicine, Christchurch, New Zealand
1996-2002	Associate Professor, Virginia Institute for Psychiatric & Behavioral Genetics, Richmond, VA
2002-2003	Professor, Virginia Institute for Psychiatric & Behavioral Genetics, Richmond, VA
2003-	Professor, Departments of Genetics & Psychiatry, Carolina Center for Genome Sciences, University of North Carolina, Chapel Hill, NC
2003-	Adjunct Professor, Department of Epidemiology, UNC-Chapel Hill
2003-	Member scientist, Lineberger Comprehensive Cancer Center, UNC-Chapel Hill
2004-	Faculty, Curriculum in Genetics & Molecular Biology, UNC-Chapel Hill, NC

##### Honors & Awards

1981	Magna Cum Laude, University of Notre Dame
1988	"Outstanding" graduate (top 10% of class), University of California, San Francisco
1991	Laughlin Fellow, American College of Psychiatrists
1993	Glaxo Young Investigator Award, New Zealand Branch of the RANZCP
1994	Organon Research Award, Australasian Society for Psychiatric Research

#### **B. Selected Peer-Reviewed Publications**

135 publications (118 peer-reviewed papers, 15 chapters and invited manuscripts, and 2 miscellaneous items).

- Sullivan PF, Neale BM, van den Oord EJCG, Miles MF, Neale MC, Bulik CM, Joyce PR, Straub RE, Kendler KS. Candidate genes for nicotine dependence via linkage, epistasis, and bioinformatics. *Am. J. Med. Gen. (Neuropsych. Gen.)* In press.
- Sullivan PF, Kendler KS, Neale MC. Schizophrenia as a complex trait: evidence from a meta-analysis of twin studies. *Arch. Gen. Psychiatry* In press.
- Sullivan PF, Neale BM, Neale MC, van den Oord EJCG, Kendler KS. Multipoint and single point non-parametric linkage analysis with imperfect data. *Am J Med Genet* 2003;121B:89-94.
- Sullivan PF, Kovalenko P, York TP, Prescott CA, Kendler KS. Fatigue in a community sample of twins. *Psychol. Med.* 2003;33:263-81.

5. Sullivan PF, Eaves LJ. Evaluation of analyses of univariate discrete twin data. *Beh Gen* 2002;32:221-7.
6. Neale MC, Neale BM, Sullivan PF. Non-paternity in linkage studies of extreme discordant sibling pairs. *American Journal of Human Genetics* 2002;70:526-529.
7. Sullivan PF, O'Neill FA, Walsh D, Ma Y, Kendler KS, Straub RE. Analysis of epistasis in linked regions in the Irish Study of High-Density Schizophrenia Families. *Am J Medical Genetics* 2001;105:266-270.
8. Sullivan PF, Jiang X, Neale MC, Kendler KS, Straub RE. Association of the tryptophan hydroxylase gene with smoking initiation but not progression to nicotine dependence. *American Journal of Medical Genetics* 2001;105:479-484.
9. Sullivan PF, Eaves LJ, Kendler KS, Neale MC. Genetic case-control association studies in neuropsychiatry. *Arch Gen Psychiatry* 2001;58:1015-24.
10. Sullivan PF, Neale MC, Kendler KS. The genetic epidemiology of major depression: review and meta-analysis. *Am. J. Psychiatry* 2000;157:1552-1562.
11. Bulik CM, Sullivan PF, Wade TD, Kendler KS. Twin studies of eating disorders: a review. *Int. J. Eat. Dis.* 2000;27:1-20.
12. Bulik CM, Sullivan PF, Kendler KS. An empirical study of the classification of eating disorders. *Am. J. Psychiatry* 2000;157:886-895.
13. Sullivan PF, Kendler KS. The genetic epidemiology of smoking. *Nicotine and Tobacco Research* 1999;1 (Suppl 2):549-555.
14. Straub RE, Sullivan PF, Ma Y, Myakishev MV, Harris-Kerr C, Wormley B, Kadambi B, Sadek H, Silverman MA, Webb BT, Neale MC, Bulik CM, Joyce PR, Kendler KS. Susceptibility genes for nicotine dependence: a genome scan and followup in an independent sample suggest that regions on chromosomes 2, 4, 10, 16, 17 and 18 merit further study. *Molecular Psychiatry* 1999;4:129-144.
15. Sullivan PF, Kessler RC, Kendler KS. Latent class analysis of lifetime depressive symptoms in the National Comorbidity Survey. *Am. J. Psychiatry* 1998;155:1398-1406.
16. Sullivan PF, Kendler KS. The typology of common psychiatric syndromes: an empirical study. *Br. J. Psychiatry* 1998;173:312-319.
17. Sullivan PF, Kendler KS. The genetic epidemiology of "neurotic" disorders. *Current Opinion in Psychiatry* 1998;11:143-147.
18. Sullivan PF, Fifeild WJ, Kennedy MA, Mulder RT, Sellman JD, Joyce PR. No association between novelty seeking and the type 4 dopamine receptor gene (*DRD4*) in two New Zealand samples. *Am. J. Psychiatry* 1998;155:98-101.
19. Sullivan PF, Bulik CM, Kendler KS. The epidemiology and classification of bulimia nervosa. *Psychol. Med.* 1998;28:599-610.
20. Sullivan PF, Bulik CM, Kendler KS. Genetic epidemiology of bingeing and vomiting. *Br. J. Psychiatry* 1998;173:75-79; 173:439-440.
21. Sullivan PF, Bulik CM, Fear JL, Pickering A. The outcome of anorexia nervosa: a case-control study. *Am. J. Psychiatry* 1998;155:939-946.
22. Bulik CM, Sullivan PF, Kendler KS. Heritability and reliability of binge-eating and bulimia nervosa. *Biol. Psychiatry* 1998;44:1210-1218.
23. Bulik CM, Sullivan PF, Joyce PR, Carter FA, McIntosh VV. Predictors of one-year treatment outcome in bulimia nervosa. *Compr. Psychiatry* 1998;39:206-214.
24. Sullivan PF, Wilson DA, Mulder RT, Joyce PR. The hypothalamic-pituitary-thyroid axis in major depression. *Acta Psychiatrica Scandanavica* 1997;95:370-378.
25. Sullivan PF, Fifeild WJ, Kennedy MA, Mulder RT, Sellman JD, Joyce PR. Novelty seeking and a dopamine transporter gene polymorphism (*DAT1*). *Biol. Psychiatry* 1997;42:1070-1072.
26. Sullivan PF, Wells JE, Joyce PR, Bushnell JA, Mulder RT, Oakley-Browne MA. Family history of depression in clinic and community samples. *J. Affective Disord.* 1996;40:159-168.
- 27.

Sullivan PF, Wells JE, Bushnell JA. Adoption as a risk factor for mental disorders. *Acta Psychiatr. Scand.* 1995;92:119-124.

28. Sullivan PF, Bulik CM, Carter FA, Joyce PR. The significance of a history of childhood sexual abuse in bulimia nervosa. *Br. J. Psychiatry* 1995;167:679-682.
29. Sullivan PF. Mortality in anorexia nervosa. *Am. J. Psychiatry* 1995;152:1073-1074.
30. Sullivan PF, Joyce PR, Bulik CM, Mulder RT, Oakley-Browne M. Total cholesterol and suicidality in depression. *Biol. Psychiatry* 1994;36:472-477.
32. Sullivan PF, Joyce PR. Effects of exclusion criteria in depression treatment studies. *J. Affective Disord.* 1994;32:21-26.
32. Sullivan PF, Petitti D, Barbaccia J. Head trauma and age of onset of dementia of the Alzheimer's type. *J.A.M.A.* 1987;257:2289-2290.

### **C. Research Support**

#### **On-Going Research Support**

R01 MH-059160 Patrick Sullivan (PI) 12/01/99–11/30/2004  
NIMH

Detecting Susceptibility Loci for Recurrent Major Depression

The goal of the study is to determine the locations of the loci that influence susceptibility to major depression.

Role: PI

R01 CA-085739 Patrick Sullivan (PI) 12/01/2000–11/30/2005  
NIAID

Genetic & Environmental Determinants of Smoking Cessation

In this longitudinal study, we will identify and follow a large number of twins to identify and attempt to understand the sources of variation in smoking behavior.

Role: PI

R01 NS-041483 Nancy Pedersen (PI) 8/15/2001–07/31/2004  
NINDS

A Twin Study of Chronic Fatigue in Sweden

This study analyzes data from the Swedish Twin Registry for CFS and related illnesses.

Role: co-PI

R01 AA-011408 Carol Prescott (PI) 09/01/2002–08/31/2006  
NIAAA

An Irish Affected Sib Pair Study of Alcohol Dependence

The major goal of the study is to determine the locations of the loci that influence susceptibility to alcohol dependence.

Role: Co-Investigator

R01 John Gilmore (PI) 12/01/03–11/30/06  
NIMH

A Twin Study of Fetal Brain Development

The major goal of this study is to estimate the genetic and environmental components of variation in fetal brain structures.

Role: Co-Investigator

Foundation grant Patricia Maness (PI) 03/01/04–02/28/05

Foundation of Hope

Is NCAM1 Associated with Schizophrenia?

The major goal of this study is to conduct a case-control association study of *NCAM1* with schizophrenia

Role: Co-Investigator



**Pending Research Support:**

R01 Jeffrey Lieberman (PI) 04/01/04–03/31/07  
NIMH

Pharmacogenetic Prediction of Clinical Outcomes in CATIE

The major goal of the study is to determine the molecular genetic correlates of treatment outcome in a large randomized clinical trial for schizophrenia.

Role: co-PI

R01 Fred Jarskog (PI) 07/01/04–06/30/07  
NIH/NIMH

Proteomic Analysis of Prefrontal Cortex in Schizophrenia and Bipolar Disorders

This project will use proteomics to address the pathophysiology of schizophrenia and bipolar disorder.

Role: Co-Investigator

**Completed Research Support (past 3 years):**

R01 MH041953-09A1 Kenneth Kendler (PI) 07/01/1998–06/30/2002  
NIMH

The Genetic Epidemiology of Schizophrenia in Ireland

This study expanded upon work performed in the Irish Study of High Density Schizophrenia Family Study, with the goal of replicating and increasing evidence for linkage in several putative susceptibility regions of the genome.

Role: Co-Investigator

R01 DA11287-01A1 Kenneth Kendler (PI) 04/01/1998–03/31/2003  
NIDA

A Twin-Family Study of Drug Use, Abuse, and Dependence

This was a revision of a grant to collect and analyze data on the use and abuse of a variety of licit and illicit drugs in a sample of adult twin pairs from the Virginia Twin Registry.

Role: Co-Investigator

U19 AI38429 Dedra Buchwald (PI) 08/01/1999–07/31/2002  
NIAID

Population Based Twin Study of Chronic Fatigue Syndrome

The intent of this study was to screen a large sample to create a twin sample with CFS-like illness and then to use these data to address important questions about the nature of CFS.

Role: Project Leader

Overlap:

None. There is no overlap between any of the active or pending proposals.

### BIOGRAPHICAL SKETCH

NAME	POSITION TITLE
David W. Threadgill	Assistant Professor

EDUCATION/TRAINING			
INSTITUTION AND LOCATION	DEGREE (if applicable)	YEAR(s)	FIELD OF STUDY
Texas A&M University, College Station, TX	B.S.	1983	Zoology
Texas A&M University, College Station, TX	Ph.D.	1989	Genetics
Case Western Reserve University, Cleveland, OH	Post-doc	1996	Mouse Genetics

#### **A. Positions and Honors.**

##### **Positions and Employment**

1996-2000 Assistant Professor, Department of Cell Biology, Vanderbilt University, Nashville, TN

2000-Present Assistant Professor, Department of Genetics, University of North Carolina, Chapel Hill, NC

2000-Present Member, Lineberger Comprehensive Cancer Center, Univ of North Carolina, Chapel Hill, NC

2000-Present Member, Curriculum in Genetics and Molecular Biology, Univ of North Carolina, Chapel Hill, NC

2001-Present Member, Curriculum in Toxicology, Univ of North Carolina, Chapel Hill, NC

2001-Present Member, Center for Gastrointestinal Biology and Disease, Univ of North Carolina, Chapel Hill

2003-Present Member and Leader of the Mammalian Genomics Subgroup, Carolina Center for Genome Sciences, Univ of North Carolina, Chapel Hill

2003-present Member and Director of the Transomics Research Core, Center for Environmental Health and Susceptibility, Univ of North Carolina, Chapel Hill

2001-Present Scientific Co-Advisor, UNC Genomics Core and Microarray Facility

##### **Other Experience and Professional Memberships**

1993, 1995, 1997 USDA Animal Molecular Genetics and Gene Mapping study section member

1999 NIH International and Cooperative Projects Study Section temporary member

1999, 2000, 2001 NIH Biological Sciences 1 Study Section temporary member

2001, 2002, 2003 NIH Mammalian Genetics Study Section temporary member

2002, 2003 DOD MBG-3 Molecular Biology and Genetics of Breast Cancer review panel member

2002 NIH ZRG1 Experimental Therapeutics-1 Study Section member

1998-Present Mouse Models of Human Cancer Consortium steering committee member

2000-Present Co-founder and Member Scientific Advisory Board, Microarrays, Inc, Nashville, TN

2003-present Co-founder and Member Scientific Advisory Board, Karyogen, Inc, RTP, NC

2004 NIH Cancer Genetics Study Section temporary member

##### **Honors**

1987 Texas A&M University, Graduate Award for Research

1989 Texas A&M University, Outstanding Graduate Award for Research

1991-1993 NIGMS Individual NRSA postdoctoral fellowship

1998-2000 March of Dimes Basil O'Conner Award

1998-2000 V Foundation Scholar

2004-2008      Jefferson Pilot Scholar Award

**B.      Selected peer-reviewed publications (in chronological order).**

(Selected from 45 peer-reviewed publications)

1. Threadgill, DW and Womack, JE. 1990. Genomic analysis of the major bovine milk protein genes. *Nucleic Acids Research* 18:6935-6942.
2. Georges, M, Gunawardana, A, Threadgill, DW, Lathrop, M, Olsaker, I, Mishra, A, Sargeant, L, Schoeberlein, A, Steele, M, Terry, C, Threadgill, DS, Zhao, X, Holm, T, Fries, R, and Womack, JE. 1991. Characterization of a set of variable number of tandem repeat markers conserved in Bovidae. *Genomics* 11:24-32.
3. Bishop, MD, Tavakkol, A, Threadgill, DW, Simmen, FA, Simmen, RCM, Davis, ME, and Womack, JE. 1991. Somatic cell mapping and restriction fragment length polymorphism analysis of bovine insulin-like growth factor 1 (IGF1). *Journal of Animal Science* 69:4306-4311.
4. Dietz, AB, Georges, M, Threadgill, DW, Womack, JE, and Schuler, LA. 1992. Somatic cell mapping, polymorphism, and linkage analysis of bovine prolactin-related proteins and placental lactogen. *Genomics* 14:137-143.
5. Nan, Z, Threadgill, DW, and Womack, JE. 1992. Synteny mapping in the bovine: genes from human chromosome 4. *Genomics* 14:131-136.
6. Sharan, SK, Holdener-Kenny, B, Threadgill, DW, and Magunson, T. 1992. Genomic mapping within the albino-deletion complex using individual early postimplantation mouse embryos. *Mammalian Genome* 3:79-83.
7. Gallagher, DS, Threadgill, DW, Ryan, AM, Womack, JE, and Irwin, DM. 1993. Physical mapping of the lysozyme gene family in cattle. *Mammalian Genome* 4:368-373.
8. Threadgill, DS, Threadgill, DW, Moll, YD, Weiss, JA, Zhang, N, Davey, HW, Wildeman, AG, and Womack, JE. 1994. Syntenic assignment of human chromosome 1 homologous loci in the bovine. *Genomics* 22:626-630.
9. Threadgill, DW, Dlugosz, AA, Hansen, L, Tennenbaum, T, Lichti, U, Yee, D, LeMantia, C, Mourtou, T, Herrup, K, Harris, RC, Barnard, JA, Yuspa, SH, Coffey, RJ, and Magnuson, T. 1995. Targeted disruption of mouse EGF-receptor: effect of genetic background on mutant phenotype. *Science* 269:230-234.
10. Denning, MF, Dlugosz, AA, Threadgill, DW, Magnuson, T, and Yuspa, SH. 1996. Activation of the epidermal growth factor receptor signal transduction pathway stimulates tyrosine phosphorylation of protein kinase C $\delta$ . *Journal of Biological Chemistry* 271:5325-5331.
11. Tong, BJ, Das, SK, Threadgill, DW, Magnuson, T, and Dey, SK. 1996. Differential expression of the full-length and truncated forms of the epidermal growth factor receptor in the preimplantation mouse uterus and blastocyst. *Endocrinology* 137:1492-1496.
12. Hansen, LA, Alexander, N, Hogan, ME, Sundberg, JP, Dlugosz, A, Threadgill, DW, Magnuson, T, and Yuspa, SH. 1997. Genetically null mice reveal a central role for epidermal growth factor receptor in the maturation of the hair follicle and normal hair development. *American Journal of Pathology* 150:1959-1975.
13. Threadgill, DW, Yee, D, Matin, A, Nadeau, JH, Magnuson, T. 1997. Genealogy of the 129 inbred strains: 129/SvJ is a contaminated inbred strain. *Mammalian Genome* 8:390-393.
14. Threadgill, DW, Matin, A, Yee, D, Carrasquillo, MM, Henry, KR, Rollins, KG, Nadeau, JH, Magnuson, T. 1997. SSLPs to map genetic differences between the 129 inbred strains and closed-colony random bred CD-1 mice. *Mammalian Genome* 8:441-442.
15. Dlugosz, AA, Hansen, L, Cheng, C, Alexander, N, Denning, MF, Threadgill, DW, Magnuson, T, Coffey, RJ, Yuspa, SH. 1997. Targeted disruption of the epidermal growth factor receptor impairs growth of epidermal tumors expressing the *v-ras*<sup>Ha</sup> oncogene and alters the distribution of S phase nuclei within tumor compartments. *Cancer Research* 57:3180-3188.
16. Nishimura, H, Yerkes, E, Hohendellner, K, Miyazaki, Y, Ma, J, Hunley, TE, Yoshida, H, Ichiki, T, Threadgill, DW, Phillips, JA, Hogan, BLM, Fogo, A, Brock, JW, Inagami, T, Ichikawa, I. 1999. Role

- of the angiotensin type 2 receptor gene in congenital anomalies of the kidney and urinary tract, CAKUT, of mice and men. *Molecular Cell* 3:1-10.
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  24. Williams, RW, Flaherty, L, Threadgill, DW. 2003. The math of making mutant mice. *Genes, Brain and Behavior* 2:191-200.
  25. Roberts, RB, Arteaga, C, Threadgill, DW. 2004. Modeling the cancer patient with genetically engineered mice: Prediction of toxicity from molecule-targeted therapies. *Cancer Cell* 5:115-120.
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  27. Strunk, KE, Amann, V, Threadgill, DW. 2004. Phenotypic variation resulting from a deficiency of epidermal growth factor receptor in mice is caused by extensive genetic heterogeneity that can be genetically and molecularly partitioned. *Genetics* 167:1821-1832.
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  29. Lee, D, Threadgill, DW. 2004. Investigating gene function using mouse models. *Current Opinion in Gen and Devel Biol* 14:246-252.
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  31. Hahn H, Nitzki F, Schorban T, Hemmerlein B, Threadgill D, Rosemann M. 2004. Genetic mapping of a *Ptch*-associated rhabdomyosarcoma susceptibility locus on mouse Chromosome 2. *Genomics* 84:853-858.
  32. Lee D, Pearsall RS, Das S, Dey SK, Godfrey VL, Threadgill DW. 2004. Epiregulin is not essential for development of intestinal tumors but is required for protection from intestinal damage. *Molecular and Cellular Biology* 24:8907-8916.
  33. Roberts RB, Threadgill DW. 2004. The mouse in biomedical research in Eisen, E (ed), *The Mouse in Animal Genetics and Breeding Research*, Imperial College Press.
  34. Franklin JL, Yoshiura K, Dempsey PJ, Bogatcheva G, Jeyakumar L, Meise S, Pearsall RS, Threadgill DW, Coffey RJ. Identification of *MAGI-3* as a transforming growth factor- $\alpha$  binding protein. *Experimental Cell Research*, in press.

**C. Research Support.****Ongoing Research Support**

5 R01 CA79869-05 (Threadgill) 7/1/99-6/30/04

NIH/NCI

Analysis of colorectal cancer susceptibility.

The major goals of this project are to investigate the mechanism and genetically localize genes involved with susceptibility to sporadic colorectal cancer using mouse models.

Role: PI

3 R01 CA79869-05S1 (Threadgill) 7/1/01-6/30/04

NIH/NCI

Analysis of Colorectal Cancer Susceptibility.

The major goal of this supplement is to provide a minority post-doctoral supplement.

Role: PI

1 R01 CA92479-03 (Threadgill) 6/1/01-5/31/06

NIH/NCI

EGF-R in normal and cancerous colon biology.

The major goals of this project are to investigate the mechanism by which colorectal cancers require the epidermal growth factor receptor for early establishment and the role of Egfr in normal intestinal biology.

Role: PI

1 R01 HD39896-03 (Threadgill) 7/1/01-6/30/06

NIH/NICHD

Functional genomics of Egfr in placental development.

The major goals of this project are to elucidate the role of Egfr during placental development and to identify through genetic crosses and microarray gene expression profiling, genetic background modifiers of Egfr-deficiency in mice.

Role: PI

1 U19 ES11391-03 (Kaufmann) 9/27/01-9/26/06

NIH/NIEHS

Profiles of susceptibility to toxicant stress.

Project #3

Mouse strain-specific molecular profiles in response to toxicants.

The major goals of this project are to use microarray gene expression profiling to investigate response to toxicants and to identify expression clusters associated with common responses and with responses differing between individuals.

Role: PI, Project #3

U01 CA084239-06 (Coffey, Vanderbilt) 4/1/04-3/31/09

NIH/NCI

Prevention & Metastasis: Final Frontiers in Colon Cancer

The major goal of this project is to develop new mouse models for treatment and metastasis of human cancer as part of the NCI Mouse Models of Human Cancer Consortium.

Role: PI, Subcontract

U01 CA105417-01 (Threadgill) 4/1/04-3/31/09

NIH/NCI

Integrative genetics of cancer susceptibility

The major goal of this project is develop a systems biology approach to cancer susceptibility as part of the NCI Mouse Models of Human Cancer Consortium.

Role: PI

P50 CA106991 (Tepper)

4/1/04-3/31/09

NIH/NCI

UNC SPORE in Gastrointestinal Cancer

Project #3

Investigation of ERBB signaling in colorectal cancer during metastasis

The major goal of this project is to investigate the role of Egfr and Erbb2 during colon cancer metastasis to the liver.

Role: co-PI, Project #3

### BIOGRAPHICAL SKETCH

NAME	POSITION TITLE		
Alexander Tropsha	Professor		
EDUCATION/TRAINING			
INSTITUTION AND LOCATION	DEGREE <i>(if applicable)</i>	YEAR(s)	FIELD OF STUDY
Moscow State Univ., Moscow, USSR	MS	1982	Chemistry
Moscow State Univ., Moscow, USSR	PhD	1986	Biochem/Pharmacology
Moscow State Univ., Moscow, USSR	Post-doc	1986-1988	QSAR/drug design
University of North Carolina Chapel Hill	Post-doc	1989-1991	Computational Chemistry

#### A. Positions and Honors.

1986-1988 Postdoctoral Fellow (with Prof. L.S.Yaguzhinsky), Moscow State University, Moscow, USSR, Laboratory of Molecular Biology and Bioorganic Chemistry.

1988-1988 Research Scientist, Research Institute of Biotechnology, Moscow, USSR

1989-1991 UNC Postdoctoral Fellow/Trainee (with J.S.Kizer, M.D. J.P.Bowen, Ph.D. and J. Hermans, Ph.D.), Brain and Development Research Center, UNC-Chapel Hill.

1991-present Assistant (until 1997), Associate (1997-2003), full (from 2004) Professor, Director, Laboratory for Molecular Modeling, Division of Medicinal Chemistry and Natural Products, School of Pharmacy, UNC- Chapel Hill (primary appointment).

2000-2003 Director of Graduate Studies, MCNP Division, School of Pharmacy

2001-present Associate Director, Carolina Center for Genome Sciences, UNC-Chapel Hill.

2001-present Adjunct Associate Professor, Professor (effective 2004), Department of Biomedical Engineering, School of Medicine, The University of North Carolina at Chapel Hill.

2001-present Director, Duke-UNC Training Program in Medical Informatics.

2002-present Director, UNC Graduate Training Program in Bioinformatics and Computational Biology.

#### Honors

Graduated *summa cum laude*, Moscow State University, 1982. Recipient of 1992 Tripos Inc. Academic User of the Year Award. Recipient of 1993 Chairman's Award, NC Section of the American Chemical Society.

#### Federal and Other Advisory Group Memberships

NIH panel on AIDS, 1997; NIEHS Committee on Tenure and Promotions, 1996. NIH Special Study Sections (SSS6, SSS10, SSS-L), 1998 – to date.

**Consultant or external/ad hoc reviewer:** NIH, NSF; EPA; non-Federal nonprofit and for-profit organizations.

#### B. Selected peer-reviewed publications (For the last three years, from ~90; \* indicates senior author(-s))

**Tropsha, A.** Application of Predictive QSAR Models to Database Mining. In: *Cheminformatics in Drug Discovery*, T. Oprea, Ed., Wiley-VCH, 2005 (in press).

Votano JR,\* Parham M, Hall LH, Kier LB, Oloff S, **Tropsha A**, Xie Q, Tong W. Three new consensus QSAR models for the prediction of Ames genotoxicity. *Mutagenesis*. **2004**, 19, 365-77.

Ng C,\* Xiao Y, Putnam W, Lum B, Tropsha A.\* Quantitative structure-pharmacokinetic parameters relationships (QSPKR) analysis of antimicrobial agents in humans using simulated annealing k-nearest-neighbor and partial least-square analysis methods. *J Pharm Sci*. **2004**, 93, 2535-44.

## Tropsha, Alexander

- Xiao, Z., Varma, S., Xiao, Y.-D., Tropsha, A.\* Modeling of p38 Mitogen-Activated Protein Kinase Inhibitors using the Catalyst HypoGen and k Nearest Neighbor QSAR Method. *J. Mol. Graph. Mod.*, **2004**, 23, 129-38.
- Sherman, D.B., Zhang, S., Pitner, J.B., **Tropsha, A.\*** Evaluation of the Relative Stability of Liganded vs. Ligand-Free Protein Conformations Using Simplicial Neighborhood Analysis of Protein Packing (SNAPP) Method. *Proteins: Struct. Funct. Genet.* **2004**, 56, 828-838.
- Edavettal, S.C., Carrick K, Shah R.R., Pedersen, L.C., **Tropsha A.**, Pope, R..M, Liu, J.\* A conformational change in heparan sulfate 3-O-sulfotransferase-1 is induced by binding to heparan sulfate. *Biochem.*, **2004**, 43, 4680-4688.
- Shen, M., Beguin, C., Golbraikh, A., Stables, J., Kohn, H.,\* and **Tropsha, A.\*** Application of Predictive QSAR Models to Database Mining: Identification and Experimental Validation of Novel Anticonvulsant Compounds. *J. Med. Chem.* **2004**, 47, 2356-2364.
- Huan, J., Wang W.,\* Bandyopadhyay, D., Snoeyink, J.,\* Prins, J.,\* **Tropsha, A.\*** Mining protein family specific residue packing patterns from protein structure graphs. In Eighth RECOMB, **2004**, 308–315.
- Kovatcheva, A., Golbraikh, A., Oloff, S., Xiao, Y., Zheng, W., Wolschann, P., Buchbauer, G., **Tropsha, A.\*** Combinatorial QSAR of Ambergris Fragrance Compounds. *J Chem. Inf. Comput. Sci.* **2004**, 44, 582-95.
- Huan, J., Wang, W.,\* Washington, A., Prins, J., Shah, R., **Tropsha, A.\*** Accurate Classification of Protein Structural Families Using Coherent Subgraph Analysis. *PSB. '04*, Hawaii, World Scientific, **2004**, pp. 411-422.
- Tropsha, A.\***, Carter, C.W., Jr., Cammer, S.A., Vaisman, I.I. Simplicial Neighborhood Analysis of Protein Packing (SNAPP): A Computational Geometry Approach to Studying Proteins. In: *Methods in Enzymology*, C.W. Carter Jr., Robert M. Sweet, Eds., Elsevier, **2003**, v. 374, pp. 509-544.
- Pendergraft III, W.F., Preston G.A., Shah, R., **Tropsha, A.**, Carter Jr., C.W., Jennette, J.C., Falk, R.J.\* Autoimmunity is triggered by cPR-3(105–201), a protein complementary to human autoantigen proteinase-3. *Nat. Med.*, **2003**, 10, 72-79.
- Tropsha, A.** Recent Trends in Quantitative Structure-Activity Relationships. In: *Burger's Medicinal Chemistry and Drug Discovery*, Abraham, D., Ed., Sixth Edition. Volume 1. New York: John Wiley & Sons, Inc. 2003, pp. 49-77.
- Golbraikh, A., Shen, M., Xiao, Z., Xiao, Y., Lee, K.-H., and **Tropsha, A.\*** Rational Selection of Training and Test Sets for the Development of Validated QSAR Models. *J. Comp. Aid. Mol. Design* **2003**, 17, 241–253.
- Krishnamoorthy, B. and **Tropsha, A.\*** Development of a Four-Body Statistical Pseudo-Potential to Discriminate Native from Non-Native Protein Conformations. *Bioinformatics* **2003**, 19, 1540-8.
- Shen, M., Xiao, Y., Golbraikh, A., Gombar, V.K., and **Tropsha, A.\*** An in Silico Screen for Human S9 Metabolic Turnover Using k-Nearest Neighbor QSPR Method. *J. Med. Chem.* **2003**, 46, 3013-3020.
- Tropsha, A.**,\* Gramatica, P.,\* and Gombar, V.K.\* The Importance of Being Earnest: Validation is the Absolute Essential for Successful Application and Interpretation of QSPR Models. *Quant. Struct. Act. Relat. Comb. Sci.* **2003**, 22, 69-77.
- Golbraikh, A., and **Tropsha, A.\*** QSAR Modeling Using Chirality Descriptors Derived From Molecular Topology. *J Chem. Inf. Comput. Sci.* **2003**, 43, 144-54.
- Golbraikh, A., and **Tropsha, A.\*** Predictive QSAR Modeling Based on Diversity Sampling of Experimental Datasets for the Test and Training Set Selection. *J. Comp. Aid. Mol. Design*, **2002**, 16, 357–369.



- Cammer, S.A., Carter, C.W., **Tropsha, A.**\* Identification of Sequence-Specific Tertiary Packing Motifs in Protein Structures using Delaunay Tessellation. Proceedings of the Third International Workshop for Methods for Macromolecular Modeling. Lecture Notes in Computational Science and Engineering (LNCSE), Springer-Verlag, NY, pp. 477-494, **2002**.
- Golbraikh, A., and **Tropsha, A.**\* Novel ZE-Isomerism Descriptors Derived from Molecular Topology and Their Application to QSAR Analysis. *J. Chem. Inf. Comput. Sci.*, **2002**, 42, 769-787.
- Tropsha, A.**,\* Zheng, W. Rational Principles of Compound Selection For Combinatorial Library Design. *Combi. Chem. & High Throughput Screening*, **2002**, 5, 111-23
- Shen, M., LeTiran, A., Xiao, Y.-D., Golbraikh, A., Kohn, H. and **Tropsha, A.**\* QSAR Analysis of Functionalized Amino Acid Anticonvulsant Agents Using *k*-Nearest Neighbor and Simulated Annealing-PLS Methods. *J. Med. Chem.*, **2002**, 45, 2811-2823.
- Xiao, Z.; Xiao, Y.-D.; Feng, J.; Golbraikh, A.; **Tropsha, A.**;\* Lee, K.-H. Antitumor Agents. 213. Modeling of Epipodophyllotoxin Derivatives using Variable Selection *k*-NN QSAR Method. *J. Med. Chem.*, **2002**; 45, 2294-2309.
- Golbraikh, A. and **Tropsha, A.**\* Beware of  $q^2$ ! *J. Mol. Graphics Mod.* **2002**, 20, 269-276.
- Tropsha, A.** Rational Combinatorial Library Design and Database Mining using Inverse QSAR Approach. In: A. K. Ghose and V. N. Viswanadhan (eds). *Combinatorial Library Design and Evaluation for Drug Discovery: Principles, Methods, Software Tools and Applications*, Chapter 12, pp. 363-378, Marcel Dekker, Inc., New York, **2001**.
- Tropsha, A.**\* and Zheng, W. Computer Assisted Drug Design. In: A. MacKerell Jr., O. Becker, B. Roux, M. Watanabe (Eds.). *Computational Biochemistry and Biophysics*. Marcel Dekker, Inc., New York, pp. 351-369, **2001**.
- Reynolds, C.H., **Tropsha, A.**,\* Pfahler, L.B., Druker, R., Chakravorty, S., Ethiraj, G., Zheng, W. Comparison of the SAGE and SCA Algorithms for Diverse Selection of Structural Sublibraries using *s*- and *u*-Optimal Metrics. *J. Chem. Inf. Comput. Sci.*, **2001**, 41, 1470-1477.
- Carter C.W. Jr,\* LeFebvre B.C., Cammer SA, **Tropsha A**, Edgell MH. Four-body potentials reveal protein-specific correlations to stability changes caused by hydrophobic core mutations. *J Mol Biol.* **2001**, 311, 625-38.

### C. Research Support.

#### Federal Research Grants:

GM66940-01A1 (A. Tropsha).

Dates of Project: 7/1/03 – 6/30/07

National Institutes of Health

“Predictive QSAR Modeling”.

The main objective of this project is to develop, validate, and deliver efficient computational tools for rapid and reliable prediction of biological activity and/or related pharmaceutical properties of drug-like molecules.

ITR/MCB 0112896 (A. Tropsha).

Dates of Project: 10/1/01-9/30/04

National Science Foundation

“Computational Analysis of Proteins: From Structure to Sequence to Function”

This project employs statistical geometry approach (Delaunay tessellation) to develop pseudopotential for fold recognition and use this potential in both fold recognition and folding simulations.

DK58335-01 (R. Falk; A. Tropsha, co-investigator)

Dates of Project: 7/1/2000 – 6/30/05

National Institutes of Health

“ANCA Glomerulonephritis: From Molecules to Man”

The overall goal of this project is to investigate various factors that influence the development of glomerulonephritis in men. Our role is to develop molecular models of Proteinase-3, a key enzyme involved with the etiology of the disease

1R01GM066681-01A1 (A. Kaplan; A. Tropsha, co-investigator)

Dates of Project: 03/01/03 –

02/28/07

National Institutes of Health

“HIV Protease Activation and Viral Replication”

This project will define the interactions critical for maintenance of the HIV protease dimer and the role that the final structure plays in viral replication.

MH60328-01 (A. Tropsha)

Dates of Project: 4/15/00-3/31/03

National Institutes of Health

“Design of Novel D1 Dopamine Receptor Ligands”

This project employs QSAR and database mining approaches to discover novel ligands of dopaminergic D1 receptor of on-catechol nature.

MH40537-16 (R. Mailman; A. Tropsha, co-investigator)

Dates of Project: 04/01/85-12/31/02

National Institutes of Health

“A novel molecular site for antidopaminergic action”

This project explores functional selectivity hypothesis proposed by Professor Mailman several years ago. Our role is to model 3D structure of D1 and D5 receptors and use this model to design new agonists and antagonists.

**Training Grants:**

Duke-UNC Training Program in Medical Informatics. National Library of Medicine, NIH/NLM LM07071. Principal Investigator. Dates: 07/01/01 – 06/30/03 (no cost extension granted until 06/30/04).

Bioinformatics Research Training Supplement to Duke-UNC Training Program in Medical Informatics: Principal Investigator. NIH/NLM. Dates. 7/01/01 – 6/30/03 (no cost extension granted until 06/30/04).

Health Informatics Supplement to Duke-UNC Training Program in Medical Informatics: Principal Investigator. NIH/NLM. Dates. 7/01/01 – 6/30/03 (no cost extension granted until 06/30/04).

UNC-CH Research Training Program in Bioinformatics. UNC-General Administration. Dates: 07/01/02 – 06/30/05.

**Non-Federal grants**

Protein Structure and Function Prediction for Genomic Sequences: The Next Step in the Genomic Revolution, NCI 1999032. North Carolina – Israel Research Partnership (Principal Investigator, North Carolina; Principal Investigator, Israel – Prof. D. Fischer. NCI-SRP # 1999032; 2/01/01 – 1/31/04.

Testing Hypothesis about Proteins using High Throughput Methods. North Carolina Biotechnology Center. (Coinvestigator; M. Edgell, PI). Project Period: 02/01/2002-2004.

### BIOGRAPHICAL SKETCH

NAME	POSITION TITLE		
Marcia Van Riper	Associate Professor		
EDUCATION/TRAINING			
INSTITUTION AND LOCATION	DEGREE <i>(if applicable)</i>	YEAR(s)	FIELD OF STUDY
De Pauw University, Greencastle, IN	B.S. N.	1975	Nursing
University of Wisconsin, Milwaukee, WI	M.S.N.	1986	Nursing
University of Wisconsin, Madison, WI	Ph.D.	1995	Nursing/Psychology
Case Western Reserve University, Cleveland, OH	M.A.	2001	Bioethics

#### **Positions and Employment**

Fall 1976	Clinical Instructor, Obstetrics, De Pauw University, Greencastle, Indiana.
1975-1976	Charge Nurse, Relief Supervisor, Methodist Hospital, Pediatric Unit, Indianapolis, IN.
1976-1978	Camp Nurse (summers), Wisconsin Badger Camp, Prairie du Chien, Wisconsin.
1976-1984	Staff Nurse, Milwaukee Children's Hospital, Milwaukee, Wisconsin.
1983-1985	Assistant Instructor, St. Luke's Hospital, School of Nursing, Racine, Wisconsin.
1984-1987	Staff Nurse, Trinity Memorial Hospital, Obstetrics, Cudahy, Wisconsin.
1985-1987	Nursing Instructor, Course Coordinator, Marquette University, College of Nursing, Milwaukee, Wisconsin.
1986-1987	Maternal-Child Consultant, Nurse Call, West Allis, Wisconsin.
1986-present	Research Consultant, Hausmann, McNeally & Hupy, Milwaukee, Wisconsin.
1988-1993	Family Therapist, Supervisor, Consultant, Lutheran Social Services, Dodgeville, Wisconsin.
1987-1994	Research Assistant, Teaching Assistant, University of Wisconsin, Madison, Wisconsin.
1990-present	Camp Nurse (summers), Camp Osoha, Boulder Junction, Wisconsin.
1995	Associate Researcher, University of Wisconsin, Madison, Wisconsin.
1995-2001	Assistant Professor, The Ohio State University, College of Nursing, Department of Community, Parent-Child, and Psychiatric Nursing, Columbus, Ohio.
2001-2002	Visiting Associate Professor, University of North Carolina-Chapel Hill
2002-Present	Associate Professor, University of North Carolina-Chapel Hill, School of Nursing, Carolina Center for Genome Sciences, Chapel Hill, North Carolina

#### **Honors**

1972	Alpha Lambda Delta
1974	Mortar Board
1986	Phi Kappa Phi
1987	Association for Retarded Citizens, Circle of Friends Award
1990	Midwest Nursing Research Society, Graduate Student Poster Award. 1 <sup>st</sup> Place Doctoral Students
1991	Outstanding Young Wisconsinite
1975-Present	Sigma Theta Tau International Honor Society of Nursing, Delta Gamma Chapter
1989-1993	Public Health Service: National Research Service Award, Predoctoral Fellowship in Nursing
1993	National Council of Family Relations Outstanding Student/New Professional Award
1999	Ohio State University College of Nursing -Outstanding Faculty Teaching Award
1999	Greek Week Ohio State University- Faculty Appreciation Honor

## Van Riper, Marcia

**Selected peer-reviewed publications**

- Van Riper, M. & Selder, F. (1989). Parental responses to the birth of a child with Down syndrome. Loss, Grief and Care: A Journal of Professional Practice, 3, 59-75.
- Van Riper, M., Ryff, C., & Pridham, K. (1992). Parental and family well-being in families of children with Down syndrome: A comparative study. Research in Nursing & Health, 15, 227-235.
- Van Riper, M., Pridham, K., & Ryff, C. (1992). Symbolic interactionism: A perspective for understanding parent-nurse interactions following the birth of a child with Down syndrome. Maternal Child Nursing Journal, 20, 21-39.
- Van Riper, M. (1997). Death of a sister: Five sisters, five stories. Pediatric Nursing, 23, 587-593.
- Pridham, K., Oleson, R., Schroeder, M. Thoyre, S., Van Riper, M. (1998). Guided participation and development of caregiving competencies for parents of very low birthweight infants. Journal of Advanced Nursing, 28, 948-958.
- Van Riper, M. (1999). Living with Down Syndrome: The Family Experience. Down Syndrome Quarterly, 4, 1-11.
- Van Riper, M. (1999). Maternal perceptions of family-provider relationships and well-being in families of children with Down Syndrome. Research in Nursing & Health, 22, 357-368.
- Van Riper, M. (2000). Family variables associated with well-being in siblings of children with Down syndrome. Journal of Family Nursing, 6, 267-286.
- Van Riper, M. (2001). Family-provider relationships and well-being in families with preterm infants in the NICU. Heart and Lung, 30, 74-85.
- Van Riper, M. & Cohen, W. (2001). Caring for children with Down syndrome and their families. Journal of Pediatric Health Care, 15, 123-131.
- Van Riper, M. (2001). Factors influencing family functioning and the health of family members. In S. Hanson (Ed.), Family Health Care Nursing: Theory, Practice, and Research (2<sup>nd</sup> Edition), (pp. 123-145). Philadelphia: FA Davis.
- Van Riper, M. (2003). The sibling experience of living with chronic illness and disability. Annual Review of Nursing Research, 21, 279-302.
- Van Riper, M. (2003). A change of plans: The birth of a child with Down syndrome. American Journal of Nursing, Living with Illness Column, 103, 71-74.
- Van Riper, M. (2003). Genetics. In D. Lowerdermilk, & S. Perry (Eds.), Maternity and women's health care (8<sup>th</sup> ed.). Philadelphia: Elsevier Science.
- Foley, B., Redman, R., Horn, E., Davis, G., Neal, E., Van Riper, M. (2003). Determining nursing faculty development needs. Nursing Outlook, 51, 227-232.
- Davis, G., Foley, B.J., Horn, E., Neal, E., Redman, R., & Van Riper, M. (2003). Creating a comprehensive faculty development program. Journal of Faculty Development, 19, 19-28.
- Van Riper, M. (2004). What families need to thrive. Down Syndrome News, 27, 17-22.
- Van Riper, M. (2004). Genetics. In L. Davis (Ed.). Cardiovascular Nursing Secrets (pp. 503-510), St Louis, Missouri: Mosby.
- Van Riper, M. (2004). Genetic testing for breast and ovarian cancer susceptibility: A family experience. Journal of Midwifery and Womens Health, 49, 210-219.
- Van Riper, M. (in press). Families of children with Down syndrome: Responding to a "Change of Plans" with resilience. Journal of Pediatric Nursing.
- Van Riper, M. (in press). Ethical, legal, and social implications. In Principles of Molecular Medicine (2<sup>nd</sup> Edition)
- Van Riper, M. & Gallo, A. (in press). Families, health, and genomics. In R. Crane & E Marshall. (Eds) Handbook of Families and Health: Interdisciplinary Perspectives. Thousand Oaks, CA: Sage

**Research Support.**Ongoing

P20NR008369(McQuiston-PI)

NINR NIH

VanRiper (PI- Pilot Study)

12/01/2003-11/31/2004

**CIHDR Pilot Study**

**Minority Families Being Screened For and Living with Genetic Conditions**

The major aim of this pilot study is to explore how minority families make sense of and use genetic screening results. A second aim is to explore the feasibility of using narrative accounts of genetic screening to predict families at increased risk for adverse outcomes of genetic screening, such as failure to engage in recommended risk reduction strategies, poorer quality of life, and decreased family functioning

Faculty Research Opportunity Grant Van Riper (PI)

04/15/2004-04/14/05

UNC-Chapel Hill School of Nursing

**African American Families Making Sense of and Using Results from Genetic Testing for Sickle Cell Disease**

The major aim of this study is to explore how African American families make sense of and use the results from genetic testing for sickle cell disease. A second aim is to explore the feasibility of using narrative accounts of genetic testing to predict families at increased risk for adverse outcomes of genetic testing, such as decreased individual and family well-being, failure to engage in recommended risk reduction strategies, and poorer quality of life.

1P20HG003387-01

Bailey (PI)

09/09/2004-07/31/2006

NHGRI NIH

**ELSI Scale-Up: Large Sample Gene Discovery & Disclosure**

Our goal is to develop an infrastructure to maximize collaborative research, create partnerships with relevant constituencies, identify critical issues that must be addressed, and collect sufficient pilot data to propose a well-integrated center in which state-of-the-art ELSI research can be conducted to inform public policy.

In Review

RO1

NHGRI NIH ELSI Program Van Riper (PI)

**Changing Landscape of BRCA Testing**

The purpose of this mixed method, longitudinal study is to examine how women who are offered BRCA1/2 testing understand, respond to psychologically, and use the information they receive about HBOC and BRCA1/2 testing to make decisions about testing, management options, and disclosure.

Completed

K01 NR00139

Van Riper (PI)

7/2000-8/31/2004

NINR

**Family Experience of Genetic Testing: Ethical Dimensions**

To explore how individuals and families define and manage the ethical issues that emerge during four different types of genetic testing.

P30 NR03962(Harrell-PI)

Thoyre, Van Riper

5/01/02-4/30/03

NINR NIH

(CoPIs- Pilot Study)

**CIRC Pilot Study**

**Feeding Issues for Young Children with Down Syndrome and Their Families**

The purpose of this study is to examine feeding issues for young children with Down syndrome and their families. Pilot study of the Center for Research on Chronic Illness at UNC-CH School of Nursing

## BIOGRAPHICAL SKETCH

NAME Todd J. Vision		POSITION TITLE Assistant Professor	
EDUCATION/TRAINING			
INSTITUTION AND LOCATION	DEGREE <i>(if applicable)</i>	YEAR(s)	FIELD OF STUDY
University of Chicago	B.A.	1992	Biology
Princeton University	M.A.	1995	Evolutionary genetics
Princeton University	Ph.D.	1998	Evolutionary genetics
Cornell University	postdoc.	1998-1999	Plant genomics

### A. Positions and Honors.

#### Positions and Employment

1999-2001     Research Mol. Biologist, USDA-ARS Center for Agricultural Bioinformatics,  
                         Ithaca NY

2001-           Assistant Professor, Dept. of Biology, Univ. of North Carolina at Chapel Hill

#### Professional Memberships

American Society of Plant Biologists  
Botanical Society of America  
International Society for Computational Biology  
Sigma Xi  
Society for the Study of Evolution  
Society for Molecular Biology and Evolution

#### Honors

1991-1992     Edmondson Undergraduate Research Fellow  
1994-1998     National Science Foundation Graduate Fellow  
2002           NSF Plant Genome Research Program Young Investigator Award

### B. Selected peer-reviewed publications (in chronological order).

- 1) Ku H-M, Vision TJ, Liu J, Tanksley SD (2000). Comparing sequenced segments of the tomato and Arabidopsis genomes: Large-scale duplication followed by selective gene loss creates a network of synteny. *Proceedings of the National Academy of Sciences USA* 97, 9121-9126.
- 2) Vision TJ, Brown DG (2000) Genome Archaeology: Detecting the descendants of ancient polyploids in contemporary genomes. in *Comparative Genomics: Empirical and Analytical Approaches to Gene Order Dynamics, Map Alignment and the Evolution of Gene Families*. D. Sankoff and J.H. Nadeau, editors, pp. 479-491.
- 3) Vision TJ, Brown DG, Shmoys DB, Durrett RT, Tanksley SD (2000) Selective mapping: a strategy for optimizing the construction of high-density linkage maps. *Genetics* 155, 407-420.
- 4) Vision TJ, Brown DG, Tanksley SD (2000) The origins of genomic duplications in Arabidopsis. *Science* 290, 2114-2117.
- 5) Zhang, L, Gaut BS, Vision TJ (2001) Gene duplication and evolution. *Science* 293, 1551-1552.
- 6) Zhang L, Vision TJ, Gaut BS (2002) Patterns of nucleotide substitution among simultaneously duplicated gene pairs in Arabidopsis thaliana. *Molecular Biology and Evolution* 19, 1464-1473.

- 7) Calabrese PP, Chakravarty S, Vision TJ (2003) Fast identification and statistical evaluation of segmental homologies in comparative maps. *Bioinformatics* 19, i74-i80.
- 8) Hoekenga OA, Vision TJ, Shaff JE, Monforte AJ, Howell SH, Kochian LV (2003) Identification and characterization of Al-tolerance loci in *Arabidopsis thaliana* (Landsberg x Columbia ) by quantitative trait locus mapping: a physiologically simple but genetically complex trait. *Plant Physiology* 132, 936-948.
- 9) Remington DL, Vision TJ, Guilfoyle TJ, Reed JW (2004) Contrasting modes of diversification in the Aux/IAA and ARF gene families. *Plant Physiology* 135, 1738-1752.
- 10) Xu Z, Zou F, Vision TJ (in press) High resolution QTL mapping in genotypically selected samples from experimental crosses. *Genetics*.

**C. Research Support.** List selected ongoing or completed (during the last three years) research projects (federal and non-federal support). Begin with the projects that are most relevant to the research proposed in this application. Briefly indicate the overall goals of the projects and responsibilities of principal investigator identified above.

DBI-011-0069                      PI: Comstock                      9/1/2001-8/31/2005  
National Science Foundation                      Genomic Analysis of Water Use Efficiency  
The goal of this grant is to characterize, map and isolate naturally occurring genetic variation for water use efficiency in *Arabidopsis*, tomato and rice  
Role: Key collaborator, responsible for QTL mapping methodology and candidate gene analyses

DBI-022-7314                      PI: Vision                      9/1/2002-8/31/2007  
National Science Foundation  
Tools for Plant Comparative Genomics  
The goals of this grant are to develop methods for the phylogenetic reconstruction of gene order using multiple species, to study the effect of gene order rearrangements and gene duplications on expression, and to develop a publicly available online comparative mapping database for the angiosperms.  
Role: Project leader

DBI-032-8636                      PI: Willis                      9/1/2003-8/31/2008  
National Science Foundation  
Integrated Ecological and Genomic Analysis of Speciation in *Mimulus*  
The goals include developing the genetic tools to characterize and isolate the genetic loci contributing to species differences and incompatibilities in two species groups of *Mimulus*. Our lab is principally responsible for studies aimed at detecting markers that are linked to loci under natural selection, and using comparative mapping to allow fine-scale genetic dissection of the candidate loci.

## BIOGRAPHICAL SKETCH

NAME	POSITION TITLE		
Wei Wang	Assistant Professor		
EDUCATION/TRAINING			
INSTITUTION AND LOCATION	DEGREE <i>(if applicable)</i>	YEAR(s)	FIELD OF STUDY
Nankai University, P R China		1990-1993	Computer Science
State University of New York, Binghamton	M.S.	1994-1995	System Science
State University of New York, Stony Brook		1995-1996	Computer Science
University of California, Los Angeles	PH.D.	1996-1999	Computer Science

### **Positions and Honors**

#### **Positions**

1999-2002 Research Staff Member, IBM T. J. Watson Research Center.

2002-present Assistant Professor, Department of Computer Science, University of North Carolina, Chapel Hill.

#### **Honors**

- Outstanding Academic Achievement Award, SUNY-Binghamton, 1995.
- NCR Graduate Fellowship, UCLA, 1997-1998.
- Dissertation Fellowship, UCLA, 1999.
- Invention Achievement Awards, IBM, 2000-2001.
- Junior Faculty Development Award, UNC-Chapel Hill, 2003.

#### **Editorships and Other Advisory Group Memberships**

- Editorial Board Member, *Journal of Database Management*, 2000 - present.
- Member, *ACM SIGKDD Curriculum Committee*, 2003 - present.
- Associate Editor, *IEEE Transactions on Knowledge and Data Engineering*, 2003 - present.
- Guest Editor, *IEEE Transactions on Knowledge and Data Engineering Special Issue on Mining Biological Data*, 2004.

#### **Technical Committee Memberships and External Reviewers**

- Panelist, *NSF ITR Medium Award Competition*, 2003.
- Panelist, *NSF BDI Program*, 2004.
- Program Committee Member, the 15<sup>th</sup> *International Conference on Scientific and Statistical Data Management*, 2003.
- Program Committee Member and Proceedings Chair, the 4<sup>th</sup> *International Conference on Web-Age Information Management*, 2003.
- Program Committee Member, the *ACM Symposium on Applied Computing*, 2004.
- Scientific Committee Member, the *IADIS International Conference on Applied Computing*, 2004.
- Program Committee Member, the 6<sup>th</sup> *Asia Pacific Web Conference*, 2004.
- Program Committee Member, the 2<sup>nd</sup> *International Conference on Software Engineering Research, Management & Applications*, 2004.
- Program Committee Member, the 5<sup>th</sup> *International Conference on Software Engineering, Artificial Intelligence, Networking, and Parallel/Distributed Computing*, 2004.
- Program Committee Member, the 10<sup>th</sup> *ACM SIGKDD International Conference on Knowledge Discovery and Data Mining*, 2004.
- Program Committee Member, the 2<sup>nd</sup> *International Workshop on Biological Data Management in conjunction with the 15<sup>th</sup> International Conference on Database and Expert Systems Applications*, 2004.



- Program Committee Member of the *Workshop on Data Streams* in conjunction with the 15<sup>th</sup> *European Conference on Machine Learning*, 2004.
- Program Committee Member, the 4<sup>th</sup> *IEEE International Conference of Data Mining*, 2004.
- Program Committee Member of the 13<sup>th</sup> *ACM Conference on Information and Knowledge Management*, 2004.
- Scientific Committee Member, the *International Conference on Computational and Information Sciences*, 2004.
- Program Committee Member of the *ACM Symposium on Applied Computing*, 2005.
- Program Committee Member of the 7<sup>th</sup> *Asia Pacific Web Conference*, 2005.
- Program Committee Member and Corporate Sponsor Committee Member of the *ACM SIGMOD International Conference on Management of Data*, 2005.
- Program Committee Member of the 31<sup>st</sup> *International Conference on Very Large Data Bases*, 2005.
- Program Committee Member of the *Ph.D. Workshop* at the 31<sup>st</sup> *International Conference on Very Large Data Bases*, 2005.
- Reviewer of the following journals: *ACM TODS*, *DMKD*, *VLDB*, *WWW*, *JASIST*, *KAIS*, 1996 – present.

**B. Selected peer-reviewed publications (in chronological order).**

**Papers (From a total of more than 70)**

- Wang, W.**, Yang, J., and Muntz, R. STING: a statistical information grid approach to spatial data mining. *Proceedings of the 23<sup>rd</sup> International Conference on Very Large Data Bases (VLDB)*, pp. 186-195, 1997.
- Wang, W.**, Yang, J., and Muntz, R. PK-tree: a spatial index structure for high dimensional point data. *Proceedings of the 5<sup>th</sup> International Conference on Foundation of Data Organization (FODO)*, pp. 27-36, 1998.
- Yang, J., **Wang, W.**, and Yu, P. Mining asynchronous periodic patterns in time series data. *Proceedings of the 6<sup>th</sup> ACM SIGKDD International Conference on Knowledge Discovery and Data Mining (SIGKDD)*, pp. 275-279, 2000.
- Wang, W.**, Yang, J., and Yu, P. Efficient mining of weighted association rules (WAR). *Proceedings of the 6<sup>th</sup> ACM SIGKDD International Conference on Knowledge Discovery and Data Mining (SIGKDD)*, pp. 270-274, 2000.
- Wang, W.**, Yang, J., and Muntz, R. An approach to active spatial data mining based on statistical information. *IEEE Transactions on Knowledge and Data Engineering (TKDE) Special Issue on Best Papers in the 15<sup>th</sup> IEEE International Conference on data Engineering*, vol. 12, no. 5, pp. 715-728, 2000.
- Wang, W.**, Yang, J., and Muntz, R. TAR: temporal association rules on evolving numerical attributes. *Proceedings of the 17<sup>th</sup> IEEE International Conference on Data Engineering (ICDE)*, pp. 283-292, 2001.
- Yang, J., **Wang, W.**, and Yu, P. Info-miner: mining surprising periodic patterns. *Proceedings of the 7<sup>th</sup> ACM SIGKDD International Conference on Knowledge Discovery and Data Mining (SIGKDD)*, pp. 395-400, 2001.
- Wang, W.**, Yang, J., and Yu, P. Meta-patterns: revealing hidden periodical patterns. *Proceedings of the 1<sup>st</sup> IEEE International Conference on Data Mining (ICDM)*, pp. 550-557, 2001.
- Yang, J., **Wang, W.**, Wang, H., and Yu, P. Delta-cluster: capturing subspace correlation in a large data set. *Proceedings of the 18<sup>th</sup> IEEE International Conference on Data Engineering (ICDE)*, pp. 517-528, 2002.
- Xia, Y., **Wang, W.**, Yang, J., Yu, P., and Muntz, R. Efficient filtering of large data sets — a user-centric paradigm. *Proceedings of the 2<sup>nd</sup> SIAM International Conference on Data Mining (SDM)*, pp. 112-127, 2002.

- Yang, J., **Wang, W.**, Xia, Y., Yu, P., and Han, J. Mining long sequential patterns in a noisy environment. *Proceedings of the ACM SIGMOD International Conference on Management of Data (SIGMOD)*, pp. 406-417, 2002.
- Wang, H., **Wang, W.**, Yang, J., and Yu, P. Clustering by pattern similarity in large data sets. *Proceedings of the ACM SIGMOD International Conference on Management of Data (SIGMOD)*, pp. 394-405, 2002.
- Yang, J., **Wang, W.**, Xia, Y., and Yu, P. Accelerating approximate subsequence search on large protein sequence databases. *Proceedings of the IEEE Computer Society Bioinformatics Conference (CSB)*, pp. 207-218, 2002.
- Yang, J. and **Wang, W.** Towards automatic clustering of protein sequences. *Proceedings of the IEEE Computer Society Bioinformatics Conference (CSB)*, pp. 175-186, 2002.
- Yang, J., **Wang, W.**, and Yu, P. InfoMiner+: mining partial periodic patterns with gap penalties. *Proceedings of the 2<sup>nd</sup> IEEE International Conference on Data Mining (ICDM)*, pp. 725-728, 2002.
- Yang, J. and **Wang, W.** CLUSEQ: efficient and effective sequence clustering. *Proceedings of the 19<sup>th</sup> IEEE International Conference on Data Engineering (ICDE)*, pp. 101-112, 2003.
- Yang, J., Wang, H., **Wang, W.**, and Yu, P. Enhanced biclustering on expression data. *Proceedings of the 3<sup>rd</sup> IEEE Symposium on Bioinformatics and Bioengineering (BIBE)*, pp. 321-327, 2003.
- Kum, H., Pei, J., **Wang, W.**, and Duncan, D. ApproxMAP: approximate mining of consensus sequential patterns. *Proceedings of the 3<sup>rd</sup> SIAM International Conference on Data Mining (SDM)*, pp. 311-315, 2003.
- Yang, J., **Wang, W.**, and Yu, P. STAMP: on discovery of statistically important pattern repeats in long sequential data. *Proceedings of the 3<sup>rd</sup> SIAM International Conference on Data Mining (SDM)*, pp. 224-238, 2003.
- Yu, H., Yang, J., **Wang, W.**, and Han, J. Discovering compact and highly discriminative features or feature combinations of drug activities using support vector machines. *Proceedings of the ACM/IEEE Computational Systems Bioinformatics Conference (CSB)*, pp. 220-228, 2003.
- Huan, J., **Wang, W.**, and Prins, J. Efficient mining of frequent subgraph in the presence of isomorphism. *Proceedings of the 3<sup>rd</sup> IEEE International Conference on Data Mining (ICDM)*, pp. 549-552, 2003.
- Liu, J. and **Wang, W.** OP-Cluster: clustering by tendency in high dimensional space. *Proceedings of the 3<sup>rd</sup> IEEE International Conference on Data Mining (ICDM)*, pp. 187-194, 2003.
- Yang, J., **Wang, W.**, and Yu, P. Mining asynchronous periodic patterns in time series data. *IEEE Transactions on Knowledge and Data Engineering (TKDE)*, vol. 15, no. 3, pp. 613-628, 2003.
- Huan, J., **Wang, W.**, Washington, A., Prins, J., Shah, R., and Tropsha, A. Accurate classification of protein structural families using coherent subgraph analysis. *Proceedings of the Pacific Symposium on Biocomputing (PSB)*, pp. 411-422, 2004.
- Huan, J., **Wang, W.**, Bandyopadhyay, D., Snoeyink, J., Prins, J., and Tropsha, A. Mining protein family specific residue packing patterns from protein structure graphs. *Proceedings of the 8<sup>th</sup> Annual International Conference on Research in Computational Molecular Biology (RECOMB)*, pp. 308-315, 2004.
- Govindaraju, N., Lloyd, B., **Wang, W.**, Lin, M., and Manocha, D. Fast computation of database operations using graphics processors. *Proceedings of the ACM SIGMOD International Conference on Management of Data (SIGMOD)*, pp. 215-226, 2004.
- BASS: approximate search on large string databases, by Jiong Yang, Wei Wang, and Philip Yu, *Proceedings of the 16<sup>th</sup> International Conference on Scientific and Statistical Database Management (SSDBM)*, 2004.
- Liu, J., Yang, J., and **Wang, W.** Biclustering of gene expression data by tendency. *Proceedings of the IEEE Computational Systems Bioinformatics Conference (CSB)*, pp. 182-193, 2004.
- Liu, J., Yang, J., and **Wang, W.** Gene ontology friendly biclustering of expression profiles. *Proceedings of the IEEE Computational Systems Bioinformatics Conference (CSB)*, pp. 436-447, 2004.

- Huan, J., **Wang, W.**, Prins, J., and Yang, J. SPIN: mining maximal frequent subgraphs from graph databases. *Proceedings of the 10<sup>th</sup> ACM SIGKDD International Conference on Knowledge Discovery and Data Mining (SIGKDD)*, pp. 581-586, 2004.
- Liu, J., **Wang, W.**, and Yang, J. A framework for ontology-driven subspace clustering, *Proceedings of the 10<sup>th</sup> ACM SIGKDD International Conference on Knowledge Discovery and Data Mining (SIGKDD)*, pp. 623-628, 2004.
- Yang, J. and **Wang, W.** AGILE: a general approach to detect transitions in evolving data streams, *Proceedings of the 4<sup>th</sup> IEEE International Conference on Data Mining (ICDM)*, 2004.
- Liu J., Strohmaier, K., and **Wang, W.** Revealing true subspace clusters in high dimensions, *Proceedings of the 4<sup>th</sup> IEEE International Conference on Data Mining (ICDM)*, 2004.
- Wang, W.**, Yang, J., and Yu, P. WAR: weighted association rules for item intensities. *Knowledge and Information Systems Journal (KAIS)*, vol. 6, pp. 203-229, 2004.
- Yang, J., **Wang, W.**, and Yu, P. Mining surprising periodic patterns. *Data Mining and Knowledge Discovery (DMKD)*, 2004.
- Yang, J., **Wang, W.**, and Yu, P. Meta-patterns: revealing hidden periodic patterns. *Knowledge and Information Systems Journal (KAIS)*, 2004.
- Huan, J., **Wang, W.**, Bandyopadhyay, D., Snoeyink, J., Prins, J., and Tropsha, A. Comparing graph representations of protein structure for mining family-specific residue-based packing motifs, *Journal of Computational Biology(JCB)*, 2005, in press.

### **Books**

- Dong, G., Tang, C., and **Wang, W.** *Advances in Web-Age Information Management --- Lecture Notes in Computer Science No. 2762*, Springer-Verlag, 2003.
- Wang, W.** and Yang, J. *Mining Sequential Patterns from Large Data Sets*, in *Series of Advances in Database Systems*, edited by Elmagarmid, A., Kluwer, 2004.

### **C. Research Support.**

- Analyzing Gene Expression Profiles. *Junior Faculty Development Award*, PI, UNC, 1/1/2003 – 12/31/2003.
- Analysis of High Dimensional Data Using Subspace Clustering, co-PI, NSF, 9/15/2004 – 8/31/2007 (PI: Andrew Nobel).
- Enhanced Night-Vision Via a Combination of Poisson Interpolation and Machine Learning, co-PI, DARPA, \$1,067,589, 10/1/2004 – 9/30/2008, 10/1/2004 - 9/30/2005 (PI: Leonard McMillan).
- A Comprehensive Protein Database Indexed by Spatial Motifs, PI, *Microsoft eScience Applications Award*, 10/15/04 – 10/14/05.
- The Carolina Center for Exploratory Genetic Analysis, co-PI, NIH, 10/1/04 – 9/30/07 (PI: Daniel Reed).

### BIOGRAPHICAL SKETCH

NAME		POSITION TITLE	
Kirk C. Wilhelmsen		Associate Professor	
EDUCATION/TRAINING			
INSTITUTION AND LOCATION	DEGREE <i>(if applicable)</i>	YEAR(s)	FIELD OF STUDY
University of California, San Diego	B.S.	1978	Chemistry
University of Wisconsin, Madison	Ph.D.	1984	Molecular Biology
University of Wisconsin, Madison	M.D.	1986	Medicine

#### Professional Experience

1986-1987	Columbia-Presbyterian Medical Center, New York, NY: Internship, Dept. of Medicine; NY State License
1987-1990	Columbia-Presbyterian Medical Center, New York, NY: Resident, Dept. of Neurology; Board Eligible
1988-1990	Columbia-Presbyterian Medical Center, New York, NY: DANA Fellow and Keck Scholar, Depts. of Neurology and Psychiatry, Laboratory of Conrad Gilliam, Ph.D.
1990-1995	Columbia University College of Physicians and Surgeons, New York, NY: Asst. Professor in Residence, Dept. Of Neurology
1995-1999	University of California-San Francisco, San Francisco, CA. Asst. Professor in Residence, Dept. of Neurology, Ernest Gallo Clinic and Research Center.
1999-2003	University of California-San Francisco, San Francisco, CA. Assoc. Professor in Residence, Dept. of Neurology, Ernest Gallo Clinic and Research Center.
2003-present	University of North Carolina-Chapel Hill, Chapel Hill, NC, Assoc. Professor, Dept. of Genetics and Neurology, Carolina Center for Genome Sciences, and Bowles Center for Alcohol Studies

#### Honors and Awards

California State Scholarship; Price Award for Cancer Research; Forester Award for Neurology; Klingenstein Fellow Award; Herbert Irving Assistant Professor of Neurology; Potamkin Prize (AAN, 1999); Decade of the Brain Lecture (AAN, 1999)

#### Selected Publications (From 75)

- Wilhelmsen, K.C., Chen, I.S., and Temin, H.M. (1983). The organization of c-rel in chicken and turkey DNAs. *Prog. Clin. Biol. Res.* 119, 43-56.
- Brzustowicz, L.M., Lehner, T., Castilla, L.H., Penchaszadeh, G.K., Wilhelmsen, K.C., Daniels, R., Davies, K.E., Leppert, M., Ziter, F., Wood, D., Dubowitz, V., Zeres, K., Hausmanowa-Petrusewicz, I., Ott, J., Munsat, T.L., and Gilliam, T.C. (1990). Genetic mapping of chronic childhood-onset spinal muscular atrophy to chromosome 5q11.2-13.3. *Nature* 344, 540-541.
- Wilhelmsen, K.C., Weeks, D.E., Nygaard, T.G., Moskowitz, C.B., Rosales, R.L., dela Paz, D.C., Sobrevega, E.E., Fahn, S., and Gilliam, T.C. (1991). Genetic mapping of "Lubag" (X-linked dystonia-parkinsonism) in a Filipino kindred to the pericentromeric region of the X chromosome. *Ann. Neurol.* 29, 124-131.
- Nygaard, T.G., Wilhelmsen, K.C., Risch, N.J., Brown, D.L., Trugman, J.M., Gilliam, T.C., Fahn, S., and Weeks, D.E. (1993). Linkage mapping of dopa-responsive dystonia (DRD) to chromosome 14q. *Nat. Genet.* 5, 386-391.
- Lasser, D.M., Devivo, D.C., Garvin, J., and Wilhelmsen, K.C. (1994). Turcot's syndrome: evidence for linkage to the adenomatous polyposis coli (APC) locus. *Neurology* 44, 1083-1086.

**Wilhelmsen, Kirk**

- Lynch, T.S., Sano, M., Marder, K.S., Bell, K.L., Foster, N.L., Defendini, R.F., Sima, A.A.F., Keohane, C., Nygaard, T.G., Fahn, S., Mayeux, R., Rowland, L.P., and Wilhelmsen, K.C. (1994). Clinical characteristics of a family with chromosome 17-linked Disinhibition-Dementia-Parkinsonism-Amyotrophy-Complex (DDPAC). *Neurology* 44, 1878-1884.
- Wilhelmsen, K.C., Lynch, T., and Nygaard, T.G. (1994). Localization of disinhibition-dementia-parkinsonism-amyotrophy complex to 17q21-22. *Am. J. Hum. Genet.* 55, 1159-1165.
- Ottman, R., Risch, N.J., Hauser, W.A., Pedley, T.A., Lee, J.H., Barker-Cummings, C., Lustenberger, A., Nagle, K.J., Lee, K.S., Scheuer, M.L., Neystat, M., Susser, M., and Wilhelmsen, K.C. (1995). Localization of a gene for partial epilepsy to chromosome 10q. *Nat. Genet.* 10, 56-60.
- Sima, A.A.F., Defendini, R., Keohane, C., D'Amato, C., Foster, N.L., Parchi, P., Gambetti, P., Lynch, T., and Wilhelmsen, K.C. (1996). The neuropathology of chromosome 17-linked dementia. *Ann. Neurol.* 39, 734-743.
- Wijker, M., Wszolek, Z.K., Wolters, E.C.H., Rooimans, M.A., Pals, G., Pfeiffer, R.F., Rodnitzky, R.L., Wilhelmsen, K.C., and Arwert, F. (1996). Heterogeneous neurological diseases map to the same region on chromosome 17q. *Hum Mol Genet* 5(1), 151-154.
- Wilhelmsen, K.C., Blake, D.M., Lynch, T., Mabutas, J., De Vera, M., Neystat, M., Bernstein, M., Hiarno, M., Gilliam, T.C., Murphy, P.L., Sola, M.D., Bonilla, E., Schotland, D.L., Hays, A.P., and Rowland, L.P. (1996). Chromosome 12-linked Autosomal Dominant Scapuloperoneal Muscular Dystrophy. *Ann. Neurol.* 39, 507-520.
- Foster, N.L., Wilhelmsen, K.C., Sima, A.A.F., Jones, M.Z., Damato, C.J., Gilman, S., Spillantini, M.G., Lynch, T., Mayeux, R.P., Gaskell, P.C., Hulette, C.M., PericakVance, M.A., WelshBohmer, K.A., Dickson, D.W., Heutink, P., Kros, J., vanSwieten, J.C., Arwert, F., Ghetti, M.B., Murrell, J., Lannfelt, L., Hutton, M., Jones, M., Phelps, C.H., Snyder, D.S., Oliver, E., Ball, M.J., Cummings, J.L., Miller, B.L., Katzman, R., Reed, L., Schelper, R.L., Landska, D.J., Brun, A., Fink, J.K., Kuhl, D.E., Knopman, D.S., Wszolek, Z., Miller, C.A., Bird, T.D., Lendon, C., and Elechi, C. (1997). Frontotemporal dementia and parkinsonism linked to chromosome 17: A consensus conference. *Annals of Neurology* 41, 706-715.
- Wilhelmsen, K.C., Mirel, D.B., Marder, K., Bernstein, M., Naini, A., Leal, S.M., Cote, L.J., Tang, M.-X., Freyer, G., Graziano, J., and Mayeux, R. (1997). Is there a genetic susceptibility locus for Parkinson's disease on chromosome 22q13? *Ann. Neurol.* 41, 813-817.
- Clark, L.N., Poorkaj, P., Wszolek, Z.K., Geschwind, D.H., Nasreddine, Z.S., Miller, B., Payami, H., Arwert, F., Markopoulou, K., D'Souza, I., Lee, V.M.Y., Reed, L., Trojanowski, J.Q., Zhukareva, V., Bird, T., Schellenberg, G.D., and Wilhelmsen, K.C. (1998). Pathogenic implications of mutations in the tau gene in pallido-ponto-nigral degeneration and related chromosome 17-linked neurodegenerative disorders. *Proc. Natl. Acad. Sci. USA* 95, 13103-13107.
- Hong, M., Zhukareva, V., Vogelsberg-Ragaglia, V., Wszolek, Z.K., Reed, L., Miller, B.L., Geschwind, D., Bird, T.D., McKeel, D., Goate, A.M., Morris, J.C., Wilhelmsen, K.C., Schellenberg, G.D., Trojanowski, J.Q., and Lee, V.M.Y. (1998). Mutation-specific functional impairments in distinct tau isoforms of hereditary FTDP-17. *Science* 282(5395), 1914-1917.
- Jeppensen, L.L., Wilhelmsen, K.C., Nielson, L.B., Jorgensen, H.S., Nakayama, H., Raaschou, H.O., Nielson, J.D., Olsen, T.S., and Winther, K. (1998). An insertion/deletion polymorphism in the promoter region of the plasminogen activator inhibitor-1 gene is associated with plasma levels but not with stroke risk in the elderly. *Journal of Stroke and Cerebrovascular Diseases* 7, 385-390.
- Lendon, C.L., Lynch, T., Norton, J., McKeel, D.W., Jr., Busfield, F., Craddock, N., Chakraverty, S., Gopalakrishnan, G., Shears, S.D., Grimmett, W., Wilhelmsen, K.C., Hansen, L., Morris, J.C., and Goate, A.M. (1998). Hereditary dysphasic disinhibition dementia: A frontotemporal dementia linked to 17q21-22. *Neurology* 50, 1546-1555.
- Goedert, M., Spillantini, M.G., Crowther, R.A., Chen, S.G., Parchi, P., Tabaton, M., Lanska, D.J., Markesbery, W.R., Wilhelmsen, K.C., Dickson, D.W., Petersen, R.B., and Gambetti, P. (1999). Tau gene mutation in familial progressive subcortical gliosis. *Nat Med* 5, 454-457.

## Appendix 2.4

### Wilhelmsen, Kirk

- Nasreddine, Z.S., Loginov, M., Clark, L.N., Lamarche, J., Miller, B.L., Lamontagne, A., Zhukareva, V., Lee, V.M., Wilhelmsen, K.C., and Geschwind, D.H. (1999). From genotype to phenotype: a clinical pathological, and biochemical investigation of frontotemporal dementia and parkinsonism (FTDP-17) caused by the P301L tau mutation. *Ann. Neurol.* 45, 704-715.
- Geschwind, D.H., Robidoux, J., Alarcon, M., Miller, B.L., Wilhelmsen, K.C., Cummings, J.L., and Nasreddine, Z.S. (2001). Dementia and neurodevelopmental predisposition: cognitive dysfunction in presymptomatic subjects precedes dementia by decades in frontotemporal dementia. *Ann. Neurol.* 50, 741-746.
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- Neilson, D.E., Feiler, H.S., Wilhelmsen, K.C., Lynn, A., Eiben, R.M., Kerr, D.S., and Warman, M.L. (2004). Autosomal dominant acute necrotizing encephalopathy maps to 2q12.1-2q13. *Annals of Neurology* 55, 291-294.
- Seaton, K.L., Cornell, J.L., Wilhelmsen, K.C., and Vieten, C. (2004). Effective strategies for recruiting families ascertained through alcoholic probands. *Alcohol Clin Exp Res* 28, 78-84.
- Wilhelmsen, K.C., Forman, M.S., Rosen, H.J., Alving, L.I., Goldman, J., Feiger, J., Lee, J.V., Segall, S.K., Kramer, J.H., Lomen-Hoerth, C., Rankin, K.P., Johnson, J., Feiler, H.S., Weiner, M.W., Lee, V.M., Trojanowski, J.Q., and Miller, B.L. (2004). 17q-linked frontotemporal dementia-amyotrophic lateral sclerosis without tau mutations with tau and alpha-synuclein inclusions. *Arch. Neurol.* 61, 398-406.

#### RESEARCH SUPPORT:

##### Ongoing Research Support

3052sc (P01 AG19724) (Miller)

09/01/02 - 08/31/07

NIH/NIA (Subcontract through UCSF)

*Frontotemporal Dementia: Genes, Images, and Emotions*

The major goal of this project is to positionally close a gene on chromosome 15 that causes FTLD with amyotrophy. Identification of this gene will lead to a greater understanding of the spectrum of diseases in which tau is implicated.

Role: P.I., Project 1

N/A (Wilhelmsen)

05/01/01 - 04/30/04 extended to 04/30/05

ALSA

*Positional Cloning of a New Locus for ALS with Dementia*

The major goal of this project is to perform segregation analysis and begin testing candidate genes for ALS in the region of chromosome 15.

Pending RO1 HD048179-01

NICHD

*Genetic Factors In Outcome of Traumatic Brain Injury.* (Diaz-Arrastia PI) 12/1/04-11/31/09

The major goal of this grant is to identify gene polymorphisms that modify outcome of traumatic brain injury.

Role: Co-Investigator

P20

NIH

*The Carolina Center for Exploratory Genetic Analysis Relating Genotype to Phenotype via Integrated Experimental and Clinical Data Analysis* (Daniel Reed PI) 10/1/05-9/31/07

Submitted in Response to RFA-RM-04-004

Role: Co-Investigator

**Institutional Grants, in which Dr. Wilhelmsen was the PI, that remained at EGCRC when he moved to UNC.**

01-15946 (Wilhelmsen)

07/01/01 - 06/30/04

California Dept. of Health Services/ADP

*The Alzheimer's Research Centers of California Genetics Initiative*

The major goal of this project is to improve the care of dementia patients by increasing the understanding of the etiology through genetic research and analysis.

DAMD17-01-1-0800 (Wilhelmsen)

09/15/01 - 09/15/05

U.S. Army/Dept. of Defense

*Identification of Alcoholism Susceptibility Genes*

The major goal of this project is to examine a large number of genes implicated in the biology of alcoholism to see whether common alleles of these genes affect susceptibility.

DAMD17-03-1-0060 (Wilhelmsen)

01/15/03 - 01/15/06

U.S. Army/Dept. of Defense

*Identification of Genes that Modulate a Low Level of Response to Alcohol, A Risk Factor for Alcoholism*

The major goal of this project is to identify genes that modulate a low level of response to alcohol, a well-documented risk factor for the development of alcoholism.

N/A (Wilhelmsen)

07/01/01 - 06/30/04

State of California/UCSF Dept. of Neurology

Appropriated Annually

*Human Genetics Study on Alcoholism*

At the request of the Governor, the State Legislature augmented funds to UCSF to support additional staff and a new drug development program for alcoholism and addiction. Funding for future years is very uncertain, can only be appropriated one year at a time, and will depend on prevailing economic and political circumstances in California, and at the University.

**Completed Research Support**

I N/A (Wilhelmsen)

06/01/99 - 05/31/04

JDAF

*Creation of Mouse with Human tau Disease Mutations*

**Wilhelmsen, Kirk**

The major goal of this project is to create transgenic mice that over-express human tau genes with mutations known to cause frontotemporal dementia and parkinsonism linked to chromosome 17 in man.



## BIOGRAPHICAL SKETCH

NAME		POSITION TITLE	
Fred A. Wright		Associate Professor of Biostatistics	
EDUCATION/TRAINING			
INSTITUTION AND LOCATION	DEGREE <i>(if applicable)</i>	YEAR(s)	FIELD OF STUDY
SUNY at Buffalo, New York	BA	1989	Psychology and Statistics
The University of Chicago	PhD	1994	Statistics

### A. Positions and Honors

#### Positions

1994-1997	Assistant Adjunct Professor, Department of Family & Preventive Medicine, University of California, San Diego
1994-1997	Biostatistician, The UCSD Cancer Center, San Diego, California
1997-Jan 2002	Assistant Professor, Division of Human Cancer Genetics, The Ohio State University, Columbus, OH
Feb 2002-present	Associate Professor, Department of Biostatistics, University of North Carolina, Chapel Hill

#### Honors and Awards

1991 University of Chicago Department of Statistics First Annual Consulting Prize  
 1992 University of Chicago Department of Statistics Second Annual Consulting Prize,  
 Phi Beta Kappa  
 Professional memberships in American Association for the Advancement of Science, American Society of Human Genetics, American Statistical Association

### B. Selected peer-reviewed publications (34 of 47 total, in chronological order):

Kong A and **Wright FA**. Asymptotic theory for gene mapping. **Proc Nat Acad Sci, USA**. 91:9705-9709, 1994.  
 Paulson TG, **Wright FA**, Parker BA, Russak V and Wahl GM. Microsatellite instability correlates with reduced survival and poor disease prognosis in breast cancer. **Can Res**, 56:4021-4026, 1996.  
**Wright FA**. The phenotypic difference discards sibpair QTL linkage information. **Am J Hum Genet**, 60:740-742, 1997.  
**Wright FA** and Kong A. Linkage mapping in experimental crosses: the robustness of single-gene models. **Genetics**, 146:417-425, 1997.  
 de la Chapelle A and **Wright FA**. Linkage disequilibrium in isolated populations: the example of Finland revisited : **Pro Natl Acad Sci, USA** 95:12416-12423, 1998.  
 Fierer J, Walls L, **Wright F** and Kirkland TN. Genes influencing resistance to *Coccidioides immitis* and the interleukin-10 response map to chromosomes 4 and 6 in mice. **Infect Immun**, 67(6):2916-2919, 1999.  
**Wright FA**, O'Connor, DT, Yoneda, LU, Kutey, G, Roberts, E, Berry, C, Weber, JL, Timberlake, D and Schlager, G. A genome scan for blood pressure loci in mice. **Hypertension**, 34:625-630, 1999.  
 Lin S, Irwin ME and **Wright FA**. A multiple locus analysis of the COGA data set. **Genetic Epidemiology**, 17 (Suppl 1):S229-234, 1999.  
 Costello JF, Fruhwald MC, Smiraglia DJ, Rush LJ, Robertson GP, Gao X. **Wright FA**, Feramisco JD, Peltomaki P, Lang JC, Schuller DE, Yu L, Bloomfield CD, Caligiuri MA, Yates A, Nishikawa R, Huang H-J S, Petreilli NJ, Zhang X, O'Dorisio MS, Held WA, Cavenee WK and Plass C. Aberrant CpG island methylation has non-random and tumor type-specific patterns. **Nature Genetics**, 24:132-138, 2000.

**Wright, Fred**

- Hoffman HM, **Wright FA**, Broide DH, Wanderer AA and Kolodner RD. Identification of a locus on chromosome 1q44 for Familial Cold Urticaria. **American Journal of Human Genetics**, 66:1693-1698, 2000.
- Borrego S, Ruiz A, Saez ME, Gimm O, Gao X, Lopez-Alonso M, **Wright FA**, Antinolo G and Eng C. RET genotypes comprising specific haplotypes of polymorphic variants predispose to isolated Hirschsprung disease. **Journal of Medical Genetics**, 37:572-578, 2000.
- Huang J, Kuusmanen SA, Liu T, Chadwick RB, Johnson CK, Stevens MW, Richards SK, Meek JE, Gao X, **Wright FA**, Mecklin JP, Jarvinen HJ, Gronberg H, Bisgaard ML, Lindblom A and Peltomaki P. MSH6 and MSH3 are rarely involved in genetic predisposition to nonpolypotic colon cancer. **Cancer Research**, 61:1619-1623, 2001.
- Virtaneva KI, **Wright FA**, Tanner SM, Yuan B, Lemon WJ, Caligiuri MA, Bloomfield CD, de la Chapelle A and Krahe R. Gene expression profiling reveals fundamental biological differences in AML with isolated trisomy 8 and normal cytogenetics. **Proceedings of the National Academy of Sciences USA**, 98 (3):1124-1129, 2001.
- Lin S, Cheng R and **Wright FA**. Genetic crossover interference in the human genome. **Annals of Human Genetics**, 65:79-93 Part 1, 2001.
- Rush LJ, Dai Z, Smiraglia DJ, Gao X, **Wright FA**, Fruhwald M, Costello JF, Held WA, Yu L, Krahe R, Kolitz JE, Bloomfield CD, Caligiuri MA and Plass C. Novel methylation targets in de novo acute myeloid leukemia with prevalence of chromosome 11 loci. **Blood**, 97(10):3226-3233, 2001.
- Zhuo D, Zhao WD, **Wright FA**, Yuan H-Y, Wang J-P, Sears R, Baer T, Kwon D-H, Gordon D, Gibbs S, Dai D, Yang Q, Spitzner J, Krahe R, Stredney D, Stutz A and Yuan B. Assembly, annotation and integration of UniGene clusters into the human genome draft. **Genome Research**, 11:904-918, 2001.
- Wang D, Cheng R, Gao X, Lin S and **Wright FA**. Transformation of sibpair phenotypes in QTL mapping. **American Journal of Human Genetics**, 68:1238-1249, 2001.
- Wright FA**, Lemon WJ, Zhao WD, Sears R, Zhuo D, Wang J-P, Yang H-Y, Baer T, Stredney D, Spitzner J, Stutz A, Krahe R and Yuan B: A draft annotation and overview of the human genome. **Genome Biology**, 2: research0025.1-0025.18, 2001.
- Fruhwald MC, O'Dorisio SM, Smith L, Dai Z, **Wright FA**, Paulus W, Jurgens H, Plass C: Hypermethylation as a potential prognostic factor and a clue to a better understanding of the molecular pathogenesis of medulloblastoma – results of a genomewide methylation scan. **Klinische Padiatrie**, 213: 1-7, 2001.
- Smiraglia DJ, Rush LJ, Fruhwald MC, Dai Z, Held, WA, Costello JF, Lang JC, Eng C, Li B and **Wright FA**, Caligiuri MA, Plass C: Excessive CpG island hypermethylation in cancer cell lines versus primary human malignancies. **Human Molecular Genetics**, 10: 1413-1419, 2001.
- Fruhwald MC, O'Dorisio SM, Dai Z, Tanner SM, Balster DA, Gao X, **Wright FA**, Plass C: Aberrant promoter methylation of novel rather than known methylation targets is a common abnormality in medulloblastomas – Implications for tumor biology and potential clinical utility. **Oncogene** 20: 5033-5042, 2001
- Dai Z, Lakshmanan RR, Zhu W-G, Smiraglia DJ, Rush LJ, Fruhwald MC, Brena RM, Li B, **Wright FA**, Ross P, Otterson GA, Plass C. Global methylation profiling of lung cancer identifies novel methylated Genes. **Neoplasia**, 3: 314-323, 2001.
- Wu L, Saavedra HI, Timmers C, Sang L, Nuckolls F, Nevins JR, **Wright FA**, Robinson ML and Leone G: the E2F1, E2F2, and E2F3 transcription activators are essential for cellular proliferation. **Nature**, 414: 457-62, 2001.
- Huang Y, Prasad M, Lemon WJ, Hampel H, **Wright FA**, Kornacker K, LiVolsi V, Frankel W, Kloos RT, Eng C, Pellegata N and de la Chapelle A: Gene expression in papillary thyroid carcinoma reveals highly consistent profiles. **Proc Natl Acad Sci USA** :15044-9, 2001.
- Pierce JP, Faerber S, **Wright FA**, Rock CL, Newman V, Flatt SW, Kealey S, Jones V, Caan BJ, Gold EB, Haan M, Hollenbach KA, Jones L, Marshall JR, Ritenbaugh C, Stefanick ML, Thomson C, Wasserman L, Natarajan L, Gilpin E: A randomized trial of the effect of a plant-based dietary

## Wright, Fred

- pattern on additional breast cancer events and survival: The Women's Healthy Eating and Living (WHEL) Study. **Control Clin Trials**. 23:728-756, 2002
- Yoon H, Liyanarachchi S, **Wright FA**, Davuluri R, Lockman JC, de la Chapelle A, Pellegata NS: Gene expression profiling of isogenic cells with different TP53 gene dosage reveals numerous genes that are affected by TP53 dosage and identifies CSPG2 as a direct target of p53. **Proc Natl Acad Sci U S A**. 99:15632-15637, 2002
- Lemon WJ, Palatini JJT, Krahe R, **Wright FA**: Theoretical and experimental comparisons of gene expression indexes for oligonucleotide arrays. **Bioinformatics**, 11:1470-1476, 2002.
- Borrego S, **Wright FA**, Fernandez RM, Williams N, Lopez-Alonso M, Davuluri R, Antinolo G, Eng C: A founding locus within the RET proto-oncogene may account for a large proportion of apparently sporadic Hirschsprung disease and a subset of cases of sporadic medullary thyroid carcinoma. **Am J Hum Genet**. 72:88-100, 2003.
- Tanner SM, Aminoff M, **Wright FA**, Liyanarachchi S, Kuronen M, Saarinen A, Massika O, Mandel H, Broch H, de la Chapelle A: Amnionless, essential for mouse gastrulation, is mutated in recessive hereditary megaloblastic anemia. **Nat Genet** 33:426-429, 2003.
- Cheng R, Ma JZ, **Wright FA**, Lin S, Gao X, Wang D, Elston RC, Li MD: Nonparametric disequilibrium mapping of functional sites using haplotypes of multiple tightly linked single-nucleotide polymorphism (SNP) markers. **Genetics**, 164: 1175-1187, 2003.
- Wright FA**: Information perspectives of Haseman-Elston regression. **Hum Hered** 55: 132-142, 2003.
- Miller BJ, Wang D, Krahe R, **Wright FA**: Pooled analysis of loss of heterozygosity in breast cancer: a genome scan provides comparative evidence for multiple tumor suppressors and identifies novel candidate regions. **Am J Hum Genet** 73: 748-767, 2003.
- Bachinski LL, Udd B, Meola G, Sansone V, Bassez G, Eymard B, Thornton CA, Moxley RT, Harper PS, Rogers MT, Jurkat-Rott K, Lehmann-Horn F, Wieser T, Gamez J, Navarro C, Bottani A, Kohler A, Shriver MD, Sallinen R, Wessman M, Zhang S, **Wright FA**, Krahe R: Confirmation of the type 2 myotonic dystrophy (CCTG)n expansion mutation in patients with proximal myotonic myopathy/proximal myotonic dystrophy of different European origins: a single shared haplotype indicates an ancestral founder effect. **Am J Hum Genet** 73: 835-848, 2003.
- Wang D, Lauria M, Yuan B, **Wright FA**: Mega Weaver: A Simple Iterative Approach for BAC Consensus Assembly. In Proc. Second Asia-Pacific Bioinformatics Conference (APBC2004), Dunedin, New Zealand. CRPIT, **29**. Chen, Y.-P. P., Ed. **ACS**, 2004.

## C. Research Support

**ACTIVE**

1 R01 DK066368-01 Knowles (PI) 03/01/04 -02/28/09

Natl Institute of Diabetes & Dig & Kidney Disease

**Genetic Modifiers of CF Liver Disease**

This project is designed to identify associations between non-CFTR genes and CFLD, and test the biological effect of selected alleles on hepatic fibrosis in transgenic murine models.

Role: Biostatistician

5 R01 HL68890-03 Knowles (PI) 09/30/01- 08/31/06

Natl Heart,Lung,Blood Inst.

**Genetic Modifiers in CF Lung Disease**

The short term goal of this proposal is to establish the capability to test non-CFTR candidate gene alleles that may play important roles in the pathogenesis and severity of CF lung disease.

Role: Co-Investigator

1 P30 NS045892-01 Snider (PI) 04/01/03 - 03/31/08

Natl Inst of Neurological Disorders & Stroke

**UNC Neuroscience Center Research Cores - Expression Profiling Core**

The Neuroscience Center at UNC-CH proposes to establish, hire and staff five Core facilities to support neuroscience research.

Role: Biostatistician

2 P30 HD003110-36

Piven (PI)

08/20/03 - 06/30/08

Natl Inst. Child Health

**The UNC Neurodevelopmental Disorders Research Center-Microarray Gene Expression Core**

This expansion of bio-behavioral studies serves to integrate long-standing and excellent program in basic biological and behavioral research relevant to MRDD.

Role: Core Co-Director

5 U19 ES11391-03

Kaufmann (PI)

09/25/01 - 08/31/06

Natl Inst Envr Health Sciences

**Profiles of Susceptibility to Toxicant Stress-Project 3**

Project 3 is Mouse Strain-Specific Molecular Profiles in Response to Toxicants

Role: Co-Principal Investigator

**Completed Research Support**

5 R01 GM58934-05

Wright (PI)

02/01/02 - 04/30/04

Natl Inst Gen Medical Sciences

**Inference and Robust Methods for Linkage Mapping**

Specific aims are to develop general and flexible methods for constructing confidence intervals for gene locations in genetic linkage studies.

### BIOGRAPHICAL SKETCH

NAME		POSITION TITLE	
Muhammad Naveed Yousaf		Assistant Professor	
EDUCATION/TRAINING			
INSTITUTION AND LOCATION	DEGREE <i>(if applicable)</i>	YEAR(s)	FIELD OF STUDY
York University	BSc (Hon)	1993	Chemistry
Univ. of Massachusetts	MS	1996	Chemistry
Univ. of Chicago	PhD	2001	Chemistry
Harvard Medical School	postdoc	2001-2004	Cell Biology

#### A. Positions and Honors:

##### Positions and Employment:

2001-2003 Postdoctoral Fellow, Dept. of Cell Biology, Harvard Medical School  
 2003-2004 Instructor, Dept. of Cell Biology and Systems Biology, Harvard Medical School  
 2005- Assistant Professor, Dept. of Chemistry and Carolina Center for Genome Sciences,  
 University of North Carolina at Chapel Hill

##### Honors:

1993 Honor Society, York University, Toronto, Canada  
 1995 John Masteracola Memorial Award for Excellence in Graduate Research  
 2001 Damon Runyon-Walter Winchell Postdoctoral Fellowship  
 2003 Burroughs-Wellcome Interface Career Award  
 2003 Keck-National Academy of Science Futures Initiative

#### B. Publications:

(1) Copper (II) complexes of bis(1,4,7-triazacyclononane) ligands with polymethylene bridging groups: An equilibrium and structural study. R. Haidar, M. Ipek, M.N. Yousaf and L.J. Zompa Inorg. Chem., 1997, 36, 3125.

(2) Diels-Alder Reaction for the Selective Immobilization of Protein to Electroactive Substrates. M.N. Yousaf and M. Mrksich J. Am. Chem. Soc. 1999, 121, 4286.  
 Featured in: Science/Technology Concentrates Chemical and Engineering News 1999, 77, 19.

(3) The Kinetic Order of an Interfacial Diels-Alder Reaction Depends on the Environment of the Immobilized Dienophile. M.N. Yousaf, E.W.L. Chan and M. Mrksich Angew. Chem. Int. Ed. 2000, 39, 1943.

(4) Understanding the Role of Adsorption in the Reaction of Cyclopentadiene with an Immobilized Dienophile. E.W.L. Chan, M.N. Yousaf and M. Mrksich J. Phys. Chem. A. 2000, 104, 9315.

(5) Modulating the Behaviors of Attached Cells with Dynamic Substrates. M.N. Yousaf and M. Mrksich New Technologies for Life Sciences. A Trends Guide. (Review) 2000, 28.

(6) Turning on Cell Growth with Electroactive Substrates. M.N. Yousaf, B.T. Houseman and M. Mrksich Angew. Chem. Int. Ed. 2001, 40, 1093.

Featured in: News of the Week Science 2000, 1477

Nature News Wire March 27, 2001.

News of the Week Chemical and Engineering News 2001, 79, 13.

(7) Using Electroactive Substrates to Pattern the Attachment of Two Different Cell Types. M.N. Yousaf, B.T. Houseman and M. Mrksich Proc. Natl. Acad. Sci. (USA) 2001, 98, 5992

(8) Dynamic Interfaces Between Cells and Surfaces: Electroactive Substrates that Sequentially Release and Attach Cells. W.S. Yeo, M.N. Yousaf, M. Mrksich. J. Am. Chem. Soc., 2003, 125(49), 14994-14995.

Featured in: News of the Week Chemical Engineering News 2003, 81, 11.

(9) A Photochemical Method for Patterning the Immobilization of Ligands and Cells to Self-Assembled Monolayers W. S. Dillmore\*, M.N. Yousaf\* and M. Mrksich Langmuir 2004, 20 (17), 7223-7231.

\*Equal Contribution.

(10) SPaM: Using Self-Assembled Monolayers, On-Chip Proteolytic Digestion and MALDI Mass Spectrometry to Identify Proteins on Small Molecule and Protein Microarrays. M.N. Yousaf, J. Jebanathirajah and M. W. Kirschner. Submitted Nat. Biotechnol.

### **C. Research Support**

Interface Career Award in the Biomedical Sciences

P.I. Muhammad N. Yousaf, Jan. 1 2003 - Dec. 31 2007

Agency: Burroughs Wellcome; Type: Award:

Total Direct: \$500,000

## BIOGRAPHICAL SKETCH

NAME	POSITION TITLE		
Fei Zou	Assistant Professor		
EDUCATION/TRAINING			
INSTITUTION AND LOCATION	DEGREE <i>(if applicable)</i>	YEAR(s)	FIELD OF STUDY
Wuhan University, PRC	BS	1990	Mathematics
Wuhan University, PRC	MS	1993	Statistics
University of Wisconsin, Madison, WI	PhD	2001	Statistics

### A. Positions and Honors

#### Positions and Employment:

1993 - 1995 Assistant Professor, Changsha Railway University, People's Republic of China.  
 1996 - 1998 Teaching Assistant, Department of Statistics, University of Wisconsin-Madison, Madison, WI.  
 1999 - 2000 Statistical Consultant, University of Wisconsin-Madison, Madison, WI.  
 2000 - 2001 Research Assistant, University of Wisconsin-Madison, Madison, WI.  
 2001 - Present Assistant Professor, Department of Biostatistics, University of North Carolina at Chapel Hill, Chapel Hill, NC.

#### Honors:

David Byar Young Investigator Award, 2001 Joint Statistical Meeting (2001)  
 Ohio State University Fellowship (1995)  
 Excellent Graduate Student Fellowship, Wuhan University (1991, 1992)

### B. Selected Peer-reviewed Publications

**Zou, F.**, Fine, J. P., Jianhua Hu, J. and Lin, D. Y. (2004). An Efficient Resampling Method for Assessing Genome-Wide Statistical Significance in Mapping Quantitative Trait Loci. *Genetics (in press)*.

Fine, J. P., **Zou, F.**, and Yandell, B. S. (2004). Nonparametric estimation of mixture models, with application to quantitative trait loci. *Biostatistics*, 5: 501-513.

Lin, D., and **Zou, F.** (2004). Resampling approach to assessing genomewide statistical significance in linkage studies. *Genetic Epidemiology*, 27: 202-214.

Diao, G., Lin, D., and **Zou, F.** (2004). Mapping quantitative trait loci with censored observations. *Genetics (in press)*.

Churchill, G. A. *et al.* (2004) The Collaborative Cross, a community resource for the genetic analysis of complex traits. *Nature Genetics*, 36:1133-1137.

**Zou, F.**, Yandell, B.S., and Fine, J.P. (2003). Rank based statistical methodologies for QTL mapping. *Genetics*, 165: 1599-1605.

Flaherty, L. *et al.* (2003). The nature and identification of quantitative trait loci: a community's view. *Nature Genetics Review*, 4: 911-916.

Hester, S.D., Benavides, G.B., Yoon, L., Morgan, L.K., **Zou, F.**, Barry, W., and Wolf, D.C. (2003). Formaldehyde-induced gene expression in F344 rat nasal respiratory epithelium. *Toxicology*, 187:13-24.

Lukens, L., **Zou, F.**, Lydiate, D., Parkin, I., and Osborn, T. (2003). Comparison of a *Brassica Oleracea* genetic map with genome of *Arabidopsis Thallana*. *Genetics*, 164: 359-372.

Lan, H., Rabaglia, M.E., Stoehr, J.P., Nadler, S.T., Schueler, K.L., **Zou, F.**, Yandell, B.S., and Attie, A.D. (2003). Gene expression profiles of nondiabetic and diabetic obese mice suggest a role of hepatic lipogenic capacity in diabetes susceptibility. *Diabetes*, 52: 688 - 700.

**Zou, F.**, and Fine, J.P. (2002). Note on a partial empirical likelihood. *Biometrika*, 89: 958-961.

**Zou, F.**, Fine, J.P., and Yandell, B.S. (2002). On empirical likelihood for a semiparametric mixture model. *Biometrika*, 89: 61-75.

Dwinell, K.L., Bass, P., **Zou, F.**, and Oaks, J.A. (2002). Small intestinal transactions decrease the occurrence of tapeworm-induced myoelectric patterns in the rat. *Journal of Neurogastroenterology and Motility*, 14: 349-356.

**Zou, F.**, Yandell, B.S., and Fine, J.P. (2001). Statistical issues in the analysis of quantitative traits in combined crosses. *Genetics*, 158: 1339-1346.

Yu, J.H., and **Zou, F.** (1995). Independence conditions between functions of normal variables. *Journal of Hunan University*, 22:16-18.

### **C. Research Support**

#### **Ongoing Research Support**

1 R03 MH070504-01                      Zou (PI)                      04/01/04 - 03/31/06  
National Inst. of Health

#### **Statistical Analysis of RIX for Complex Traits**

The objectives of this research are the development of simple yet useful statistical methods for complex quantitative trait loci mapping using RIX.

Role: Principal Investigator

2 R01 C082659-06                      Lin (PI)                      04/01/04 – 03/31/08  
National Cancer Institute

#### **Statistical Methods in Current Cancer Research**

The broad, long-term objectives of this research are the developments of simple and useful statistical methods for the design and analysis of clinical and epidemiologic cancer studies with incomplete observations.

Role: Biostatistician

1 R01 DK066368-01                      Knowles (PI)                      03/01/04 - 02/28/09  
Nat'l Institute of Diabetes & Dig & Kidney Disease

#### **Genetic Modifiers of CF Liver Disease**



This project is designed to identify associations between non-CFTR genes and CFLD, and test the biological effect of selected alleles on hepatic fibrosis in transgenic murine models.

Role: Biostatistician

5 R01 HL68890-03                      Knowles (PI)                      09/30/01 – 08/31/06  
National Heart, Lung, Blood Institute

**Genetic Modifiers in CF Lung Disease**

The short-term goal of this proposal is to establish the capability to test non-CFTR candidate gene alleles that may play important roles in the pathogenesis and severity of CF lung disease.

Role: Biostatistician

1-U54-MH66418-01                      Piven (PI)                      07/01/02 – 06/30/07  
National Institute of Mental Health

**Gene-Brain Behavior Relationships in Autism-Data Management Core**

This application for a North Carolina STAART Center for Autism Research is a collaborative effort by investigators at UNC, Duke University, the University of Iowa, the NIMH and the University of London.

Role: Biostatistician

5 P30 ES10126-03      Swenberg (PI)                      04/01/01 - 03/31/05  
Nat'l Inst Envr Health Sciences

**UNC-CH Center for Environmental Health & Susceptibility – Facility Core 2**

This application proposes to establish a Center under the NIEHS Environmental Health Sciences Center Grants (P30) Program in the School of Public Health, UNC-CH. The focus of this "UNC-CH Center on Environmental Health and Susceptibility" is in the area of environmental epidemiology and toxicology.

Role: Biostatistician

**Completed Research Support**

NONE

## Appendix 3.1

### Department of Genetics Primary Faculty

Primary Faculty	Position	Research Area
Shawn Ahmed, Ph.D.	Assistant Professor of Genetics & of Biology	<i>C. elegans</i> telomere replication, DNA damage, germline immortality
Scott Bultman, Ph.D.	Research Assistant Professor of Genetics	Mammalian Chromatin Remodeling
Frank Conlon, Ph.D.	Assistant Professor of Genetics & Adjunct Assistant Professor of Biology	Amphibian heart development & mesoderm patterning, <i>T box</i> genes
Jim Evans, M.D., Ph.D.	Clinical Associate Professor of Genetics	Adult medical genetics, clinical cancer genetics
Marc Heise, Ph.D.	Assistant Professor of Genetics & of Microbiology	Viral pathogenesis, virus-host interactions, genetics of virulence, vaccine development
Beverly Koller, Ph.D.	Associate Professor of Genetics	Mouse models of inflammatory diseases
Ethan Lange, Ph.D.	Assistant Professor of Genetics	Human complex disease models, statistical genetics
Leslie Lange, Ph.D.	Research Assistant Professor of Genetics	Genetics of human complex diseases, chronic inflammation, cardiovascular disease, asthma
Terry Magnuson, Ph.D.	Professor of Genetics	Mammalian genetics, genomics, epigenetics
Karen Mohlke, Ph.D.	Assistant Professor of Genetics	Human complex traits, genetics of type 2 diabetes
Fernando Pardo-Manuel de Villena, Ph.D.	Assistant Professor of Genetics	Non-Mendelian genetics, chromosome segregation
Charles Perou, Ph.D.	Assistant Professor of Genetics (joint recruit with the LCCC)	breast cancer, genomics, microarrays, tumor classification, drug resistance
Larysa Pevny, Ph.D.	Assistant Professor of Genetics (joint recruit with the Neuroscience Center)	Genetics of neural induction, <i>Sox</i> genes, stem cells
Patrick Sullivan, M.D.	Professor of Genetics and of Psychiatry	Complex traits in humans, psychiatric genetics, pharmacogenetics, twin studies, schizophrenia, major depression, nicotine dependence
David Threadgill, Ph.D.	Assistant Professor of Genetics	Disease susceptibility, complex traits/QTLs, gastrointestinal biology, microarrays
Deborah Threadgill, Ph.D.	Research Assistant Professor of Genetics	<i>C. jejuni</i> , glycobiology, genetics of glycosylation
Randy Thresher, Ph.D.	Research Assistant Professor of Genetics	Animal Models Core Facility Director
Terry Van Dyke, Ph.D.	Professor of Genetics	Cancer genetics, molecular carcinogenesis
Kirk Wilhelmsen, M.D., Ph.D.	Associate Professor of Genetics and of Neurology	Genetic mapping of human susceptibility loci for complex traits, cloning of genes responsible for neurodegenerative disorders

## Appendix 3.2

### Department of Genetics Secondary Faculty

Secondary Faculty	Position	Research Area
Art Aylsworth, M.D.	Professor of Pediatrics and of Genetics	Clinical genetics, phenotype deliniation
Kathleen Caron, Ph.D.	Assistant Professor of Physiology and of Genetics	Genetics of reprogduciton, adrenomedullin, RAMPs, mouse models, preeclampsia, hypertension
Rosann Farber, Ph.D.	Professor of Pathology and of Genetics	Human molecular genetics, somatic cell genetics, genetic instability
Anthony, Johnson, D.O.	Professor of Obstetrics & Gynecology and of Genetics	Maternal-Fetal Medicine
Kathy Kaiser-Rogers, Ph.D.	Research Assistant Professor of Pediatrics and of Genetics	Human chromosomal abnormalities
Mark Majesky, Ph.D.	Professor of Medicine and of Genetics	Coronary development, vascular stem cells, angiogenesis
Joe Munzer, M.D.	Associate Professor of Pediatrics and of Genetics	Inborn errors of metabolism
Cindy Powell, M.D.	Associate Professor of Pediatrics and of Genetics	Dysmorphology and birth defects
Kathleen Rao, Ph.D.	Professor of Pediatrics and of Genetics	Clinical cytogenetics
Ned Sharpless, M.D.	Assistant Professor of Medicine and of Genetics	Cancer genetics, tumor suppressor genes, mouse tumor models, cell cycle and senescence

# Genetics Primary Faculty Funding

# Appendix 3.3

				Total	\$18,994,976
Faculty	Agency	Grant Title	Current Year Direct Costs	Total	
<b>Ahmed, S</b>	Gen Med Sciences	Genetics Of Telomerase In C. Elegans	\$168,000	\$242,521	
	Gen Med Sciences	Genetics Of Telomerase In C. Elegans--Mi	\$25,762	\$36,920	
	Ellison Foundation	Germline Immortality In C. Elegans	\$46,296	\$50,000	
<b>Conlon, FL</b>	Heart, Lung & Blood	Requirements For The Fgf/Mark In Early H	\$200,000	\$291,474	
	Heart, Lung & Blood	Subacct:Yvette Langdon--Requirements For	\$19,786	\$28,160	
<b>Heise, MT</b>	National Institute of Arthritis Musculoskeletal Skin Disease	Togavirus Tropism For Bones, Joints, And CNS	\$164,312	\$237,703	
	Duke University	Regional Centers Of Excellence For Biodefense And Emerging Infectious Disease Research (RCE)	\$92,089	\$127,550	
	Duke University	Subacct:Orthopoxvirus P4c & Ati Proteins--Function Of The Orthopoxvirus P4c & Ati Proteins	\$60,590	\$60,590	
	Duke University	Innate Immune Mediators And Select Agents/SUBACCT-ORTHOPXV P4C & ATI	\$83,333	\$121,666	
<b>Koller, BH</b>	Research	Fellow: Subhashini Chandrasekharan/ Role	\$26,383	\$28,493	
	Sandler Prog Asthma	Animal Models For Function! Screening Of	\$250,000	\$250,000	
	Cystic Fibrosis Fdn	Prostaglandins & Leukotrienes In Cf Airw	\$125,000	\$135,000	
	Heart, Lung & Blood	Pge2 In The Pathogenesis Of Allergic	\$250,000	\$363,750	
	Cystic Fibrosis Fdn	Epithelial Function In Cystic Fibrosis--	\$50,940	\$50,940	
	Duke University	Duke- Unc - Stanford Mmdc Unit	\$130,887	\$190,440	
	Heart, Lung & Blood	Vascular Remodeling:The Ductus Arteriosu	\$200,000	\$291,000	
	American Heart Assoc	Fellow:Alysia Kern--Role Of Prostanoids	\$20,000	\$20,000	
	Heart, Lung & Blood	Role Of Onzin, A Defensin Like Molecule,	\$250,000	\$364,307	
	Heart, Lung & Blood	Na-K-Ci Cotransport In Pathogenesis Of A	\$250,000	\$364,307	
<b>Magnuson, T</b>	Child Hlth & Hum Dev	Fellowship: Courtney Giffin	\$48,928	\$48,928	
	Amer Canc Assoc	Flshp:Sundee Kalantry--Mechanisms Of Im	\$42,000	\$42,000	
	Child Hlth & Hum Dev	Albino Deletion Complex & Early Mouse	\$268,239	\$385,189	
	Nat Ctr for Res	A Carolina Center To Characterize &	\$850,000	\$1,241,000	
	INCOME ACCT	Income Account For 5-31955	\$16,956	\$16,956	
	Nat Ctr for Res	(Supplement)	\$55,000	\$77,300	
	Nat Ctr for Res	(Supplement)	\$39,660	\$39,660	
	Nat Ctr for Res	(Supplement)	\$171,821	\$250,000	
	Gen Med Sciences	Fellow:Jennifer Brennan--The Role Of Atr	\$42,976	\$42,976	
	Child Hlth & Hum Dev	Allelic Series Of Genomic Modifications	\$225,000	\$327,375	
	Child Hlth & Hum Dev	Developmental Gene Regulation Through Ch	\$225,000	\$327,375	
	NIMH	Gene-Brain-Behavior Relationships In Aut	\$295,908	\$295,908	
	Child Hlth & Hum Dev	Suz12 Function In Heterochromatin & Muse	\$42,976	\$42,976	
	Whitaker Fdn	Joint Biomedical Engineering Program In	\$449,759	\$491,041	
	Whitaker Fdn	Joint Biomedical Engineering Prog In Fun	\$45,000	\$45,000	
<b>Mohlke, K</b>	Burroughs Welcome F	Career Awards In The Biomedical Sciences	\$386,000	\$386,000	
<b>Pardo Manuel, F</b>	NSF	Career:The Limites Of Mendelian Genetics	\$80,124	\$116,561	
<b>Perou, CM</b>	Washington University @ St. Louis, Mo.	WA#5-Comparison Animal Models Of ER-Negative Breast Cancer W/ Human ER-Negative Brest High Risk Groups: Compare Of Expression Patterns, . . .	\$110,280	\$160,000	
	Washington University @ St. Louis, Mo.	Negative Breast Cancer W/ Human ER-Negative Brest High Risk Groups: Compare Of Expression Patterns, . . .	\$110,280	\$160,000	
	National Cancer Institute	Tumors	\$273,414	\$399,184	
	Becton Dickinson & Co.	Research Agreement With BDT	\$106,164	\$155,000	

# Genetics Primary Faculty Funding

# Appendix 3.3

Pevny, LH	NIMH	The Role Of Sox-B1 Factors In Neural Dev	\$175,000	\$254,625
	C Reeve Paralysis Fd	Characterizing Sox2 Func In Neural Stem	\$54,545	\$60,000
Sullivan, PF	NCI	Genetic & Environmental Determinants of Smoking Cessation--Subcon:Karolinska Inst.	\$924,397	\$924,397
	NCI	Genetic & Environmental Determinants of Smoking Cessation	\$545,500	\$614,365
	Allergy & Infectious Diseases	Microarrays & Proteomics In MZ Twins Discordant For CFS--Subcon:Univ Of So California	\$4,472	\$4,472
	Allergy & Infectious Diseases	Microarrays & Proteomics In MZ Twins Discordant For CFS	\$492,378	\$536,021
	National Institute of Mental Health-NIH	Detecting Susceptibility Loci For Recurrent Depression/SUBCON:QUEENSLAND INSTITUTE	\$90,218	\$90,218
	National Cancer Institute	Genetic & Environmental Determinants Of Smoking Cessation--Subcon:Univ. S California	\$41,923	\$41,923
	National Institute of Mental Health-NIH	Detecting Susceptibility Loci For Recurrent Depression	\$2,105,182	\$4,024,164
	Karolinska Institute	Sweden	\$54,950	\$80,227
	Allergy & Infectious Diseases	Microarrays & Proteomics In MZ Twins Discordant For CFS--Subcon:Karolinska Inst	\$205,449	\$205,449
	National Institute of Mental Health-NIH	Detecting Susceptibility Loci For Recurrent Depression/SUBCON:VIRJI INSTITUTE	\$95,982	\$95,982
Threadgill, DW	NCI	Egf Receptor In Normal And Cancerous Intestinal Biology	\$186,750	\$271,391
	National Institute of Child Health & Human Development	Functional Genomics Of Egf Receptor During Placental Development	\$225,000	\$326,659
	National Institute of Environmental Health Sciences	Molecular Analysis Of Toxicant Induced Colon Cancer	\$22,617	\$22,617
	NCI	Integrative Genetics Of Cancer Susceptibility	\$344,135	\$416,000
	NCI	Integrative Genetics Of Cancer Susceptibility--Subcon: Univ Nebraska	\$131,501	\$131,501
	NCI	Integrative Genetics Of Cancer Susceptibility--Subcon: Univ Tenn Hlth Sci Ctr	\$131,581	\$131,581
Van Dyke, TA	NCI	Tumorigenesis	\$249,946	\$363,671
	Prostate Cancer Foundation	Develop a novel androgen-independent preclinical model for prostate cancer	\$100,000	\$100,000
	NCI	Mouse	\$28,000	\$40,880
	NCI	Astrocytic Cancers: How, When, Where?	\$999,773	\$1,240,466
	NCI	Astrocytic Cancers: How, When, Where?---Subcon:Univ of CA-SF	\$178,329	\$178,329
	NCI	Astrocytic Cancers: How, When, Where?---Subcon:Washington Univ	\$190,254	\$190,254
	Goldhirsh Foundation	Development & Imaging of Preclinical Mouse Models of High Grade Astrocytoma	\$178,078	\$195,885
Wilhelmsen, KC	US Army Medical Research	Novel Techniques for Exploring the Underlying Genetic Mechanisms of Prostate Cancer	\$122,638	\$177,683
	UCSF	Frontotemporal Dementia	\$74,956	\$109,436
	Amyotrophic Lateral	Positional Cloning Of New Locus For Als	\$40,688	\$43,943
TOTALS			\$14,293,105	\$18,994,976

### BIOGRAPHICAL SKETCH

NAME		POSITION TITLE	
Arthur Selden Aylsworth		Professor of Pediatrics and Genetics Chief, Pediatric Div. of Genetics & Metabolism	
EDUCATION/TRAINING <i>(Begin with baccalaureate or other initial professional education, such as nursing, and include postdoctoral training.)</i>			
INSTITUTION AND LOCATION	DEGREE <i>(if applicable)</i>	YEAR(s)	FIELD OF STUDY
Cornell Univ. Coll. of Engineering, Ithaca, NY	B.E.P.	1963	Engineering Physics
Univ. of Pennsylvania Sch. of Med., Philadelphia	M.D.	1967	Medicine
Univ. of Florida Coll. of Med., Gainesville	Residency	1967-69	Pediatrics
Univ. of Florida Coll. of Med., Gainesville	Fellowship	1969-71	Genetics, Endocrinology, & Metabolism

#### A. Positions and Honors

##### Employment History

1971-73 Major, U.S. Air Force Medical Corps; Wilford Hall Medical Center, Lackland AFB, TX  
 1973-75 Instructor, Dept. of Pediatrics, Univ. of North Carolina at Chapel Hill (UNC-CH)  
 1975-80 Assistant Professor, Dept. of Pediatrics, UNC-CH  
 1977-1995 Director, Genetic Counseling Program, UNC-CH  
 1980-93 Associate Professor, Dept. of Pediatrics, UNC-CH  
 1980-2001 Research Scientist, UNC Neuroscience Center (formerly the BDRC & BSRC), UNC-CH  
 1980-2001 Member, UNC Neurodevelopmental Research Center UNC-CH  
 1991-95 Acting Chief, Div. of Genetics and Metabolism, Dept. of Pediatrics, UNC-CH.  
 1995-2004 Chief, Div. of Genetics and Metabolism, Dept. of Pediatrics, UNC-CH.  
 1993- Professor, Dept. of Pediatrics, UNC-CH  
 2001- Research Professor, Dept. of Genetics, UNC-CH] and member UNC Center for Genome Science

##### Awards/Honors

Kenan Leave, 7/1/82-6/30/83, The University of North Carolina  
 Travel Award, American Society of Human Genetics, 7th Int. Congress of Human Genetics, Berlin, Sept., 1986.  
 The National Neurofibromatosis Foundation Recognition Award, 1989.

#### B. Selected Publications

1. Aylsworth, A.S., Taylor, H.A., Stuart, C.M., and Thomas, G.H.: Mannosidosis: Phenotype of a Severely Affected Child and Characterization of alpha-Mannosidase Activity in Cultured Fibroblasts from the Patient and His Parents. Journal of Pediatrics 88:814, 1976
2. Aylsworth AS and Kirkman HN: Genetic Counseling for Autosomal Dominant Disorders with Incomplete Penetrance. Birth Defects Original Article Series 15(5C):25-38, 1979
3. Aylsworth AS, Thomas GH, Hood JL, Malouf N, Libert J: A Severe Infantile Sialidosis: Clinical, Biochemical, and Microscopic Features. J Pediatr 96:662-668, 1980
4. Ozimek CD, Grimson RC, Aylsworth AS: An Epidemiologic Study of Tracheoesophageal Fistula and Esophageal Atresia in North Carolina. Teratology 25:53, 1982
5. Aylsworth AS, Seeds JW, Guilford WB, Burns B, Washburn DB: Prenatal Diagnosis of a Severe Deforming Type of Osteogenesis Imperfecta. Am J Med Genet 19:707-714, 1984
6. Kahler SG, Burns JA, Aylsworth AS: A Mild Autosomal Recessive Form of Osteopetrosis. Am J of Med Genet 17:451-464, 1984
7. Stevenson RE, Kelly JC, Aylsworth AS, Phelan MC: Vascular Basis for Neural Tube Defects. Pediatr 80:102-6, 1987
8. Seizinger BR, Rouleau GA, Ozelius LJ, et al: Genetic Linkage of Von Recklinghausen Neurofibromatosis to the Nerve Growth Factor Receptor Gene. Cell 49:589-594, 1987.
9. Lachiewicz AM, Gullion CM, Spiridigliozzi GA, Aylsworth AS: Declining IQ scores of young males with the fragile X syndrome. Am J Mental Retardation 92:272-278, 1987.
10. Estabrooks, L.L., Rao, K.W., Donahue, R.P., and Aylsworth, A.S.: Holoprosencephaly in an infant with a minute deletion of chromosome 21(q22.3). Am. J. Medical Genetics, 36:306-309, 1990

11. Murayama K, Greenwood RS, Rao KW, Aylsworth AS: Neurological aspects of del(1q) syndrome. Am. J. Medical Genetics, 40:488-492, 1991
12. Aylsworth AS, Lin AE, Friedman PA: Nager acrofacial dysostosis: male-to-male transmission in two families. Am. J. Medical Genetics 41:83-88, 1991
13. Aylsworth AS: Genetic Counseling for Patients with Birth Defects. Pediatr Clin of North America, 39:229-253, 1992
14. Estabrooks LL, Lamb AN, Aylsworth AS, Callanan NP, Rao KW: Molecular characterisation of chromosome 4p deletions resulting in Wolf-Hirschhorn syndrome. J. Med. Genet., 31:103-107, 1994.
15. Albright SG, Lachiewicz AM, Tarleton JC, Rao KW, Schwartz CE, Richie R, Tennison MB, Aylsworth AS: Fragile X phenotype in a patient with a large de novo deletion in Xq27-q28. Am J Med Genet 51:294-297, 1994.
16. Heim RA, Kam-Morgan LNW, Binnie CG, Corns DD, Cayouette MC, Farber RA, Aylsworth AS, Silverman LM, Luce MC: Distribution of thirteen new, truncating mutations in the neurofibromatosis 1 gene. Hum Molec Genet, 4:975-981, 1995.
17. Estabrooks LL, Rao KW, Driscoll DA, Crandall BF, Dean JCS, Ikonen E, Korf B, Aylsworth AS: A preliminary phenotypic map of chromosome 4p16 based on 4p deletions. Am J Med Genet 57(4):581-586, July, 1995.
18. Bellus GA, McIntosh I, Smith EA, Aylsworth AS, Kaitila I, Horton WA, Greenhaw GA, Hecht JT, Francomano CA: A recurrent mutation in the tyrosine kinase domain of fibroblast growth factor receptor 3 causes hypochondroplasia. Nature Genetics 10:357-359, July, 1995.
19. May M, Colleaux L, Murgia A, Aylsworth A, Nussbaum R, Fontes M, Schwartz C: Molecular analysis of four males with MR and deletions of Xq21 places the putative MR region in Xq21.1 between DXS233 and CHM. Human Molecular Genetics, 4:1465-1466, 1995.
20. Aylsworth, A.S.: Genetic Considerations in Craniofacial Birth Defects. Chapter 2 in Principles and Management of Facial Clefting Disorders and Craniosynostosis. W.B. Saunders, Philadelphia, 1996.
21. Bellus GA, McIntosh I, Szabo J, Aylsworth A, Kaitila I, Francomano CA: Hypochondroplasia: molecular analysis of the fibroblast growth factor receptor 3 gene. Annals of the New York Academy of Sciences, 785:182-187, 1996.
22. Vaughn BV, Greenwood RS, Aylsworth AS, Tennison MB: Similarities of EEG and seizures in del(1q) and benign Rolandic epilepsy. Pediatr. Neurol. 15(3):261-264 (1996 Oct)
23. Gladwin A, Donnai D, Metcalfe K, Schrandt-Stumpel C, Brueton L, Verloes A, Aylsworth A, Toriello H, Winter R, Dixon M: Localisation of a gene for oculodentodigital syndrome to human chromosome 6q22-24 Hum Molec Genet, 6:123-127, 1997.
24. Mundlos S, Otto F, Mundlos C, Mulliken JB, Aylsworth AS, Albright S, Lindhout D, Cole WG, Henn W, Knoll JHM, Owen MJ, Zabel BU, Mertelsmann R, Olsen BR: Mutations involving the transcription factor CBFA1 cause cleidocranial dysplasia. Cell, 89(5):773-779, 1997 (May 30).
25. Hansen WF, Bernard LE, Langlois S, Rao KW, Chescheir NC, Aylsworth AS, Smith DI, Robinson WP, Barrett IJ, Kalousek DK: Maternal uniparental disomy of chromosome 2 and confined placental mosaicism for trisomy 2 in a fetus with intrauterine growth restriction, hypospadias and oligohydramnios. Prenatal Diagnosis, 17:443-450, 1997.
26. Gutmann DH, Aylsworth A, Carey J, Korf B, Marks J, Pyeritz R, Rubenstein A, Viskochil D: The diagnostic evaluation and multidisciplinary management of neurofibromatosis 1 and neurofibromatosis 2. JAMA 278:51-7, 1997
27. Scott WK, Gaskell PC, Lennon F, Wolpert CM, Menold MM, Aylsworth AS, Warner C, Farrell CD, Boustany R-MN, Albright SG, Boyd E, Kingston HM, Cumming WJK, Vance JM, Pericak-Vance MA: Locus heterogeneity, anticipation, and reduction of the chromosome 2p minimal candidate region in autosomal dominant familial spastic paraplegia. Neurogenetics, 1(2):95-102, 1997.
28. Gebbia M, Ferrero GB, Pilia G, Aylsworth AS, Penman-Splitt M, Bird LM, Bamforth JS, Burn J, Schlesinger D, Nelson DL, Casey B. X-linked situs abnormalities result from mutations in ZIC3. Nature Genet 17(3):305-309, 1997
29. Reitnauer PJ, Callanan NP, Farber RA, Aylsworth AS: Prenatal exposure to disulfiram implicated in the cause of malformations in discordant monozygotic twins. Teratology, 56(6):358-362, 1997 Dec.
30. Du Y-Z, Dickerson C, Aylsworth AS, Schwartz CE: A silent mutation, C924T (G308G), in the L1CAM gene results in X-linked hydrocephalus (HSAS). J Med Genet, 35:456-462, 1998.
31. Aylsworth AS: Defining Disease Phenotypes. Chapter 3 In Approaches to Gene Mapping in Complex Human Diseases, JL Hains and MA Pericak-Vance eds, Wiley-Liss, Inc., 1998.
32. Quack I, Vonderstrass B, Stock M, Aylsworth AS, Becker A, Brueton L, Lee PJ, Majewski F, Mulliken JB, Suri M, Zenker M, Mundlos S, Otto F: Mutation analysis of core binding factor A1 (CBFA1) in patients with cleidocranial dysplasia. Am J Hum Genet, 65:1268-78, 1999.

33. Ashley-Koch A, Wolpert CM, Menold MM, Zaeem L, Basu S, Donnelly SL, Ravan SA, Powell CM, Qumsiyeh MB, Aylsworth AS, Vance JM, Gilbert JR, Wright HH, Abramson RK, DeLong GR, Cuccaro ML, Pericak-Vance MA: Genetic studies of autistic disorder and chromosome 7. *Genetic Studies of Autistic Disorder and Chromosome 7. Genomics* 61(3)(Nov): 227-236, 1999.
34. Bellus, Gary A, Kelly, Thaddeus E; Aylsworth, Arthur S: (Updated May 26 1999) Hypochondroplasia. In: *GeneClinics: Medical Genetics Knowledge Base*. [online] University of Washington, Seattle. (<http://www.geneclinics.org/profiles/hypochondroplasia>)
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38. Mao R, Aylsworth AS, Potter N, Wilson WG, Breningstall G, Wick MJ, Babovic-Vuksanovic D, Nance M, Patterson MC, Gomez CM, Snow K: Childhood-Onset Ataxia: Testing for Large CAG-Repeats in SCA2 and SCA7. *Am J Med Genet*, 110(4):338-45, 2002 Jul, 2002
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40. de Mollerat XJ, Everman DB, Morgan CT, Clarkson KB, Rogers RC, Colby RS, Aylsworth AS, Graham JM Jr, Stevenson RE, Schwartz CE: P63 Mutations Are Not a Major Cause of Nonsyndromic Split Hand/Foot Malformation. *Journal of Medical Genetics* 40(1): 55-61, 2003 Jan
41. Quigley DI, Kaiser-Rogers K, Aylsworth AS, Rao KW: Submicroscopic Deletion 9(q34.3) and Duplication 19(p13.3): Identified by Subtelomere Specific FISH Probes. *Am J Med Genet* 125A:67-72, Feb 2004
42. Johnston JJ, Olivos-Glander I, Killoran C, Elson E, Turner J, Peters K, Abbott MH, Aughton DJ, Aylsworth AS, et al: Molecular and clinical analyses of Greig cephalopolysyndactyly and Pallister Hall syndromes: Robust phenotype prediction from the type and position of GLI3 mutations. Submitted Dec 2004
43. Aylsworth, AS: Clinical Genetics and Phenotype Definition. Chapter 2 in *Genetic Analysis of Complex Disease*. JL Hains and MA Pericak-Vance eds, Wiley-Liss, Inc. In Press, 2005
44. Aylsworth, A.S.: The Spleen. Chapter 11 in Volume II of *Human Malformations and Related Anomalies*, Oxford Monographs on Medical Genetics, 2<sup>nd</sup> Edition, R.E. Stevenson, J.G. Hall, et al, Eds., Oxford Press, In Press 2005
45. Krantz IA, Sulik KK, Aylsworth AS: Liver, Gallbladder, and Pancreas. Chapter 18 in Volume II of *Human Malformations and Related Anomalies*, Oxford Monographs on Medical Genetics, R.E. Stevenson, J.G. Hall, et al. Eds., Oxford Press, In Press 2005.
46. Aylsworth AS: Mechanisms of Inheritance. Entry in the *Encyclopedia of Genetics, Genomics, Proteomics, and Bioinformatics*, Volume I Genetics, L. B. Jorde, Ed., John Wiley and Sons, In Press 2005

### C. Current Support

- Project Number: 5-46514/0-401-4248. PI: Arthur S. Aylsworth, MD. Title: Medical Genetics Counseling Unit Source: North Carolina Department of Health and Human Services, Division of Public Health, Women's and Childrens Health Section, Children and Youth Branch. Dates: 7/1/2004 - 6/30/2005. Total Amount: \$781,000 Percent Effort and Role: 40%, PI [A project to provide core support for a comprehensive, academic clinical genetics program, including family ascertainment and phenotyping activities that can be used in genetic research]
- Project Number: U50/CCU422096-01. PI: A. Olshan  
Title: North Carolina Center for Birth Defects Research and Prevention  
Source: Centers for Disease Control. Dates: 2002- 2007. Direct Costs: \$850,000 (year 1)  
Percent Effort and Role: 10%, co-investigator



## BIOGRAPHICAL SKETCH

Provide the following information for the key personnel in the order listed for Form Page 2.  
Follow this format for each person. **DO NOT EXCEED FOUR PAGES.**

NAME  <b>Scott Bultman</b>	POSITION TITLE  <b>Research Assistant Professor</b>		
EDUCATION/TRAINING <i>(Begin with baccalaureate or other initial professional education, such as nursing, and include postdoctoral training.)</i>			
INSTITUTION AND LOCATION	DEGREE <i>(if applicable)</i>	YEAR(s)	FIELD OF STUDY
University of Wisconsin—Stevens Point	BS	1988	Biology/Chemistry
Univ. Tennessee-Oak Ridge Biomedical Sciences	PhD	1994	Genetics
Case Western Reserve University	Postdoctoral	1995-2000	Genetics

**NOTE: The Biographical Sketch may not exceed four pages. Items A and B may not exceed two of the four-page limit.**

**A. Positions and Honors.** List in chronological order previous positions, concluding with your present position. List any honors. Include present membership on any Federal Government public advisory committee.

*Positions*

2000-2002      Research Associate, University of North Carolina at Chapel Hill, Department of Genetics  
2002-date      Research Assistant Professor, University of North Carolina at Chapel Hill, Department of Genetics

***Honor and Professional Service***

1997-2000: Postdoctoral Fellowship, American Cancer Society  
1998: Assistant course instructor: Molecular Embryology of the Mouse, Cold Spring Harbor Labs.  
1996: Site visit committee, Center for Biologics Evaluation and Research (FDA)  
1994: Oak Ridge National Laboratory Publication Award  
1993: Chancellor's Award for extraordinary professional promise: University of Tennessee, Knoxville  
Ad hoc referee for *Mammalian Genome, Development, Mechanisms of Development, Genetics, Genesis, Molecular and Cellular Biology, Genome Research, Cancer Research, Molecular Cancer*.  
Professional Societies: AAAS, International Mammalian Genome Society

**B. Selected peer-reviewed publications**

Kennel, S.J., Lee, R., **Bultman, S.J.**, and Kabalka, G. (1990). Rat monoclonal antibody distribution in mice: an epitope inside the lung vascular space mediates very efficient localization. *Nucl. Med. Biol.* 17, 193-200.

Woychik, R.P., Generoso, W.M., Russell, L.B., Cain, K.T., Cacheiro, N.L.A., **Bultman, S.J.**, Selby, P.B., Dickinson, M.E., Hogan, B.L.M., and Rutledge, J.C. (1990). Molecular and genetic characterization of a radiation-induced structural rearrangement in mouse chromosome 2 causing mutations at the limb deformity and agouti loci. *Proc. Natl. Acad. Sci. USA* 87, 2588-2592.

**Bultman, S.J.**, Russell, L.B., Guitierrez-Espeleta, G., and Woychik, R.P. (1991). Molecular characterization of a region of DNA associated with mutations at the agouti locus in the mouse. *Proc. Natl. Acad. Sci. USA* 88, 8062-8066.

**Bultman, S.J.**, Michaud, E.J., and Woychik, R.P. (1992). Molecular characterization of the mouse agouti locus. *Cell* 71, 1195-1204.

Rinchik, E.M., **Bultman, S.J.**, Horsthemke, B., Lee, S.-T., Strunk, K.M., Spritz, R.A., Avidano, K.M., Jong, M.T.C., and Nicholls, R.D. (1993). A gene for the mouse pink-eyed dilution locus and for human type II oculocutaneous albinism. *Nature* 361, 72-76.

Michaud, E.J., **Bultman, S.J.**, Stubbs, L.J., and Woychik, R.P. (1993). The embryonic lethality of homozygous lethal yellow mice ( $A^Y/A^Y$ ) is associated with the disruption of a novel RNA-binding protein. *Genes & Dev.* 7, 1203-1213.

**Bultman, S.J.**, Klebig, M.L., Michaud, E.J., Sweet, H.O., Davisson, M.T., and Woychik, R.P. (1994). Molecular analysis of reverse mutations from nonagouti ( $a$ ) to black-and-tan ( $a^t$ ) and white-bellied agouti ( $A^W$ ) reveals alternative forms of agouti transcripts. *Genes & Dev.* 8, 481-490.

Michaud, E.J., \***Bultman, S.J.**, Klebig, M.L., van Vugt, M.J., Stubbs, L.J., Russell, L.B., and Woychik, R.P. (1994). A molecular model for the genetic and phenotypic characteristics of the lethal yellow ( $A^Y$ ) mutation in the mouse. *Proc. Natl. Acad. Sci. USA* 91, 2562-2566.

Michaud, E.J., van Vugt, M.J., **Bultman, S.J.**, Sweet, H.O., Davisson, M.T., and Woychik, R.P. (1994). Differential expression of a new dominant agouti allele ( $A^{iapv}$ ) is correlated with methylation state and is influenced by parental lineage. *Genes & Dev.* 8, 1463-1472.

Kwon, H., \***Bultman, S.J.**, Loffler, C., Chen, W.J., Furdon, P.J., Powell, J.G., Usala, A.L., Wilkison, W., Hansmann, I., and Woychik, R.P. (1994). Molecular structure and chromosomal mapping of the human homolog of the agouti gene. *Proc. Natl. Acad. Sci. USA* 91, 9760-9764.

Blair, P.J., **Bultman, S.J.**, Haas, J.C., Rouse, B.T., Wilkinson, J.E., and Godfrey, V.L. (1994). CD4<sup>+</sup>8<sup>+</sup> cells are the effector cells in disease pathogenesis in the scurfy ( $sf$ ) mouse. *J. Immunology* 153, 3764-3774.

**Bultman, S.** and Magnuson, T. (2000). Classical Genetics and Gene Targeting. In: *Gene Targeting: A Practical Approach* (ed. A. Joyner), Oxford University Press, NY, pp.255-283.

**Bultman, S.** and Magnuson, T. (2000). Molecular and genetic analysis of the mouse homolog of the *Drosophila* suppressor of position-effect variegation 3-9 gene. *Mammalian Genome* 11, 251-254.

Gebuhr, T.C., **Bultman, S.**, and Magnuson, T. (2000) Pc-G/trx-G and the SWI/SNF connection: developmental gene regulation through chromatin remodeling. *genesis: J. Genet. Dev.* 26, 189-197.

**Bultman, S.**, Green, P., and Magnuson, T. (2000). Genetic modification of mutant receptor phenotypes. In: *Genetic Manipulation of Receptor Expression and Function* (ed. D. Accili), Wiley Interscience, NY, pp. 39-53.

**Bultman, S.J.**, Gebuhr, T.C., Yee, D., Nicholson, J., La Mantia, C., Gilliam, A., Randazzo, F. Metzger, D., Chambon, P., Crabtree, G., and Magnuson, T. (2000). A *Brg1* null mutation in the mouse reveals functional differences among mammalian SWI/SNF complexes. *Molecular Cell* 6, 1287-1295.

Gebuhr, T.C., Kovalev, G.I., **Bultman, S.**, Godfrey, V., Su, L., and Magnuson, T. (2003). The role of *Brg1*, a catalytic subunit of mammalian chromatin remodeling complexes, in T cell development. *J. Exp. Med.* 198, 1937-1949.

**Bultman, S.**, Montgomery, N., and Magunson, T. (2004). Chromatin-modifying factors and transcriptional regulation during development. In: *Handbook of Stem Cells, Volume 1* (eds. J. Thomson, J. Gearhart, B. Hogan, R. McKay, D. Melton, R. Pederson, M. West, and R. Lanza), Academic Press, NY, pp. 63-89.

**Bultman, S.**, Montgomery, N., and Magunson, T. (2004). Epigenetic mechanisms of cellular memory during development. In press.

**Bultman, S.**, Gebuhr, T., Svoboda, P., Schultz, R.M., and Magnuson, T. (2004). Functional interplay between SWI/SNF-related complexes and covalent histone modifications regulates zygotic genome activation in the mouse. Submitted.

**Bultman, S.**, Gebuhr, T., and Magnuson, T. (2004). A *Brg1* mutation that uncouples ATPase activity from chromatin remodeling results in  $\beta$ -globin and erythropoiesis defects. In preparation.

\*, denotes co-first authorship

### Federal Research Grants:

**R01-HD36655**, years 4-9, Bultman, S. co-PI; Magnuson, T. (PI)

Project Dates: 07/01/02 – 06/30/07

Agency: NICHD

Title: Developmental Gene Regulation through Chromatin Remodeling

The major goals of this project are to understand the essential function of the mammalian *Swi/Snf* homologue known as *Brg1*.

**R24 RR019631**, pending, Bultman, S. (PI)

Projected dates: 07/2005 – 07/2008

Agency: NCR

Title: Functional Annotation of the Mouse Genome

The goal of this project is to establish a mutagenesis center by generating an allelic series of ENU-induced mutations in 27 genes in ES cells, evaluating mutations by bioinformatics approaches, and transmitting 81 mutations through the germ line

## BIOGRAPHICAL SKETCH

Provide the following information for the key personnel in the order listed for Form Page 2.  
Follow the sample format on preceding page for each person. **DO NOT EXCEED FOUR PAGES.**

NAME		POSITION TITLE	
Kathleen MI Caron, Ph.D.		Assistant Professor	
EDUCATION/TRAINING <i>(Begin with baccalaureate or other initial professional education, such as nursing, and include postdoctoral training.)</i>			
INSTITUTION AND LOCATION	DEGREE <i>(if applicable)</i>	YEAR(s)	FIELD OF STUDY
Emory University, Atlanta, GA	B.S.	1992	Biology
Emory University, Atlanta, GA	B.A.	1992	Philosophy
Duke University, Durham, NC	Ph.D.	1997	Cell Biology
Univ. of North Carolina-CH, Chapel Hill, NC	Postdoctoral	1997-2003	Genetics of Hypertension

### A. Positions and Honors

#### Professional Experience

Howard Hughes Summer Research Stipend, Duke University, NC (PI Lefkowitz) 1990, 1991  
 Student, Applied Physiology, Finch Univ. of Health Sciences, Chicago, IL 1992-1993  
 Graduate Student, Cell Biology, Duke University, NC (Mentor KL Parker) 1993-1997  
 Postdoctoral Fellow, Pathology, UNC-Chapel Hill, NC(Mentor O Smithies) 1997-2003  
 Assistant Professor, Cell & Molecular Physiology, UNC-Chapel Hill, NC 2003-  
 Joint Appointment, Genetics Department, UNC-Chapel Hill, NC 2003-

#### Awards & Honors

Lecturer at WHO Symposium on Molecular Approaches to Reproductive Health- Oulu, Finland, 1996  
 Keynote Speaker at Sero Symposium on Ovarian Cell Growth, Apoptosis and Cancer- Ontario, 1996  
 Guest Lecturer at Gordon Research Conference on Reproductive Tract Biology, 1998  
 Elected as Department of Pathology & Laboratory Medicine Faculty/Post-doctoral Liaison, 1998  
 NIH Individual National Research Service Award, Postdoctoral Training Fellowship, 1999  
 American Heart Association Postdoctoral Fellowship- Awarded but declined, 2000  
 Poster Presenter at Gordon Research Conference on Reproductive Tract Biology, 2000  
 Recipient of Burroughs Wellcome Fund Career Award in the Biomedical Sciences, 2001  
 Invited Speaker, COE International Symposium, Endogenous Vasodilators- Osaka, Japan 2002  
 Guest Lecturer at Gordon Research Conference on Reproductive Tract Biology, 2002  
 Invited Speaker, Triangle Telemetry User Group; "Telemetry in Mouse Models"- Durham, NC, 2002  
 Invited Speaker, Cell & Molecular Physiology and Genetics Depts., UNC-Chapel Hill, NC, 2003  
 Invited Speaker, Genetics Dept., Duke University Medical Center, Durham, NC, 2003  
 Invited Speaker, Wake Forest University, Winston Salem, NC, 2003  
 Invited Speaker, Triangle Consortium for Reproductive Biology, Durham, NC, 2004

### B. Selected Peer-Reviewed Publications

1. Clark, B.J., Soo, S.-C., **Caron, K.M.**, Ikeda, Y., Parker, K.L., and Stocco, D.M. (1995) Hormonal and developmental regulation of the steroidogenic acute regulatory protein. *Molecular Endocrinology* 9:1346-1355.
2. **Caron, K.M.**, Ikeda, Y., Soo, S.-C., Stocco, D.M., Parker, K.L., and Clark, B.J. (1997) Characterization of the promoter region of the mouse gene encoding the steroidogenic acute regulatory protein. *Molecular Endocrinology* 11:138-147.
3. **Caron, K.M.**, Clark, B.J., Ikeda, Y., and Parker, K.L. (1997) Steroidogenic factor 1 acts at all levels of the reproductive axis. *Steroids* 62:53-56.

Appendix Page

16. **Caron KM**, James LR, Lee G, Kim HS, Smithies O. Lifelong “Genetic Minipumps.” 2004 *Physiol Genomics* Dec. 7, 2004. Epub ahead of print.

## Ongoing

The major goal of this project is to genetically modified mouse strains to elucidate the role of adrenomedullin in the mechanism of intrauterine growth restriction.

The goal of this career award is to elucidate the reproductive and cardiovascular role of adrenomedullin system by generating and characterizing genetically modified mouse models of adrenomedullin, its receptor and associated signaling proteins.

NIH

**Completed**

1 F32 HL10344-01, Caron (PI); (Oliver Smithies- Mentor)

6/1/00 - 8/31/01

NIH/NIHLB Fellowship

The goal of this post-doctoral fellowship was to generate "gene titration" adrenomedullin mouse models and characterize their cardiovascular phenotype.

### BIOGRAPHICAL SKETCH

Provide the following information for the key personnel in the order listed for Form Page 2.  
Follow the sample format for each person. **DO NOT EXCEED FOUR PAGES.**

NAME		POSITION TITLE	
Frank Leo Conlon		Assistant Professor of Genetics	
EDUCATION/TRAINING <i>(Begin with baccalaureate or other initial professional education, such as nursing, and include postdoctoral training.)</i>			
INSTITUTION AND LOCATION	DEGREE <i>(if applicable)</i>	YEAR(s)	FIELD OF STUDY
Nasson College	B.S.	1981	Chemistry
Columbia University	M.A.	1989	Department of Genetics and Development
Columbia University	M.Phil.	1991	Department of Genetics and Development
Columbia University	Ph.D.	1994	Department of Genetics and Development
National Institute for Medical Research, Mill Hill, London, UK	Post-doctoral Fellow	1994-2000	Dr. Jim Smith, Laboratory of
University of North Carolina at Chapel Hill	Assistant Professor	2001-Present	Developmental Biology Department of Genetics

### RESEARCH AND PROFESSIONAL EXPERIENCE

2003-Present	American Heart Association, Mid-Atlantic Affiliate, Permanent Member, Study Section
2003-Present	NIH/NICH Xenopus tropicalis Mutagenesis Group
1992	Assistant Instructor Molecular Biology of the Mouse Summer Course Cold Spring Harbor
1991	Assistant Instructor Molecular Biology of the Mouse Summer Course Cold Spring Harbor
1987-1988	Research Staff Associate Dr. Richard Axel Columbia Cancer Institute Columbia University
1982-1986	Research Chemist Pregnancy & Fertility Group Becton Dickinson Immunodiagnostics Orangeburg, N

### PUBLICATIONS

**Conlon, F. L.**, Barth, K.S., and Robertson, E. J. (1991) A novel retrovirally induced embryonic lethal mutation in the mouse: Assessment of the developmental fate of embryonic stem cells homozygous for the 413.d proviral integration. Development 111: 969-981.

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- Robertson, E. J., **Conlon, F. L.**, Barth, K. S., Costantini, F., and Lee, J. (1992) Use of embryonic stem cells to study recessive lethal mutations in the mouse. *In* Post-implantation development in the mouse. CIBA Foundation Symposium 165, pp 237-250. J. Marsh, editor. John Wiley and Sons, Ltd.
- Conlon, F. L.**, Lyons, K. M., Takaesu, N., Barth, K. S., Kispert, A., Herrmann, B., and Robertson, E.J. (1994) A primary requirement for nodal in the formation and maintenance of the primitive streak in the mouse. *Development* 120: 1919-1928.
- Ruiz, J. C., **Conlon, F. L.**, and Robertson, E. J. (1994) Identification of a novel protein kinase expressed in the myocardium of the developing heart. *Mechanisms of Development* 48: 153-164.
- Conlon, F. L.**, Wright, C. V. E., and Robertson, E. J. (1995) Effects of the *Twis* mutation on notochord formation and mesodermal patterning. *Mechanisms of Development* 49: 201-209.
- Conlon, F. L.** and Beddington, R. (1995) Mouse gastrulation from a frog's perspective. *Seminars in Developmental Biology* 6: 249-256.
- Morgan, B. A., **Conlon, F. L.**, Manzanares, M., Millar, J. B. A., Krumlauf, R., Smith, J. C., and Sedgwick, S. (1996) Transposon tools for recombinant DNA manipulation: Characterization of transcriptional regulation from yeast, *Xenopus*, and mouse. *Proceedings of the National Academy of Science USA* 93: 2801-2806.
- Conlon, F. L.**, Jones, C. M., and Smith, J.C. (1996) From mouse to frogs: identification and functional analysis of genes required for formation and patterning of the mesoderm. *Seminars in Cell and Developmental Biology* 7: 95-101.
- Conlon, F. L.**, Sedgwick, S., Weston, K., and Smith, J.C. (1996) Inhibition of *Xbra* transcriptional activation causes defects in mesodermal patterning and reveals autoregulation in dorsal mesoderm. *Development* 122: 2427-2435.
- Smith, J. C., Armes, N. A., **Conlon, F. L.**, Tada, M., Umbhauer, K. M., and Weston, K. (1997) Upstream and downstream of *Brachyury*, a gene required for vertebrate mesoderm formation. *Cold Spring Harbor Symposium of Quantitative Biology* 62: 337-346.
- Casey, E., O'Reilly, M-A., **Conlon, F. L.**, and Smith, J.C. (1998) The T-box transcription factor *Brachyury* regulates expression of *eFGF* through binding to a non-palindromic response element. *Development* 125: 3887-3894.
- Conlon, F. L.** and Smith, J.C. (1999) Interference with *brachyury* function inhibits convergent extension, causes apoptosis, and reveals separate requirements in the FGF and activin signalling pathways. *Developmental Biology* 213: 85-100.
- Sparrow, D. B. and **Conlon, F. L.** (2000) Library construction and screening: Libraries for isolating interacting proteins. *In* Multimedia methods in molecular biology. Partridge, T., Jones, P. and Rickwood, D., editors. Chapman & Hall/CRC Press.
- Conlon, F.L.** and Kessler, D.S. (2000) Hopping into the new millennium. *TIGS* 16, 537-540.
- Conlon, F. L.**, Casey, E., Price, B., and Smith, J.C. (2001) Transcriptional specificity of the T-box Proteins. *Development* 128(19): 3749-5
- Wilson, V. and **Conlon, F.L.** (2001) The Tbox Genes, *Genome Biology* 2002:3(6): Reviews 3008.
- Moser, M., Binder, O., Wu, Y., Aitsebaomo, Bode, C., Bautch, V., **Conlon, F. L.**, Patterson, C. (2003) *BMPER*, a novel endothelial cell precursor-derived protein, antagonizes BMP signaling and endothelial differentiation. *Mol Cell Biol.* 2003 Aug;23(16):5664-79.
- Brown, D.D., Binder, O., Parr, B., **Conlon, F.L.** (2003) Developmental expression of the *Xenopus Tbx20* Orthologue. *Dev Genes Evol.* 212 (12):604-607
- Showell, C., and Binder, O. and **Conlon, F.L.** (2004) T-box genes and early mesodermal patterning. *Dev. Dyn* 229 (1); 201-218.
- Brown, D. D., Martz, S. N., Binder, O., Goetz, S., Price, B. M. J., Smith, J. C., and **Conlon, F. L.** (2004) *Tbx5* and *Tbx20* act synergistically to control heart morphogenesis. *Development* (In Press).

**Ongoing Research Support**

R01 HL75256-01 Conlon (PI)

12/01/03 - 11/30/08

NIH/NHLBI

Requirements for the FGF/MAPK pathway in early heart

Total \$1,000,000



The Major goals of this grant are to determine the association between MAP/FGF, SHP-2, and TBX5 in early tissue patterning and human disease.

**Completed Support and Awards**

Scientist Development Grant, 0265382U, (PI F. Conlon)

Mid-Atlantic Affiliate, American Heart Association

Tbx5 Specificity and its Role in Heart Development

Total: \$132,000. Principle Investigator

University of North Carolina, Junior Faculty development Award 2003, \$5,000

University of North Carolina, Medical Alumni Award 2003, \$5,000

**'BIOGRAPHICAL SKETCH**

Give the following information for the key personnel and consultants and collaborators. Begin with the principal investigator/program director. Photocopy this page for each person.

NAME James P. Evans	POSITION TITLE Associate Professor, Medicine at University of North Carolina School of Medicine. Divisions of General Medicine and Hematology and Oncology. Director, Cancer Genetics Services		
EDUCATION <i>(Begin with baccalaureate or other initial professional education, such as nursing, and include postdoctoral training.)</i>			
INSTITUTION AND LOCATION	DEGREE	YEAR CONFERRED	FIELD OF STUDY
University of Kansas, Lawrence, Kansas	B.S.	1979	Chemistry
University of Kansas Medical Center Grad School	Ph.D	1983	Pathology/Oncology
University of Kansas Medical Center, School of Medicine	M.D.	1984	School of Medicine

RESEARCH AND PROFESSIONAL EXPERIENCE: Concluding with present position, list, in chronological order, previous employment, experience, and honors. Key personnel include the principal investigator and any other individuals who participate in the scientific development or execution of the project. Key personnel typically include all individuals with doctoral or other professional degrees, but in some projects will include individuals at the masters or baccalaureate level provided they contribute in a substantive way to the scientific development or execution of the project. Include present membership on any Federal Government public advisory committee. List, in chronological order, the titles, all authors, and complete references to all publications during the past three years and to representative earlier publications pertinent to this application. DO NOT EXCEED TWO PAGES.

**PROFESSIONAL EXPERIENCE**

1984-1985	Intern in Internal Medicine, North Carolina Memorial Hospital/University of North Carolina, <i>Chapel Hill, North Carolina 27514.</i>
1985-1987	Junior and Senior Assistant Resident, North Carolina Memorial Hospital/University of North Carolina, <i>Chapel Hill, North Carolina 27514.</i>
1987-1988	Chief Resident in Internal Medicine at the University of North Carolina at Chapel Hill, North Carolina Memorial Hospital, <i>North Carolina 27514.</i>
1988-1989	Hematology fellow, University of North Carolina, <i>Chapel Hill, North Carolina 27514.</i>
1989-1991	Fellow in Medical Genetics, University of Washington, <i>Seattle, Washington 98195.</i>
1991-1992	Acting Assistant Professor, University of Washington, <i>Seattle, Washington 98195.</i>
1992-1994	Investigator, Lucille P. Markey Molecular Medicine Center.
1992-1994	Assistant Professor, Division of Medical Genetics, Department of Medicine, University of Washington, <i>Seattle, Washington 98195.</i>
1994-1995	Assistant Professor and Chief, Division of Medical Genetics, Department of Medicine, University of North Carolina, <i>Chapel Hill, North Carolina 27599.</i>
1994-1995	Member, Lineberger Comprehensive Cancer Center and Program for Molecular Biology and Biology and Biotechnology, University of North Carolina at Chapel Hill.
1995-1997	Physician, Internal Medicine. The Carolina Permanente Medical Group.
1997-Present	Associate Professor of Genetics and Medicine at University of North Carolina School of Medicine. Departments of Genetics and Medicine; Divisions of General Medicine and Hematology and Oncology. Director, Cancer Genetics Services Director, Bryson Program on Human Genetics

**Professional Societies**

National Society of Genetic Counselors  
 American Society of Human Genetics  
 Lineberger Comprehensive Cancer Center (associate member)  
 NC Medical Genetics Association

**Current Funding**

Principle Investigator for UNC component of "Cancer Genetics Network"; NCI funded, 10% effort

PUBLICATIONS

## Articles

Publications:

1. Plapp FV, Kowalski MM, Tilzer LL, Brown PJ, **Evans J**, and Chiga M. Partial purification and Rh (D) antigens from Rh positive and negative erythrocytes. *Proc. Natl. Acad. Sci. USA.* 76:2964-2968, 1979.
2. Plapp FV, Kowalski MM, **Evans J**, Tilzer LL, and Chiga M. The role of membrane phospholipid in expression of erythrocyte Rh (D) antigen activity. *Proc. Soc. Exp. Biol. Med.* 164:561-568, 1980.
3. Plapp FV, **Evans JP**, Tilzer LL. Detection of Rh (D) antigen on the inner surface of Rh negative erythrocyte membranes. *Fed Proc.* 40:208, 1981.
4. Tilzer LL, Plapp FV, **Evans JP**, and Chiga M. Different ionic forms of estrogen receptor in rat uterus and human breast carcinoma. *Cancer Research.* 41:1058-1063, 1981.
5. Tilzer LL, Plapp FV, **Evans JP**. Steroid receptor proteins in human meningiomas. *Cancer.* 49:633-636, 1982.
6. **Evans JP**, Brown PJ, Sinor LT, Tilzer LL, and Plapp FV. Identification of Rh (D) antigen in polyacrylamide gels by an enzyme linked immunoassay. *Molecular Immunology.* 19(5): 671-675, 1982.
7. Brown PJ, **Evans JP**, Sinor LT, Tilzer LL, and Plapp FV. The rhesus D antigen is a dicyclohexylcarbodiimide binding proteolipid. *Am. J. Pathol.* 110(2): 127-134, 1983.
8. **Evans JP**, Brown PJ, Sinor LT, Beek MLO, and Plapp FV. Detection of a protein on the inner surface of Rh negative erythrocytes which binds anti-D IgG. *Molecular Immunology.* 20(5):529-536, 1983.
9. Sinor LP, Brown PJ, **Evans JP**, and Plapp LV. The Rh antigen specificity of erythrocyte proteolipid. *Transfusion.* 24(2): 179-180, 1984.
10. **Evans JP**, Watzke HW, Ware JL, Stafford DW, High KA. Molecular cloning of a cDNA encoding canine factor IX. *Blood.* 74:207-212, 1989.
11. **Evans JP**, Brinkhous KM, Reisner H, Brayer GD, and High KA. A point mutation in canine hemophilia B with unusual consequences. *Proc. Natl. Acad. Sci. USA.* 86:10095-10099, 1989.
12. **Evans JP**, and Palmiter RD. Retrotransposition of a mouse L1 element. *Proc. Natl. Acad. Sci. USA.* 88:8792, 1991.
13. Scherer SW, Poorkaj P, Allen T, Kim J, Geshuri D, Nunes M, Soder S, Stevens K, Pagon RA, Patton MA, Berg MA, Donlon T, Rivera H, Pfeiffer RA, Naritomi K, Hughes H, Genuardi M, Gurrieri F, Neri G, Lovrein E, Magenis E, Tsui L-C, and **Evans JP**. Fine mapping of the Autosomal dominant split hand/split foot locus on chromosome 7, band q21.3-a22. *American Journal of Human Genetics.* 55:12-20, 1994.
14. Palmer SE, Scherer S, Kukolich M, Wijsman EM, Tsui L-C, Stephens K, and **Evans JP**. Evidence for locus heterogeneity in autosomal dominant split hand/split foot malformation. *American Journal of Human Genetics.* 55:21-26, 1994.
15. Scherer S, Poorkaj P, Geshuri D, Nunes M, Genuardi M, Tsui L-C, and **Evans JP**. Physical mapping of the human split hand/ split foot (SHSF) locus on chromosomes 7 reveals a relationship between SPSF and the syndromic ectrodactylies. *Human Molecular Genetics.* 3:1345-1354, 1994.
16. Nunes M, Pagon R, Distèche CJ, and **Evans JP**. A contiguous gene deletion syndrome at human 7q21-q22 and implications for the relationship between isolated ectrodactyly and syndromic ectrodactyly. *Clinical Dysmorphology.* 3:277-286, 1994.
17. Jarvik GP, Patton MA, Homfray T, and **Evans JP**. Segregation distortion in a human developmental disorder: split hand/ split foot malformation. *Am. J. Hum. Genet.* 55:710-713, 1994.

18. Marinoni JC, Stevenson RE, **Evans JP**, Geshuri D, Phelan MC, Shewartz CE. Split foot and developmental retardation associated with a deletion of three microsatellite makers in 7q21-q22.1. *Clinical Genetics*. 47:90-95, 1995.
19. Steiner RD, **Evans JP**, Uemichi T, Paunio T, and Benson MD. Familial amyloidosis, Finish type, in three generations of a Swedish-American family is caused by asparaginase substitution for aspartic acid at gelson residue 187. *Human Genetics*. 95:327-330, 1995.
20. **Evans JP**, Burke W, Chen R, Bennett R, Schmidt R, Dellinger EP, Kimmey M, Crispin D, Brentnall TA, and Byrd DA. Familial pancreatic adenocarcinoma: association with diabetics and exocrine insufficiency and early molecular diagnosis. *Journal of Medical Genetics*. 32:330-335, 1995.
21. Crackower MA, Scherer SW, Rommens JM, Hui CC, Poorkaj P, Soder S, Cobben JM, Hudgins L, **Evans JP**, Tsui LC. Characterization of the split hand/split foot malformation locus SHFM1 at 7q21.3-q22.1 and analysis of a candidate gene for its expression during limb development. *Human Molecular Genetics*. 5(5): 571-9, 1996 May.
22. Nunes ME, Schutt G, Kapur RP, Luthardt F, Kukolich M, Byers P, **Evans JP**. A second autosomal split hand/split foot locus maps to chromosome 10q24-q25. *Human Molecular Genetics*. 4(11): 2165-70, 1995 Nov.
23. Scherer SW, Heng HH, Robinson GW, Mahon KA, **Evans JP**, Tsui LC. Assignment of the human homolog of mouse D1x3 to chromosome 17q21.3-q22 by analysis of somatic cells hybrids and fluorescence in situ hybridization. *Mammalian Genome*. 6(4):310-1, 1995 Apr.
24. Brentnall TA, Rubin CE, Crispin DA, Stevens A, Batchelor RH, Haggitt RC, Bronner MP, **Evans JP**, McCahill LE, Bilir N, et al. A germline substitution in the human MSH2 gene is associated with high-grade dysplasia and cancer in ulcerative colitis. *Gastroenterology*. 109(1):151-5, 1995 Jul.
25. **Evans JP**. Genomics: Delayed Reaction. *Hospitals and Health Networks*, 74 (12):42-44. 2000
26. Hadler N & **Evans JP**. Medicalization of the Genome. *Commentary in Current Anthropology*, 42(2):252-253. 2001
27. **Evans JP**, Skrzynia C, Burke W. The complexities of predictive genetic testing. *British Medical Journal*. 322: 1052-1056. 2001
28. Finkler K, Skrzynia C, **Evans JP**. The New Genetics and its Consequences for Family, Kinship, Medicine, and The New Genetics. *Social Science and Medicine* 2003 Aug; 57(3):403-12
29. Burke W, Acheson L, Botkin J, Bridges K, Davis A, **Evans JP** et al. Genetics in Primary Care: A USA Faculty Development Initiative. *Community Genetics* 5:138-146. 2002
30. McKelvey K and **Evans JP**. Cancer Genetics in the Primary Care Setting. *J. of Nutrition*. 133:3767S-3772S. 2003
31. Moorman P, Calingaert B, **Evans JP**, Hoyo C, Newman B, Skinner C, Sorenson J, Schildkraut J. Racial Differences in Enrollment in a Cancer Genetics Registry; *Cancer Epidemiology, Biomarkers and Prevention*; 13(8): 1349-1354. 2004.

# **Abstracts:**

1. Plapp FV, **Evans JP**, and Tilzer LL. Detection of Rh (D) antigen on the inner surface of Rh negative erythrocyte membranes. *Fed Proc*. 39:547, 1980.
2. Plapp FV, **Evans JP**, Tilzer LL, and Chiga M. Quantification of Rh (D) antigen on the inner and outer membrane surfaces of Rh positive and negative erythrocytes. 16th Congress of the International Society of Blood Transfusion, August, 1980.
3. **Evans JP**, Plapp FV, Tilzer LL, Beck M, and Chiga M. Rd (D) and LW antigen content of Rh erythrocytes. *Transfusion*. 20:618, 1980.
4. Stone DL, Tilzer LL, Plapp FV, **Evans JP**, and Chiga M. Steroid receptor proteins in human meningiomas. *Fed. Proc*. 40:787, 1981.
5. Sinor LT, **Evans JP**, Brown PJ, Tilzer LL, and Plapp FV. Detection of Rh (D) antigen in polyacrylamide gels by an enzyme linked antiglobulin technique. *Fed. Pro*. 40:825, 1981.

6. Plapp FV, Brown PJ, Sinor LT, **Evans JP**, and Tilzer LL. The Rh (D) antigen is a dicyclohexylcarbodiimide binding protein. *Transfusion*. 21:601, 1981.
7. **Evans JP**, Brown PJ, Sinor LT, Tilzer LL, and Plapp FV. The interaction of the Rh (D) and rh (E) antigens. *Transfusions* 21:629, 1981.
8. Sinor LT, **Evans JP**, Tilzer LL, and Plapp FV. Increased Ca<sup>++</sup> influx and osmotic fragility in RBCs treated with anti-Rh (D) IgG. *Fed Proc.* 41:939, 1982.
9. Sinor FV, **Evans JP**, Brown PJ, Sinor LT, and Tilzer LL. The Rh (D) antigen is a proteolipid. *Fed Proc.* 41:959, 1982.
10. **Evans JP**, Brown PJ, Sinor LT, and Plapp FV. Detection of a protein on the inner surface of Rh negative erythrocytes which binds anti-D IgG. *Transfusion*. 22(5):426, 1982.
11. Sinor LT, **Evans JP**, Brown PJ, and Plapp FV. Further evidence of an anti-D binding protein of the inner membrane surface of Rh negative RBCs. *Transfusion*. 22(5):426, 1982.
12. High KA, **Evans JP**, Ware JL, Stafford DW, and Roberts HR. Hemophilia B in canines is due to a post-transcriptional defect. *Thrombosis and Hemostasis*. 58(1):337, 1987.
13. Watzke HH, **Evans JP**, Roberts HR, Stafford DW, and High KA. Molecular cloning of a full length cDNA for canine F.IX. *Clinical Research*. 36:412A, 19988.
14. **Evans JP**, Brinkhous KM, Brayer GD, High KA. Characterization for the molecular defect in canine Hemophilia B. XIIth Congree of the International Society on Thrombosis and Hemostasis, Tokyo, Japan, August 19-25, 1989.
15. **Evans JP**, Palmiter RD. Characterization of the mouse L1 promoter. *American Journal of Human Genetics*. 47(3):A432, 1990.
16. Burke W, Bennet RL, Schmidt R, Delinger P, **Evans JP**. Autosomal dominant transmission of pancreatic cancer with diabetes and exocrine insufficiency in a large kindred. *American Journal of Human Genetics*. 51(4):A191,1990.
17. **Evans JP**, Brinster R, Harendza C, Palmiter RD. Control of mouse L1 expression during malignant transformation and cellular differentiation. *American Journal of Human Genetics*. 51(4):A199, 1990.
18. Brentnall T, Crispin D, Byrd D, Kimmey M, Haggitt R, Rabinovitch P, Burke W, **Evans J**, Burner G. K-ras mutations detected in pancreatic fluid not diagnosed by conventional methods. *Gastroenterology*. 104:A296, 1993.
19. **Evans JP**, Patton MA, Homfray T, and Jarvik G. Demonstration of segregation distortion in a human disorder: analysis of split hand/split foot malformation. *American Journal of Human Genetics*. 105:A342, 1994.
20. Rohlfes EM, Skrzynia C, **Evans JP**, Yang Q, Booker JK, Silverman LM, Graham ML. Characteristics of a breast cancer clinic population tested for mutations in BRCA1/2. In press.
21. Skrzynia C, Graham M, Rohlfes EM, Silverman LM, Evans JP. Prophylactic Surgery to Reduce Cancer Risk: Attitudes Before and After the Availability of Genetic Testing. In press. *Am J. Human Genetics*
22. Evans JP, Graham M, Rohlfes EM, Silverman L, Skrzynia C. Four Years of Experience in a High-Risk Cancer Genetics Clinic: Lessons Learned. In press, *Am J. Human Genetics*

#### **Selected Invited Lectures and Appointments**

1. Molecular Genetics in Clinical Medicine, North Carolina Medical Society, *Sea Island, Georgia*, 10/88.
2. Split Hand/Split Foot malformation: Genetic and molecular aspects. Genetic Grand Rounds, Hospital for Sick Children, University of Toronto, *Toronto, Canada*, 1/27/93.
3. Progress toward cloning the split hand/ split foot gene. Genetics Research Seminar, Hospital for Sick Children University of Toronto, *Toronto, Canada*, 1/27/93.
4. Progress toward cloning the split hand/split foot gene, Grand Rounds, McMaster University, *Hamilton, Ontario, Canada*, 1/28/93.

5. The use of positional cloning techniques to isolate human development genes. *Maarburg, Germany*, 5/20/93.
6. The Genetics of Cancer. Medical Grand Rounds, University of Washington, 4/15/93.
7. A positional cloning approach to the isolation of human developmental genes. The University of North Carolina, *Chapel Hill, North Carolina*, 7/14/93.
8. Chair of session at The American Society of Human Genetics: "Gene Regulation"
9. Progress toward isolation the split hand/ split foot gene. Duke University Medical Center, *Durham, North Carolina*, 12/23/93.
10. A Positional Cloning approach to the isolation of genes involved in pattern formation in the human embryo. National Teratology Society, *Puerto Rico*, 6/26/94 to 7/1/94.
11. Member, NIH consensus committee on genetic testing for cystic fibrosis. April, 1997
12. What's a Mother To Do? Ethical dilemmas in genetic testing, assisted reproduction, and human cloning. Given to the NC Society for Ethical Culture, March, 1999.
13. Thomas Jefferson, Sally Hemmings, Sex, and the Presidency. Invited UNC Faculty Seminar, April 1999
14. How do we teach primary care doctors about genetics? Meeting of the Association of Family Practice Physicians and The Council on Genetics and Primary Care. Bethesda, September 1999.
15. The Spectrum of Utility in Genetic Testing. Meeting of the Association of Family Practice Physicians and The Council on Genetics and Primary Care. Chicago, 2000.
16. Genetics and Free Will. Adventures in Ideas, UNC Humanities Seminar, February 2001
17. Genetics in Primary Care and Human Genome Update, Society of US Air Force Physicians, Buloxi, Mississippi, March, 2001
18. 1<sup>st</sup> Annual International forum on Science and the Law; Honolulu, Hawaii, June 2001
19. The Genetics Revolution: Copernicus or Gutenberg?; Center for Health Ethics and Policy & Merrimon Lectureship; March 2002
20. 2nd Annual International Forum on Science and the Law, Ottawa, Canada; June 2002
21. Visiting Professorship; University of Hawaii; February 2003
22. Chief US Scientist; Genetics in the Courtroom, sponsored and hosted by the Federal Court of Australia; Septemeber, 2003
23. United Nations Global Forum Planning Conference; Missouri Botanical Gardens; October 2003
24. United Nations Conference on Global Biotechnology, Concepción, Chile; March 2004
25. From Gucci to Walmart; The Changing Landscape of Genetics in Medicine; UNC Genetics Symposium; December 2004

#### **Invited Book Reviews**

Book Review, 1994. Dealing with Genes: The Language of Heredity by Paul Berg and Maxine Singer. *American Journal of Human Genetics*. 55:595.

#### **Special International Activities**

Senior Fellow for the Einstein Institute for Science, Health, and the Courts. Senior faculty member and organizer of forums to teach high court judges about genetics and its broad impact on society. Such forums are international in scope and include the education of supreme court justices from numerous nations.

Organizer and faculty participant for a United Nations conference including delegates from 81 nations held in Concepción, Chile, in March of 2004 which addressed global disparities in the use of biotechnology.

### BIOGRAPHICAL SKETCH

Provide the following information for the key personnel in the order listed on Form Page 2.  
Follow this format for each person. **DO NOT EXCEED FOUR PAGES.**

NAME Rosann A. Farber	POSITION TITLE Professor
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EDUCATION/TRAINING <i>(Begin with baccalaureate or other initial professional education, such as nursing, and include postdoctoral training.)</i>			
INSTITUTION AND LOCATION	DEGREE <i>(if applicable)</i>	YEAR(s)	FIELD OF STUDY
Oberlin College, Oberlin, OH	A.B.	1966	Biology
University of Washington, Seattle, WA	Ph.D.	1973	Genetics
Natl Institute for Med. Res., Mill Hill, London, UK	post-doc	1973-75	Genetics
Children's Hospital Medical Center, Boston, MA	post-doc	1975-77	Human Genetics

#### Professional Experience:

1977-84     Assistant Professor, Department of Microbiology, Committee on Genetics, and the College, The University of Chicago.

1983        Visiting Scholar, Howard Hughes Medical Institute, University of Utah School of Medicine, Salt Lake City, Utah.

1984-87     Associate Professor, Department of Molecular Genetics and Cell Biology, Department of Obstetrics and Gynecology, Committee on Genetics, and the College, The University of Chicago.

1987-88     Associate Professor, Department of Obstetrics and Gynecology, Committee on Genetics, and the College, The Univ. of Chicago.

1988-96     Associate Professor, Department of Pathology and Laboratory Medicine, Curriculum in Genetics and Molecular Biology, and Program in Molecular Biology and Biotechnology, University of North Carolina at Chapel Hill

1988-pres.   Assistant Director, Molecular Pathology Laboratory, Department of Hospital Laboratories, UNC Hospitals

1996-pres.   Member, UNC Lineberger Comprehensive Cancer Center

2001-pres.   Professor, Department of Genetics, UNC-CH

2002-        Director, Clinical Molecular Genetics Training Program, UNC-CH

1997-pres.   Professor, Department of Pathology and Laboratory Medicine (primary), Curriculum in Genetics and Molecular Biology, and Program in Molecular Biology and Biotechnology, University of North Carolina at Chapel Hill

1985-89     Member, N.I.H. Mammalian Genetics Study Section.

1987-        American Board of Medical Genetics, Diplomate in Clinical Cytogenetics

1993-2005   American Board of Medical Genetics, Diplomate in Clinical Molecular Genetics

#### Honors and Awards:

1973-75     Jane Coffin Childs Postdoctoral Fellow

1981-86     N.I.H. Research Career Development Award

#### Selected Publications:

Neuman, W.L., Rubin, C.M., Rios, R.B., Larson, R., Le Beau, M.M., Rowley, J.D., Vardiman, J.W., Schwartz, J.L., and Farber, R.A., Chromosomal loss and deletion are the most common mechanisms for loss of heterozygosity from chromosomes 5 and 7 in malignant myeloid disorders, *Blood* **79**:1501-1510 (1992).

Tazelaar, J., Friedman, K.J., Kline, R., Guthrie, M., and Farber, R.A., Detection of alpha<sub>1</sub>-antitrypsin Z and S mutations by polymerase chain reaction-mediated site-directed mutagenesis, *Clinical Chemistry* **38**:1486-1488 (1992).

- Shroeder, R.E., Johnson, F.L., Silberstein, M., Neuman, W.L., Hoag, J.M., Farber, R.A., and Noguchi, A., Longitudinal follow-up of malignant osteopetrosis by skeletal radiographs and restriction fragment length polymorphism analysis after bone marrow transplantation, *Pediatrics* 90:986-989 (1992).
- Garrett, P., Hulka, B., Kim, Y., and Farber, R., HRAS proto-oncogene polymorphism and breast cancer, *Cancer Epidemiology, Biomarkers, and Prevention* 2:131-138 (1993).
- Farber, R.A., Petes, T.D., Dominska, M., Hudgens, S.S., and Liskay, R.M., Instability of simple sequence repeats in a mammalian cell line, *Hum. Molec. Genet.* 3:253-256 (1994).
- Heim, R.A., Silverman, L.M., Farber, R.A., Kam-Morgan, L.N.W., and Luce, M.C., NF1 mutations detected by screening for truncated proteins, *Nature Genet.* 8:218-219 (1994).
- King, S. A., Wilson, S.J., Farber, R.A., Kaufmann, W.K., and Cordeiro-Stone, M., Xeroderma pigmentosum variant: Generation and characterization of fibroblastic cell lines for the study of the molecular defect underlying this genetic disease, *Exptl. Cell Res.* 217:100-108 (1995).
- Heim, R.A., Kam-Morgan, L.N.W., Binnie, C.G., Corns, D.D., Cayouette, M.C., Farber, R.A., Aylsworth, A.S., Silverman, L.M., and Luce, M.C., Identification of thirteen new, truncating mutations in the neurofibromatosis 1 gene, *Hum. Molec. Genet.* 4:975-981 (1995).
- Riedinger, K.L., Hanford, M.G., and Farber, R.A., Induction of frameshift mutations in cultured mammalian cells within a transfected sequence containing a poly(dC-dA)·poly(dT-dG) microsatellite, *Env. Molec. Mutagenesis* 28:276-283 (1996).
- Reitnauer, P.J., Callanan, N.P., Farber, R.A., and Aylsworth, A.S., Prenatal exposure to disulfiram implicated in the cause of malformations in discordant monozygotic twins, *Teratology* 56:358-362 (1997).
- Hanford, M.G., Rushton, B.C., Gowen, L.C., and Farber, R.A., Microsatellite mutation rates in cancer cell lines deficient or proficient in mismatch repair, *Oncogene* 16:2389-2393 (1998).
- Boyer, J.C., Risinger, J.I., and Farber, R.A., Stability of microsatellites in myeloid neoplasias, *Cytogenet. Cell Genet.* 106:54-61 (1998).
- Boyer, J.C., and Farber, R.A., Mutation rate of a microsatellite sequence in normal human fibroblasts, *Cancer Res.* 58:3946-3949 (1998).
- Twerdi, C.D., Boyer, J.C., and Farber, R.A., Relative rates of insertion and deletion mutations in a microsatellite sequence in cultured cells, *Proc. Natl. Acad. Sci. USA* 96:2875-2879 (1999).
- Lee, J.S., Hanford, M.G., Genova, J.L., and Farber, R.A., Relative stabilities of dinucleotide and tetranucleotide repeats in cultured mammalian cells, *Hum. Molec. Genet.* 8:2567-2572 (1999).
- Roques, C.N., Boyer, J.C., and Farber, R.A., Microsatellite mutation rates are equivalent in normal and telomerase-immortalized human fibroblasts, *Cancer Res.* 61:8405-8407 (2001).
- Yamada, N.A., Smith, G.A., Castro, A., Roques, C.N., Boyer, J.C., and Farber, R.A., Relative rates of insertion and deletion mutations in dinucleotide repeats of various lengths in mismatch repair proficient mouse and mismatch repair deficient human cells, *Mutation Res.* 499:213-225 (2002).
- Boyer, J.C., Yamada, N.A., Roques, C.N., Hatch, S.B., Riess, K., and Farber, R.A., Sequence dependent instability of mononucleotide microsatellites in cultured mismatch-repair-proficient and -deficient mammalian cells, *Hum. Molec. Genet.* 11:707-713 (2002).
- Yamada, N.A., and Farber, R.A., Induction of a low level of microsatellite instability by overexpression of DNA polymerase  $\alpha$ , *Cancer Res.* 62:6061-6064 (2002).
- Yamada, N.A., Castro, A., and Farber, R.A., Variation in the extent of microsatellite instability in human cell lines with defects in different mismatch repair genes, *Mutagenesis* 18:277-282 (2003).
- Yamada, N.A., Parker, J.M., and Farber, R.A., Mutation frequency analysis of mononucleotide and dinucleotide repeats after oxidative stress, *Env. Molec. Mutagenesis* 42:75-84 (2003).
- Hatch, S.B., and Farber, R.A., Mutation rates in the complex microsatellite MYCL1 and related simple repeats in cultured human cells, *Mutation Res.* 545:117-126 (2003).
- Hatch, S.B., Lightfoot, H.M., Garwacki, C.P., Moore, D.T., Calvo, B.F., Woosley, J.T., Funkhouser, W.K., and Farber, R.A., Microsatellite instability testing in colorectal carcinoma: choice of markers affects sensitivity of detection of mismatch-repair-deficient tumors, *Clin. Cancer Res.*, in press



## BIOGRAPHICAL SKETCH

Provide the following information for the key personnel in the order listed for Form Page 2.  
Follow this format for each person. **DO NOT EXCEED FOUR PAGES.**

NAME Mark T. Heise		POSITION TITLE Assistant Professor of Genetics	
EDUCATION/TRAINING (Begin with baccalaureate or other initial professional education, such as nursing, and include postdoctoral training.)			
INSTITUTION AND LOCATION	DEGREE (if applicable)	YEAR(s)	FIELD OF STUDY
St. Olaf College	B.A.	1991	Biology
Washington University School of Medicine, St. Louis, MO	Ph.D.	1996	Immunology
University of North Carolina, Chapel Hill, NC	Postdoc	1997-2000	Virology

**NOTE: The Biographical Sketch may not exceed four pages. Items A and B may not exceed two of the four-page limit.**

### A. Positions and Honors.

#### Positions

- 1991-1996 **Graduate Student.** Immunology Program. Washington University School of Medicine. St. Louis, MO. Advisor: Dr. Herbert W. Virgin IV. Thesis title: Regulation of Macrophage Activation During Herpesvirus Infection. Ph.D received December, 1996.
- 1997-2000 **Postdoctoral Research Associate.** Department of Microbiology, The University of North Carolina, Chapel Hill, NC. Advisor: Dr. Robert Johnston.
- 2000-2003 **Research Assistant Professor.** Department of Microbiology and Immunology, the University of North Carolina, Chapel Hill, NC
- 2003-Present **Assistant Professor.** Department of Genetics and Department of Microbiology and Immunology. The Carolina Vaccine Institute, The University of North Carolina, Chapel Hill, NC

#### Honors:

- |   |                   |
|---|-------------------|
| National Institutes of Health, Training Grant: 2 T32 AI07172    | 9/01/94-8/31/96   |
| National Institutes of Health, Training Grant: 2 T32 AI07151-19 | 6/01/97-6/01/98   |
| National Institutes of Health, NRSA 1 F32 AI0146-02             | 6/01/98-5/31/2000 |

### B. Selected peer-reviewed publications (in chronological order).

- 1) Hamann, K.J., Ten, R.M., Loegering, D.M., Jenkins, R.B., Heise, M.T., Schad, C.R., Pease, L.R., Gleich, G.J., and Barke R.L. 1990. Structure and chromosomal localization of the human eosinophil derived neurotoxin and eosinophil derived cationic protein genes: evidence for intronless coding sequences in the ribonuclease gene superfamily. *Genomics*. 7:535
- 2) Heise, M., Chow, K., and Kanagawa, O. 1993. Interaction between T cells and murine acquired immunodeficiency virus superantigen: effect of second signal on T cell reactivity to the MAIDS virus superantigen. *International Immunology*. 5:583
- 3) Heise, M.T., and Herbert W. Virgin IV. 1995. The T-cell independent role of gamma interferon and tumor necrosis factor alpha in macrophage activation during murine cytomegalovirus and herpes simplex infections. *Journal of Virology*. 69:904
- 4) Heise, M.T., Pollock, J.L., O'Guin, A., Barkon, M.L., Bromley, S., and Virgin, H.W. IV. 1998. Murine cytomegalovirus inhibits IFN $\gamma$ -induced MHC class II expression on macrophages: The role of type I interferon. *Virology* 241:331-344

Appendix Page

- 5) Heise, M.T., Connick, M., and Virgin H.W. IV. 1998. Murine cytomegalovirus inhibits interferon gamma-induced antigen presentation to CD4 T cells by macrophages via regulation of expression of major histocompatibility complex class II-associated genes. *Journal of Experimental Medicine* 187:1037-1046
- 6) Heise, M.T., Simpson, D.A., and Johnston, R.E., 2000. A single amino acid change in nsP1 attenuates neurovirulence of the Sindbis-group alphavirus, S.A.AR86. *Journal of Virology* 74:4207-4213
- 7). Heise, M.T., Simpson, D.A., and Johnston, R.E., 2000. Sindbis-group alphavirus replication in periosteum and endosteum of long bones in adult mice. *Journal of Virology* 74:9294-9299
- 8). Heise, M.T., White, L.J., Simpson, D.A., Leonard, C., Bernard, K.A., Meeker, R.B., and Johnston, R.E., 2003. An attenuating mutation in nsP1 of the Sindbis-group virus S.A.AR86 accelerates nonstructural protein processing and up-regulates viral 26S RNA synthesis. *Journal of Virology* 77:1149-1156
- 9) Suthar, M.S., R.S. Shabman, K. Madric, C. Lambeth, and M.T. Heise, 2004. Identification of adult mouse neurovirulence determinants of the Sindbis virus strain AR86. *Journal of Virology* *In Press*

**C. Research Support.** List selected ongoing or completed (during the last three years) research projects (federal and non-federal support). Begin with the projects that are most relevant to the research proposed in this application. Briefly indicate the overall goals of the projects and responsibilities of principal investigator identified above.

<b>Mark T. Heise (Primary Investigator)</b> <u>ONGOING</u>		
R01 AR47190-02 NIH/NIAMS Primary Investigator Togavirus Tropism for Bones, Joints, and CNS  The major goals of this project are to identify host and viral determinants that lead to virus-induced joint disease or encephalitis.	8/1/2000 – 7/31/2005  \$164,500	Percent Effort: 30%
<b>Mark T. Heise (Primary Investigator)</b> <u>ONGOING</u>		
Subcontract: SERCEB Duke University 5 U54 AI057157-02 NIAID Primary Investigator on Developmental Project Vectored Vaccines for Rift Valley Fever Virus  Developmental Project to develop alphavirus replicons as vectors for vaccination against Rift Valley fever virus	11/1/2003-10/31/2005  \$83,000	Percent Effort: 10%

<p><b>Mark T. Heise (Co-Investigator)</b> <u>Ongoing</u></p> <p>1 R01 AI061819-01 NIAID Principal Investigator: Baric, Ralph S. Ph.D. Project Title: Remodeling SARS Coronavirus Genome Regulatory Networks</p> <p>The major goals of this project are to generate a panel of attenuated SARS-CoV mutants that will be tested for their ability to induce protective immune responses in immunized mice.</p>	<p>05/15/2004 - 04/30/2005</p> <p>\$266,498</p>	<p>Percent Effort: 10%</p>
<p><b>Baric Ralph (PI), Heise, Mark T. (Core Leader)</b> <u>PENDING</u></p>		
<p>Title of Project (or Subproject): <i>Developing Vaccine Candidates for SARS Coronavirus</i></p> <p>Funding Source: NIAID</p> <p>The major goals of this project are...Evaluate SARS coronavirus (SARS-CoV) pathogenesis and develop effective vaccines against SARS-CoV.</p>	<p>Dates of Proposed Project: 12/01/04-11/30/09</p> <p>Annual Direct Costs: \$333,373 (Direct costs for Core)</p>	<p>Percent Effort: 30%</p>

### BIOGRAPHICAL SKETCH

Provide the following information for the key personnel in the order listed for Form Page 2.  
Follow the sample format for each person. **DO NOT EXCEED FOUR PAGES.**

NAME <p style="text-align: center;">Anthony Johnson, D.O.</p>	POSITION TITLE <p>Professor &amp; Director of Maternal Serum Screening and Laboratory, University of North Carolina, Chapel Hill, North Carolina</p>		
EDUCATION/TRAINING <i>(Begin with baccalaureate or other initial professional education, such as nursing, and include postdoctoral training.)</i>			
INSTITUTION AND LOCATION	DEGREE <i>(if applicable)</i>	YEAR(s)	FIELD OF STUDY
Fairmont State College, Fairmont, WV	BS	1976	Biology
West Virginia School of Osteopathic Medicine, WV	DO	1980	Medicine
Botsford General Hospital, Farmington Hills, MI	Internship	1980	Rotating
Botsford General Hospital, Farmington Hills, MI	Residency	1985	Ob/Gyn

#### **Positions and Employment:**

1985 - 1987	Instructor, Pennsylvania Hospital, Dept. Ob/Gyn, Philadelphia, PA
1987 - 1989	Instructor, Jefferson Medical College, Dept. Medicine, Philadelphia, PA
1989 - 1994	Assistant Professor, Jefferson Medical College, Dept. Ob/Gyn, Philadelphia, PA
1994 - 1996	Associate Professor, Jefferson Medical College, Dept. Ob/Gyn, Philadelphia, PA
1996 - 1998	Clinical Associate Professor, Boston University
1998 - 2003	Associate Professor, Wayne State Uni. School of Medicine, Dept. Ob/Gyn, Detroit, MI
2003 - Present	Professor, University of North Carolina at Chapel Hill, Dept Ob/Gyn, Chapel Hill, NC

#### **Other Experience and Professional Memberships**

1. Guest Editor - Infertility and Reproductive Medicine Clinics of North America, October 2001 issue.
2. Grant Application Reviewer - Ad hoc reviewer, NICHD - "Special Emphasis Panel", Multicenter Trial of Fetal Myelomeningocele Repair, April 2001 and November 2001; "Special Emphasis Panel", Fetal Surgery Units in the Cooperative Multicenter Maternal-Fetal Medicine Units Network, March 2002.

#### **Selected Peer-Reviewed Publications**

1. Qureshi F, Jacques SM, Feldman B, Doss BJ, **Johnson A**, Evans MI, Johnson MP. Fetal obstructive uropathy in trisomy syndromes. *Fetal Diagn Ther*, 15(6):342-7, 2000.
2. Feldman B, Ebrahim SA, Hassan SL, Gyi K, Johnson MP, **Johnson A**, Evans MI. Routine prenatal diagnosis of aneuploidy by FISH studies in high-risk pregnancies. *AM J Med Genet*, 90(3):233-8, 2000.
3. Heng HHQ, Yang F, Ebrahim S, Liu G, Ye CJ, Bezjak V, Bremer SW, Lu W, Thomas CM, Chen TC, Tuck-Muller C, Yu JW, Hughes M, Krawetz SA, **Johnson A**. Prenatal marker chromosome identification utilizing the combination of G-banding, SKY and FISH. (publication pending 11/2001).
4. Lee W, Chaiworapongsa T, Romero R, Williams R, McNie B, **Johnson A**, Treadwell M, Comstock CH. A diagnostic approach for the evaluation of spina bifida by three-dimensional ultrasound. *J Ultrasound Med* (accepted for publication 3/2002).
5. Lee W, DeVore GR, Comstock CH, Kalache KD, McNie B, Chaiworapongsa T, Conoscenti G, Treadwell MC, **Johnson A**, Huang R, Romero R. Nasal bone evaluation in fetuses with Down syndrome during the second and third trimesters of pregnancy. *J Ultrasound in Med*, publication pending, 9/2002.
6. Lee W, Kalache KD, Chaiworapongsa T, Londono J, Treadwell MC, **Johnson A**, Romero R. Three-dimensional power Doppler ultrasonography during pregnancy. *J Ultrasound in Med*, publication pending, 9/2002.
7. Kalache KD, Conoscenti G, Qureshi F, Jacques SM, Chaiworapongsa T, Treadwell M, **Johnson A**, Romero R. Prenatal diagnosis of dilated coronary sinus with persistent left superior vena cava in a fetus with trisomy 18. *Prenat Diag*, 22, 2002.
8. Heng HHQ, Ye CJ, Yang F, Ebrahim S, Liu G, Bremer SW, Chereka MT, Ye K, Chen TC, Tuck-Muller C, Yu JW, Krawetz SA, **Johnson A**. Analysis of marker or complex chromosomal rearrangements present in pre- and postnatal karyotypes utilizing a combination of G-Banding, SKY and FISH. *Clinical Genetics* (accepted for publication 1/2003).

9. Jacques SM, Qureshi F, **Johnson A**, Alkatib AA, Kmak DC. Estimation of time of fetal death in the second trimester by placental histopathological examination. *Pediatr Devel Pathol* (In press).
10. Knight CG, Lorincz A, **Johnson A**, Gidell K, Rabah R, Klein MD, Langenburg SE. Robot-enhanced fetoscopic surgery. *Journal of Pediatric Surgery*. (In press).

**Ongoing Research Support**

HD-99-005	4/1/00-3/31/05	1%
Department of Health and Human Services Public Health Service	\$429,194	
Anthony Johnson, Co-Investigator		
Michael P. Diamond, Principal Investigator		
Cooperative Multicenter Reproductive Medicine Network		
The major goal of this project is to conduct large-scale clinical trials related to reproductive endocrinology and infertility.		
NIH/HD-00-009	4/1/01-3/31/06	1%
NICHD	\$1,559,148	
Anthony Johnson, Co-Investigator		
Yoram Sorokin, Principal Investigator		
The Maternal-Fetal Medicine Network		
The major goal of this project is to facilitate collaborative research with emphasis on recent developments, clinical trials, the prevention of low birth rates, and other important issues in clinical obstetrics.		

**Completed Research Support**

NIH/HD-4-3202	9/1996-8/2002	5%
NICHD	\$1,300,000	
Anthony Johnson, Co-Investigator		
Laird Jackson, Principal Investigator		
Randomized trial of 11 to 14 weeks amniocentesis and transvaginal chorionic villus sampling		
The major goal of this project is to determine if there are differences in risk and benefits between the two procedures.		

## BIOGRAPHICAL SKETCH

Provide the following information for the key personnel in the order listed for Form Page 2.  
Photocopy this page or follow this format for each person.

NAME  Kaiser-Rogers, Kathleen Ann	POSITION TITLE  Clinical Associate Professor of Pediatrics Research Associate Professor of Genetics Associate Director, Cytogenetics Laboratory
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EDUCATION/TRAINING <i>(Begin with baccalaureate or other initial professional education, such as nursing, and include postdoctoral training.)</i>			
INSTITUTION AND LOCATION	DEGREE <i>(if applicable)</i>	YEAR(s)	FIELD OF STUDY
St. Andrews Presbyterian College Laurinburg, NC	B.S.	1979-1983	Biology (Chem. minor)
University of North Carolina at Chapel Hill Chapel Hill, NC	Ph.D.	1986-1991	Genetics
University of North Carolina at Chapel Hill Chapel Hill, NC	Fellowship/ Board eligibility	1991-1194	Cytogenetics

RESEARCH AND PROFESSIONAL EXPERIENCE: Concluding with present position, list, in chronological order, previous employment, experience, and honors. Include present membership on any Federal Government public advisory committee. List, in chronological order, the titles, all authors, and complete references to all publications during the past three years and to representative earlier publications pertinent to this application. If the list of publications in the last three years exceeds two pages, select the most pertinent publications. **DO NOT EXCEED TWO PAGES.**

### Research and Professional Experience:

**Clinical Associate Professor/Associate Director of Cytogenetics Laboratory**, Department of Pediatrics, University of North Carolina at Chapel Hill, Chapel Hill, N.C., 5/02- Present

**Research Associate Professor of Genetics**, Department of Pediatrics, University of North Carolina at Chapel Hill, Chapel Hill, N.C. 5/02- Present

**Clinical Assistant Professor/ Associate Director of the Cytogenetics Laboratory**, Department of Pediatrics, University of North Carolina at Chapel Hill, Chapel Hill, N.C., 10/96-5/02

**Clinical Assistant Professor/ Assistant Director of the Cytogenetics Laboratory**, Department of Pediatrics, University of North Carolina at Chapel Hill, Chapel Hill, N.C., 3/95 - 10/96

**Attending Fellow/Clinical Instructor** with a provisional appointment to the Health Professional Affiliate Staff at UNC Hospitals, Cytogenetics Laboratory, University of North Carolina at Chapel Hill, 7/94-2/95.

**Cold Spring Harbor Laboratory**, Cold Spring Harbor, N.Y. Advanced Bacterial Genetics Course, 1989.

**Research Assistant**, Department of Pharmacology, University of North Carolina at Chapel Hill, Chapel Hill, N.C. 8/84-8/86.

**Research Assistant**, Department of Pathology, Bowman Gray School of Medicine, Winston-Salem, N.C. 5/83-8/84.

**The Jackson Laboratory**, Bar Harbor, ME. Summer Research Training Program, 1982.

**Publications:**

D.I. Quigley, D.D. Koeberl, C.M. Powell, **K. Kaiser-Rogers**, B.K. Goodman, K.W. Rao. Constitutional Deletion 5q31.1-31.3 Including the EGR1 Locus: A Case Report. Am. J. Med. Genet. Submitted 9/04

L.C. Kang, , S.V. Smith, **K. Kaiser-Rogers**, K.W. Rao, C.H. Dunphy. Two Cases of Acute Myeloid Leukemia with t(11;17) Associated with Varying Morphology and Immunophenotype: Rearrangement of the MLL Gene and a Region Proximal to the RARA gene. Cancer Genet and Cytogenet. Accepted 9/04.

D.I. Quigley, J. Sailus, **K. Kaiser-Rogers**, K.W. Rao, M. Calikoglu, S. Gold, S.E. McCandless. A Case Report of a Patient with Two Abnormal Cell Lines:46,XX,del(21)(q22.1) and 47,XX,+3. Am. J. Med. Genet. Accepted 9/04.

**K.A. Kaiser-Rogers**, K.W. Rao. Translocations and Other Structural Rearrangements. In Principals of Clinical Cytogenetics; second edition (S.L. Gersen and M.B. Keagle, eds.), 2004. Humana, Totowa, NJ, pp.165-206.

D.I. Quigley, **K. Kaiser-Rogers**, A.S. Aylsworth, K.W. Rao. Submicroscopic Deletion 9(q34.4) and Duplication 19(p13.3) Identified by Subtelomere Specific FISH Probes. American Journal of Medical Genetics. 2003. 125A:67-72.

W.K. Funkhouser, **K. Kaiser-Rogers**. Significance of, and Optimal Screening for, HER-2 Gene Amplification and Protein Overexpression in Breast Carcinoma. Annals of Clinical and Laboratory Science. 2001. 31(4):349-358.

D.A. Elder, **K.A. Kaiser-Rogers**, A. Aylsworth, A.S. Calikoglu. Type I Diabetes Mellitus in a Patient with Chromosome 22q11.2 Deletion Syndrome. American Journal of Medical Genetics. 2001. 101:17-19

**K.A. Kaiser-Rogers**, K.W. Rao, R.C. Michaelis, C.M. Lese, C.M. Powell. The Usefulness and Limitations of FISH to Characterize Partially Cryptic Complex Chromosome Rearrangements. Am. J. Med. Genet. 2000. 6(1):28-35.

**K.A. Kaiser-Rogers**, K.W. Rao. Translocations and Other Structural Rearrangements. In *Principals of Clinical Cytogenetics* (S.L. Gersen and M.B. Keagle, eds.), 1999 Humana, Totowa, NJ, pp.191-228.

J.J. Gu, **K.A. Kaiser-Rogers**, K.W. Rao, B.S. Mitchell, Assignment of the Human Type I IMP Dehydrogenase Gene to Chromosome 7q31.3-7q32. Genomics 1994. 24:179-81.

V.M. Mendonca, **K.A. Kaiser-Rogers**, S.W. Matson. Double Helicase II (uvrD)/Helicase IV (helD) Deletion Mutants are Defective in the Recombination Pathways of Escherichia coli. Journal of Bacteriology. 1993. 175:4641-4651.

S.W. Matson, **K.A. Kaiser-Rogers**. DNA Helicases. Annual. Review of Biochemistry. 1990. 59:289-329.

### BIOGRAPHICAL SKETCH

Provide the following information for the key personnel in the order listed for Form Page 2.  
Follow the sample format for each person. **DO NOT EXCEED FOUR PAGES.**

NAME Beverly H. Koller, Ph.D.		POSITION TITLE Associate Professor, Dept. of Genetics	
EDUCATION/TRAINING <i>(Begin with baccalaureate or other initial professional education, such as nursing, and include postdoctoral training.)</i>			
INSTITUTION AND LOCATION	DEGREE <i>(if applicable)</i>	YEAR(s)	FIELD OF STUDY
University of Ottawa, Ontario, Canada	B.S.	1980	Biology
University of Minnesota, Minneapolis, MN	Ph.D.	1985	Pathobiology

#### A. Positions and Honors

##### Positions and Employment

1985 - 1987      Research Associate, Lab Med/Pathology, University of Minnesota, Minneapolis, Minnesota  
 1987 - 1988      Research Associate, Medical Genetics and Genetics, University of Wisconsin-Madison, Madison, Wisconsin  
 1988 - 1989      Research Associate, Pathology, University of North Carolina, Chapel Hill, North Carolina  
 1989 - 2001      Research Assistant Professor, Medicine, University of North Carolina, Chapel Hill, NC  
 2001 – present   Associate Professor, Dept of Genetics, University of North Carolina, Chapel Hill, NC

#### B. Selected peer-reviewed publications (from 105)

Koller, B.H., and O. Smithies. Homologous recombination: A new tool for studying immunological questions. *Annual Review of Immunology* 10:705-730, 1992.

Muller, D., B.H. Koller, K. LaPan, K.K. Brigman, and J.A. Frelinger. MHC class I deficient mice kill virus infected cells using CD4<sup>+</sup> MHC class II. *Science* 255:1576-1578, 1992.

Tartleton, R.L., B.H. Koller, A. Latour, and M. Postan. Susceptibility of  $\beta_2$ -microglobulin-deficient to *Trypanosoma cruzi* infection. *Nature* 356:338-340, 1992.

Snouwaert, J.N., K.K. Brigman, A.M. Latour, N.M. Malouf, R.C. Boucher, O. Smithies, and B.H. Koller. An animal model for cystic fibrosis made by gene targeting. *Science* 257:1083-1088, 1992.

Clarke, L.L., B.R. Grubb, S.E. Gabriel, O. Smithies, B.H. Koller, and R.C. Boucher. Defective epithelial chloride transport in a gene-targeted mouse model of cystic fibrosis. *Science* 257:1125-1128, 1992.

Dombrowicz, D., V. Flamand, K. Brigman, B.H. Koller and J.P. Kinet. Abolition of anaphylaxis by targeted disruption of the high affinity immunoglobulin E receptor  $\alpha$  chain gene. *Cell* 75: 969-976, 1993.

Gabriel, S.E., K. Brigman, B.H. Koller, R.C. Boucher, and M.J. Stutts. Cystic fibrosis heterozygote resistance to cholera toxin in the cystic fibrosis mouse model. *Science* 266: 107-110, 1994

Goulet, J., J.N. Snouwaert, A.M. Latour, T.M. Coffman, and B.H. Koller. Altered inflammatory responses in leukotriene-deficient mice. *Proc. Natl. Acad. Sci. U.S.A.* 91: 12852-12856, 1994.

Gowen, L.C., B.L. Johnson, A.M. Latour, K.K. Sulik, and B.H. Koller. *Brcal* deficiency results in early embryonic lethality characterized by neuroepithelial abnormalities. *Nature Genet.* 12:191-194, 1996.

Griffiths, R.J., M.A. Smith, M.L. Roach, J.L. Stock, E.J. Stam, A.J. Milici, D.N. Scampoli, J.D. Eskra, R.S. Byrum, B.H. Koller and J.D. McNeish. Collagen-induced arthritis is reduced in 5-lipoxygenase-activating protein-deficient mice. *J. Exp. Med.* 185:1123-9.

Byrum, R.S., J.L. Goulet, R.J. Griffiths, and B.H. Koller. Role of the 5-lipoxygenase activating protein (FLAP) in murine acute inflammatory responses. *J. Exp. Med.* 185: 1065 1997.

Nguyen, M., T. Camenisch, J.N. Snouwaert, E. Hicks, T.M. Coffman, P.A.W. Anderson, N.N. Malouf, and B.H. Koller. The prostaglandin receptor EP<sub>4</sub> triggers remodeling of the cardiovascular system at birth. *Nature* 390:78-81, 1997.

Goulet, J.L., C-Y Wang, and B.H. Koller. Embryonic stem cell lines from MRL mice allow genetic modification in a murine model of autoimmune disease. *J. Immunol.* 159:4376-4381, 1997.

Dombrowicz, D., Lin S., Flamand, V., Brini, A.T. Koller, B.H., and J-P Kinet. Allergy-associated FcR $\beta$  is a molecular amplifier of IgE- and IgG-mediated in vivo responses. *Immunity* 8:517-529, 1998.

Barker, P.M., Nguyen, M.S., Gatzky, J.T., Grubb, B., Norman, Hilary, Hummler, E., Rossier, B., Boucher, R.C. and B.H. Koller. Role of  $\gamma$ ENaC Subunit in Liquid Clearance and Electrolyte Balance in Newborn Mice. *JCI* 102:1634-1640 1998.



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- Cressman, V.L., Hicks, E.M., Funkhouser, W.K., Backlund, D.C. and B.H. Koller. The relationship of chronic mucin secretion to airway disease in normal and CFTR-deficient mice. *Am. J. Respir. Cell Mol. Biol.*, 19:853-866.
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- Cressman, V.L., Lazarowski, Eduardo, Homolya, L., Boucher, R.C., Koller, B.H., Grubb, B.R. Effect of P2Y<sub>2</sub> receptor gene targeting on nucleotide regulation of murine epithelial Cl<sup>-</sup> transport. *JBC* 274: 26461-68, 1999.
- Audoly, L.P., Tilley, S.L., Goulet, J., Key, M., M., Nguyen, Stock, J., McNeish, J., Koller, B.H., and T.M. Coffman. Identification of specific EP receptors responsible for the hemodynamic effects of PGE<sub>2</sub>. *Am. J. Physiol.* 277: H924-H930. 1999.
- Cressman, V.L., Backlund, D.C., Avrutskaya, A.V., Leadon, S.A., Godfrey, V. and B.H. Koller. Growth retardation, DNA repair defects and lack of spermatogenesis in BRCA1 deficient mice. *Mol Cell Bio.* 19: 7061-7075. 1999.
- Mohn, A. R, Gainetdinov, R., Caron, M.G. and B.H. Koller. Mice with Reduced NMDA Receptor Expression Display Behaviors Related to Schizophrenia. *Cell* 98: 427-436. 1999.
- Fabre, J-E, Nguyen, T., Latour, A., Goodman, J., Audoly, L., Coffman, T., and B.H. Koller. Decreased platelet aggregation, increased bleeding time and resistance to thromboembolism in P2Y<sub>1</sub>-deficient mice. *Nature Medicine* 5:1199-1202. 1999.
- Byrum, R.S., Goulet, J.L., Snouwaert, J.N., Griffiths, R.J. and B.H. Koller. Determination of the Contribution of Peptidyl Leukotrienes and Leukotriene B<sub>4</sub> in Acute Inflammatory Responses using 5-lipoxygenase- and LTA<sub>4</sub> hydrolase-deficient Mice. *J of Immunol.* 163:6810-6819. 1999.
- Snouwaert, J. N., Gowen, L. C., Latour, A. M., Mohn, A. R., Xiao, A., DiBiase, L., and B.H. Koller. BRCA1 deficient embryonic stem cells display a decreased homologous recombination frequency and an increased frequency of non-homologous recombination that is corrected by expression of a *Brcal* transgene. *Oncogene*, 18:7900-7907.
- Tilley, S.L. Wagoner, V.A., Salvatore, C.A., Jacobson, M.A., and B.H. Koller. Adenosine and inosine mediated increases in cutaneous vasopermeability occur through A<sub>3</sub> receptor activation of mast cells. *J Clin. Invest.* 105:361-367 2000.
- Salvatore CA, Tilley SL, Latour AM, Fletcher DS, Koller BH, Jacobson MA. Disruption of the A(3) adenosine receptor gene in mice and its effect on stimulated inflammatory cells. *J Biol Chem.* 275(6):4429-34, 2000.
- Pace, A.J., Lee, E., Athirakul, K., Coffman, T.M., O'Brien, D., A., and B.H. Koller. Failure of spermatogenesis in mouse lines deficient in the Na<sup>+</sup>-K<sup>+</sup>-2Cl<sup>-</sup> cotransporter. *J. Clin. Invest.* 105:441-450, 2000.
- Goulet, J.L., Byrum, R.S., Key, M.L., Nguyen, MT., Wagoner, V.A., and B.H. Koller. Genetic factors determine the contribution of leukotrienes to acute inflammatory responses. *J of Immunol.* 164:4899-4907, 2000.
- Staudinger, J.L., Goodwin, B., Jones, S.A., Hawkins-Brown, D., MacKenzie, K.I., Latour, A., Liu, Y., Klaassen, C.D., Brown, K.K., Reinhard, J., Willson, T.M., Koller, B.H. and S.A. Kliewer. The nuclear receptor PXR is a lithocholic acid sensor that protects against liver toxicity. *PNAS*: 98(6):3369-3374, 2001.
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- Audoly LP, Ruan X, Wagner VA, Goulet JL, Tilley SL, Koller BH, Coffman TM, Arendshorst WJ. Role of EP(2) and EP(3) PGE(2) receptors in control of murine renal hemodynamics. *Am J Physiol Heart Circ Physiol.* 280(1):H327-33, 2001.
- Tilley S.L., Coffman T.M., Koller B.H. Mixed messages: modulation of inflammation and immune responses by prostaglandins and thromboxanes. *J Clin Invest.* 108(1):15-23, 2001.
- Fabre JE, Nguyen M, Athirakul K, Coggins K, McNeish JD, Austin S, Parise LK, FitzGerald GA, Coffman TM, Koller BH. Activation of the murine EP3 receptor for PGE2 inhibits cAMP production and promotes platelet aggregation. *J Clin Invest.* 107(5):603-10, 2001.
- Fabre, J-E, Nguyen, M-T., Athirakul, K., Coggins, K., McNeish, J.D., Austin, S., FitzGerald, G.A., Parise, L.K., Coffman, T.M., and B.H. Koller. The prostaglandin EP3 receptor regulates Platelet Aggregation and Thrombosis. *JCI* 107(5)603-610 2001.
- Goulet JL, Griffiths RC, Ruiz P, Mannon RB, Flannery P, Platt JL, Koller BH, Coffman TM. Deficiency of 5-lipoxygenase accelerates renal allograft rejection in mice. *Journal of Immunology.* 167(11):6631-6, 2001.

- Nataraj C, Thomas DW, Tilley SL, Nguyen MT, Mannon R, Koller BH, Coffman TM. Receptors for prostaglandin E(2) that regulate cellular immuneresponses in the mouse. *J. Clin. Invest* 108:1229-35, 2001.
- Coggins, K.G, Latour, A, Nguyen, M, Audoly, L., Coffman, T., and B.H. Koller. Metabolism of PGE<sub>2</sub> by PGDH is essential for remodeling of the ductus arteriosus. *Nature Medicine*. 8:91,2002.
- Fabre, J.E., Goulet, J.L., Riche, E., Nguyen, M., Coggins, K., Offenbacher, S., and B.H. Koller. Transcellular biosynthesis contributes to the production of leukotrienes during inflammatory responses in vivo. *J Clin Invest* 109(10):1373-80, 2002.
- Bhattacharjee P, Mukhopadhyay P, Tilley S.L., Koller B.H., Geoghan T, Paterson C.A. Blood-aqueous barrier in prostaglandin EP2 receptor knockout mice. *Ocul Immunol Inflamm* 10(3):187-96, 2002.
- Nguyen, M., Solle, M., Audoly, L.P., Tilley, S.L., Stock, J.L., McNeish, J.D., Coffman, T.M., Dombrowicz, D., and B.H. Koller. Receptors and signaling mechanisms required for prostaglandin E2-mediated regulation of mast cell degranulation and IL-6 production. *J Immunol* 169:4586-4593, 2002.
- Cheng, Y., Austin, S.C., Rocca, B., Koller, B.H., Coffman, T.M., Grosser, T., Lawson, J.A., and FitzGerald, G.A. 2002. Role of prostacyclin in the cardiovascular response to thromboxane A2. *Science* 296:539-541.
- Tilley, S.L, Hartney, J.M., Erikson, C.J, Jania, C., Nguyen, M.T., Stock, J., McNeish, C., Valancius, C., Panettieri, R.A., Penn, R.B., and B.H Koller. Receptors and pathways mediating the effects of prostaglandin E2 on airway tone. *American Journal of Physiol Lung Cell Mol Physiol* 284(4):L599-606, 2003.
- Andre, P., Delaney, S.M., LaRocca, T., Vincent, D., DeGuzman, F., Jurek, M., Koller, B., Phillips, D.R., and Conley, P.B. P2Y12 regulates platelet adhesion/activation, thrombus growth, and thrombus stability in injured arteries. *J Clin Invest* 112:398-406, 2003.
- Tilley, S.L., Tsai, M., Williams, C.M., Wang, Z.S., Erikson, C.J., Galli, S.J., and Koller, B.H. Identification of A3 receptor- and mast cell-dependent and -independent components of adenosine-mediated airway responsiveness in mice. *J Immunol* 171:331-337, 2003.
- Thomas, D.W., Rocha, P.N., Nataraj, C., Robinson, L.A., Spurney, R.F., Koller, B.H., and T.M. Coffman. Proinflammatory actions of thromboxane receptors to enhance cellular immune responses. *J. Immunol.* 171(12): 6389-95. 2003.
- Goulet, J.L., Pace, A.J., Key, M.L., Byrum, R.S., Nguyen, M., Tilley, S.L., Morham, S.G., Langenbach, R., Stock, J.L., McNeish, J.D., Smithies, O., Coffman, T.M., and B. H. Koller. E-Prostanoid-3 Receptors Mediate the Proinflammatory Actions of Prostaglandin E2 in Acute Cutaneous Inflammation. *J. Immunol.* 173(2) 1321-6, 2004.
- Nguyen, M., Pace, A.J., and B. H. Koller. Prostaglandin EP<sub>3</sub> receptor activation mediates mast cell degranulation *in vivo*. Submitted to *Immunity*.
- Hartney, J.M., Jania, L.A., Tilley, S.L. and B. H. Koller. Airway Physiology in mouse strains by Plethysmography and direct measurement of lung mechanics. Submitted to *Am J Res Cell Molec Biol*.

### C. Research Support

5-R01-HL066537-01-04 (Koller)	1/1/01-12/31/04	20%
NIH/NHLBI		
Vascular Remodeling: the Ductus Arteriosus Model		

The major goal of this project is to determine the role of PHR in normal development of the mouse and in the adult liver and pancreas, and identify the role of various genes, in particular genes that regulate eicosanoid production and actions, in the remodeling of the ductus arteriosus after birth.

1-R01-HL68141-01-03 (Koller)	9/20/01-6/30/05
NIH/NHLBI	
PGE2 in the Pathogenesis of Allergic Airway Disease	

The major goal of this project is to test the hypothesis that PGE2 plays a key role in shaping the pathogenesis of allergic airway disease and that its role in asthma is complex due to the diverse and sometimes opposing actions of the different EP receptor isoforms.

R026-CR02 (Boucher)	7/1/02-6/30/05
Cystic Fibrosis Foundation	

Core E: Mouse Core

The major goal of this Core is to produce mice for cystic fibrosis researchers.

## BIOGRAPHICAL SKETCH

Provide the following information for the key personnel in the order listed for Form Page 2.  
Follow this format for each person. **DO NOT EXCEED FOUR PAGES.**

NAME <b>Ethan M. Lange, Ph.D.</b>	POSITION TITLE <b>Assistant Professor</b>		
EDUCATION/TRAINING <i>(Begin with baccalaureate or other initial professional education, such as nursing, and include postdoctoral training.)</i>			
INSTITUTION AND LOCATION	DEGREE <i>(if applicable)</i>	YEAR(s)	FIELD OF STUDY
University of California, Los Angeles	B.S.	86 - 90	Applied Mathematics
University of California, Los Angeles	M.A.	91 - 94	Mathematics
University of Michigan, Ann Arbor	M.S.	94 - 97	Biostatistics
University of Michigan, Ann Arbor	PhD	97 - 01	Biostatistics

**NOTE: The Biographical Sketch may not exceed four pages. Items A and B, together, may not exceed two of the four-page limit.**

**A. Positions and Honors.** List in chronological order previous positions, concluding with your present position. List any honors. Include present membership on any Federal Government public advisory committee.

1990-1994	Research Assistant/Computer Programmer, Ataxia-Telangeictasia Research Center, Dept of Pathology School of Med., University of California, Los Angeles.
1995-1998	NIH Pre-Doctoral Training Fellowship, National Human Genome Research Institute, T32 HG00040, <i>Institutional Training Grant in Genomic Science.</i>
1994-2000	Graduate Student Research Assistant, Department of Biostatistics School of Public Health, University of Michigan, Ann Arbor.
2000-2001	Instructor, Department of Public Health Sciences, Section on Biostatistics, Wake Forest University School of Medicine, Winston-Salem, N.C.
2002-2004	Assistant Professor, Department of Public Health Sciences, Section on Biostatistics, Wake Forest University School of Medicine, Winston-Salem, N.C.
2004-present	Assistant Professor, Department of Genetics, University of North Carolina School of Medicine, Chapel Hill, NC
2004-present	Research Assistant Professor, Department of Biostatistics, University of North Carolina School of Public Health, Chapel Hill, NC

**B. Selected Peer-reviewed publications (from 45 total; in chronological order).**

Gatti RA, Peterson KL, Novak J, Chen X, Yang-Chen L, Liang T, **Lange E**, Lange K. Prenatal genotyping of ataxia-telangiectasia. *The Lancet* 1993;342:376.

Uhrhammer N, **Lange E**, Porras O, et al. Sublocalization of an ataxia-telangiectasia gene distal to D11S384 by ancestral haplotyping in Costa Rican families. *American Journal of Human Genetics* 1995;57:103-111.

**Lange E**, Borresen A-L, Chen X, et al. Localization of an ataxia-telangiectasia gene to an ~500 kb interval on chromosome 11q23.1: Linkage analysis of 176 families by an international consortium. *American Journal of Human Genetics* 1995;57:112-119.

Cooney KA, McCarthy JD, **Lange E**, Huang L, Miesfeldt S, Montie JE, Oesterling JE, Sandler HM, Lange K. Prostate cancer susceptibility locus on chromosome 1q: a confirmatory study. *Journal of the National Cancer Institute* 1997;89:955-952.

Cerosaletti KM, **Lange E**, Stringham HM, Weemaes CMR, Smeets D, Solder B, Belohradsky BH, Taylor AMR, Karnes P, Elliott A, Komatsu K, Gatti RA, Boehnke M, Concannon P. Fine localization of the Nijmegen breakage syndrome gene to 8q21: Evidence for a common founder haplotype. *American Journal of Human Genetics* 1998;63:125-134.

**Lange EM**, Chen H, Brierley K, Perrone E, Bock CH, Gillanders E, Ray ME, Cooney KA. Linkage analysis of 153 prostate cancer families over a 30cM region containing the putative susceptibility locus HPCX. *Clinical Cancer Research* 1999;5:4013-4020.

**Lange EM**, Chen H, Brierley K, Livermore H, Wojno KJ, Langefeld CD, Lange K, Cooney KA. The polymorphic exon 1 androgen receptor CAG repeat in men with a potential inherited predisposition to prostate cancer. *Cancer Epidemiology, Biomarkers & Prevention* 2000;9:439-442.

- Gosh S, Watanabe RM, Valle T, ...**Lange EM**, et al. The Finland-United States Investigation of Non-Insulin Dependent Diabetes Mellitus (FUSION) genetic study: I. An autosomal genome scan for genes that predispose to type 2 diabetes. *American Journal of Human Genetics* 2000; 67: 1174-1185.
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- Huang S-K, Mathias RA, Ehrlich E, Plunkett B, ..., Rich S, Mellen B, **Lange E**, Beaty TH, and the CSGA. Evidence for asthma susceptibility genes on chromosome 11 in an African American population. *Human Genetics* 2003; 113: 71-75.
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- Blumenthal MN, Langefeld CD, Beaty TH, ..., **Lange E**, ..., Oetting W, Meyers DA, Rich SS for the NHLBI Collaborative Study on the Genetics of Asthma. A genome-wide search for allergic response (atopy) genes in three ethnic groups: Collaborative Study on the Genetics of Asthma (CSGA). *Human Genetics* 2004; 114:157-164.

Gillanders EM, Xu J, Chang B, **Lange EM**, ... , Gronberg H, Cooney KA, Isaacs WM, Trent JM. Combined genome-wide scan for prostate cancer susceptibility genes in four hereditary prostate cancer populations: evidence for linkage at 17q22. *Journal of the National Cancer Institute* 2004; 96:1240-1247.

**Lange EM**, Boehnke M. The haplotype runs test: The parent-parent-affected-offspring trio design. *Genetic Epidemiology* 2004; 27:118-130.

Zuhlke KA, Madeoy JJ, Dimmer JB, White KA, Griffen A, **Lange EM**, Gruber SB, Ostrander EA, Cooney KA. Truncating BRCA1 mutations are uncommon in hereditary prostate cancer families with evidence for linkage to 17q markers. *Clinical Cancer Research* 2004; 10: 5975-5980.

Nicklas BJ, Mychaleckyj J, Kritchevsky S, Palla S, Lange LA, **Lange EM**, Messier SP, Bowden D, Pahor M. Physical function and its response to exercise: Associations with cytokine gene variation in older adults with knee osteoarthritis. *The Journal of Gerontology: Medical Sciences* 2004; in press.

## **C. Research Support**

### **Ongoing**

Lange (PI) 08/01/00 – 07/31/04\*  
NIH/Subcontract with the U. of Michigan 1 Ro1 CA79596

#### **Genetic Analysis of Hereditary Prostate Cancer Families**

The purpose of this project is to examine in an independent set of hereditary prostate cancer families collected at the University of Michigan Medical Center for evidence of linkage to these identified candidate regions. The identification of prostate cancer genes should help facilitate a better understanding of the molecular pathways that lead to prostate cancer and should eventually lead to better preventative measures and potential cures.

Role: Principal Investigator

*\* Under no cost extension, renewal (retroactive to 08/01/04) funded and awaiting final award notice*

Lange (PI) 07/01/02 – 04/30/06  
NIH/Subcontract with the U. of Michigan CFDA No. 93.399

#### **Prostate Cancer Susceptibility: The ICPCG Study**

This is a collaborative study of prostate cancer genetics. This grant allows for continued collection of medical information and DNA from prostate cancer families, genotyping, and collaborative analyses with the other eleven participating ICPCG groups.

Role: Principal Investigator

Lange (PI) 08/01/03-08/01/06  
DOD/Subcontract with the U. of Michigan DAMD17-03-1-0270

#### **Genetic and Hormonal Risk Factors for Prostate Cancer in African American Men**

This grant investigates the relationship between hormones, growth factors and their impact on the development of prostate cancer in an African American population. This study uses data collected from the Flint Men's Health Study. Relationships between genetic polymorphisms and prostate cancer will also be investigated.

Role: Principal Investigator

L. Lange (PI) 07/01/03 – 06/30/08  
NIH/Univ. of Washington R01 HL027862

#### **Molecular Epidemiology of MI and Stroke in Older Adults**

We expect this multi-disciplinary approach to enable the detection of genetic variants that influence CVD susceptibility or modify the response to conventional cardiovascular risk factors.

Role: Co-Investigator

### **Completed in Last 3 years**

Principal Investigator: Dr. Marco Pahor 04/01/01-03/31/04  
NIH-NIA 1 R01 AG18702-01A1

#### **Gene Polymorphisms and Prevention of Disability**

The major goals of this project were to explore the interactions of polymorphisms of the angiotensin converting enzyme (ACE) and cytokines genes with behavior and medication use in determining physical function outcomes in older persons.

Role: Co-Investigator

Rich (PI) 07/01/02 - 06/31/07 \*  
NIH/NIDDK 1 R01 DK 062418-01

**Type 1 Diabetes Genetics Consortium**

The goal of the "Type 1 Diabetes Genetics Consortium" (T1DGC) is to organize international efforts to provide the fundamental clinical and genetic resources to achieve the necessary sample size and sample availability to identify genes that determine an individual's risk of type 1 diabetes. The creation of a resource base of well-characterized families from multiple ethnic groups is proposed that will facilitate the localization and characterization of type 1 diabetes genes that determine disease risk. The Consortium will gain a better understanding of disease mechanisms, with a purpose of altering these mechanisms and pathways in individuals at risk of type 1 diabetes.

Role: Co-Investigator

Langefeld (PI) 07/01/02 – 06/30/07 \*  
NIH/Subcontract with UAB 1 P01-AR049084-01

**Program Project in the Genetics of SLE**

The Program Project in the Genetics of SLE forms an extension of the previously funded Specialized Center of Research (SCOR) in Systemic Lupus. In this Program Project we will attempt to replicate, narrow and fine map previously defined linkage regions, and pursue the structure and biology of a series of candidate genes.

Role: Co-Investigator

Rich (PI) 08/01/03-06/30/08 \*  
NIH/Subcontract with Cedar-Sinai Medical Center 1 R01 HL 071205-01A1

**MESA Family Study – Genetic Analysis Center**

Epidemiologic study on the determinants of subclinical cardiovascular diseases and its progression to clinical CVD. To examine the range of noninvasive measures of subclinical CVD including assessment of coronary calcium by computerized tomography (EBCT or helical CT), carotid ultrasound, and magnetic resonance imaging (MRI).

Role: Co-Investigator

*I left study after changing institutions*

## BIOGRAPHICAL SKETCH

Provide the following information for the key personnel in the order listed for Form Page 2.  
Follow the sample format on preceding page for each person. **DO NOT EXCEED FOUR PAGES.**

NAME	POSITION TITLE
Leslie A. Lange, Ph.D.	Assistant Professor

  

EDUCATION/TRAINING (Begin with baccalaureate or other initial professional education, such as nursing, and include postdoctoral training.)			
INSTITUTION AND LOCATION	DEGREE (if applicable)	YEAR(s)	FIELD OF STUDY
University of Michigan, Dearborn, MI	B.S.	1993	Mathematics
University of Michigan, Ann Arbor, MI	M.S.	1996	Biostatistics
University of Michigan, Ann Arbor, MI	Ph.D.	2000	Epidemiology

### Professional Experience

1994-1996	Graduate Student Research Assistant, Department of Biostatistics, University of Michigan, Ann Arbor, MI
1996-1999	Statistical Consultant, Saint Joseph Mercy Hospital, Ann Arbor, MI
1996-1999	Research Associate II, Department of Biostatistics, University of Michigan, Ann Arbor, MI
1998	Guest Lecturer, "Introduction to Biostatistics," Summer Epidemiology Sessions, University of Michigan, Ann Arbor, MI
2000	Graduate Student Research Assistant, Department of Epidemiology, University of Michigan, Ann Arbor, MI
2000-2001	Instructor, Department of Public Health Sciences, Section on Epidemiology, Wake Forest University School of Medicine, Winston-Salem, NC
2001-2004	Assistant Professor, Department of Public Health Sciences, Section on Epidemiology, Wake Forest University School of Medicine, Winston-Salem, NC
2004-present	Research Assistant Professor, Department of Genetics, University of North Carolina School of Medicine, Chapel Hill, NC

### Honors/Fellowships

1986-1990	Brunswick Foundation Academic Scholarship
1992-1993	University of Michigan Dean's List
1992	University of Michigan Honors Convocation
1993	Pi Mu Mathematical Honor Society
1997-2000	University of Michigan, Regents Fellowship
2000	University of Michigan, Rackham Dissertation Fellowship

### Journal Articles

- Weg JG, Anzueto A, Balk RA, Wiedemann HP, Pattishall EN, Schork MA, **Wagner LA**. The relation of pneumothorax and other air leaks to mortality in the acute respiratory distress syndrome. *New England Journal of Medicine* 1998;338:341-346.
- Longo KM, Cowen ME, Flaum MA, Valsania P, Schork MA, **Wagner LA**, Prager RL. Preoperative predictors of cost in medicare-age patients undergoing coronary bypass grafting. *Annals of Thoracic Surgery* 1998;66:740-745.
- Cabrera CL, **Wagner LA**, Schork MA, Bohr DF, Cohan BE. Intraocular pressure measurement in the conscious rat. *Acta Ophthalmologica Scandinavica* 1999;77:33-36.
- Starnes SL, Wolk SW, Lampman RM, Shanley CJ, Prager RL, Kong BK, Fowler JJ, Page JM, Babcock SL, **Lange LA**, Erlandson EE, Whitehouse WM. Non-invasive evaluation of hand circulation prior to radial artery harvest for coronary artery bypass grafting. *Journal of Thoracic and Cardiovascular Surgery* 1999;117:261-266.
- Dixit PS, Ghezzi EM, **Wagner-Lange LA**, Ship JA. The influence of hypothyroidism and thyroid replacement therapy on stimulated parotid flow rates. *Journals of Oral Surgery, Oral Medicine, Oral Pathology, Oral Radiology and*



- Endodontics* 1999;87:55-60.
- Kreske ED, Wolk SW, Shanley CJ, Lampman RM, Knake JE, **Lange LA**, Erlandson EE, Whitehouse WM. Duplex ultrasonography to predict internal carotid artery stenoses exceeding 50% and 70% as defined by NASCET: The need for multiple criteria. *Vascular Surgery* 1999;33:497-506.
- Ghezzi EM, **Wagner-Lange LA**, Schork MA, Metter EJ, Baum BJ, Streckfus CF, Ship JA. Longitudinal influence of menopause and hormone replacement therapy on parotid flow rates in healthy women. *Journals of Gerontology: Medical Sciences* 2000;55A:M34-42.
- Ghezzi EM, **Lange LA**, Ship JA. Determination of variation of stimulated salivary flow rates. *Journal of Dental Research* 2000;79(11):1874-1878.
- Flaherty KR, Kazerooni EA, Curtis JL, Iannettoni M, **Lange L**, Schork A, Martinez FJ. Short-term and long-term outcomes after dilational lung volume reduction surgery. *Chest* 2001;119:1337-1346.
- Lange LA**, Bowden DW, Langefeld CE, Wagenknecht LE, Carr JJ, Rich SS, Riley WA, Freedman BI. Heritability of carotid artery intimal medial thickness in type 2 diabetes. *Stroke* 2002; 33(7):1876-1881.
- Lange LA**, Lange EM, Bielak LF, Langefeld CD, Kardia SL, Turner SL, Sheedy PF, Boerwinkle E, Peyser PA. Autosomal genome-wide scan for coronary artery calcification loci. *Arteriosclerosis, Thrombosis and Vascular Biology* 2002;22:418-423.
- Bensen JT, **Lange LA**, Langefeld CD, Chang BL, Bleecker ER, Meyers DA, Xu J. Exploring Pleiotropy using Principal Components. *BMC Genetics* 2003; Dec 31;4 Suppl 1:S53.
- Hokanson JE, Langefeld CD, Mitchell BD, **Lange LA**, Goff Jr. DC, Haffner SM, Saad MF, Rotter JL. Pleiotropy and heterogeneity in the expression of atherogenic lipoproteins: The IRAS Family Study. *Human Heredity* 2003; 55(1):46-50.
- Basehore MJ, Bleecker ER, Harkins M, Hawkins GA, Howard TD, **Lange LA**, Marsik P, Meyers DA, Moore WC. A comprehensive evaluation of IL-4 variants and their association with total serum IgE levels and asthma in Caucasians. *Journal of Allergy and Clinical Investigation* 2004; Jul;114(1):80-7.
- Bento JL, Palmer ND, Mychaleckyj JC, **Lange LA**, Langefeld CD, Rich SS, Freedman BI, Bowden DW. Association of protein-tyrosine phosphatase 1B gene polymorphisms with type 2 diabetes. *Diabetes* 2004; Nov;53(11):3007-12.
- Nicklas BJ, Mychaleckyj J, Kritchevsky S, Palla S, **Lange LA**, Lange EM, Messier SP, Bowden D, Pahor M. Physical function and its response to exercise: Associations with cytokine gene variation in older adults with knee osteoarthritis. *The Journal of Gerontology: Medical Sciences* (In press).
- Lange LA**, Norris J, Langefeld CD, Wagenknecht LE, Saad MF, Bowden DW. Association of adipose tissue deposition and beta-2 adrenergic receptor variants: the IRAS Family study. *International Journal of Obesity and Related Metabolic Disorders* (In press).

### Selected Abstracts

- Jacobson PA, Ratanatharathorn V, Ma M, Scalzo A, **Wagner L**, Schork MA, Silver SM, Adams PT, Uberti JP. Risk-adjusted dose schedule of ganciclovir is effective for the prevention of cytomegalovirus infection in allogeneic stem cell transplant recipients. *Blood* 1997;90:4410.
- Eagle KA, Sievers JJ, Bolling SF, Pagani FD, Schork MA, **Wagner LA**, Deeb GM. Risk adjustment in coronary surgery: Comparison of validated models in a high risk cohort. *American Heart Association, 70<sup>th</sup> Scientific Sessions*, 1997.
- Cohan BE, **Wagner LA**, Schork MA, Bohr DF. Rat intraocular pressure nonresponse to corticosteroid. *Investigative Ophthalmology and Visual Science* 1997;38:798.
- Bohr DF, **Wagner-Lange LA**, Schork MA, Cohan BE. Intraocular pressure circadian rhythm in rats is strain-specific. *Investigative Ophthalmology and Visual Science* 1998;39:S486.
- Ghezzi EM, **Wagner LA**, Schork MA, Ship JA. Longitudinal influence of age, medications and gender on parotid output. *Journal of Dental Research*. 1998;77:1400.
- Lange LA**, Kardia SLR, Bielak LF, Turner ST, Boerwinkle E, Sheedy PF, Peyser PA (2000) Coronary artery calcification is associated with two polymorphisms in the beta-2 adrenergic receptor gene. American Society of Human Genetics 50<sup>th</sup> Annual Meeting. San Diego, CA.
- Lange LA**, Lange EM, Bielak LF, Langefeld CD, Kardia SL, Turner ST, Sheedy PF, Boerwinkle E, Peyser PA. Autosomal genomewide linkage scan for coronary artery calcification loci. The 41<sup>st</sup> Annual Conference on Cardiovascular Disease Epidemiology and Prevention. San Antonio, Texas, 2001.
- Lange LA**, Wagenknecht, LE, Langefeld CD, Freedman BI, Riley WA, Rich SS, Bowden DW. Familial aggregation of cardiovascular disease risk factors in type 2 diabetic families. American Society of Human Genetics 51<sup>st</sup> Annual Meeting. San Diego, CA, 2001.

---

**Lange LA**, Langefeld CD, Beck SR, Rich SS, Herrington DM, Bowden DW. Familial Aggregation of C-Reactive Protein in Type 2 Diabetes. The 43<sup>rd</sup> Annual Conference on Cardiovascular Disease Epidemiology and Prevention. Miami, Florida, 2003.

**Lange LA**, Carr JJ, Borecki IB, Heiss G, Lewis CE, Wilk JB, Hunt SC, Hixson JE, Arnett DK, Lange EM, Eckfeldt JH, Wagenknecht LE, for the FHS Investigators Genome Scan for Calcified Atherosclerotic Plaque of the Abdominal Aorta: Evidence for Linkage to Chromosomes 7p and 9q in the NHLBI Family Heart Study. American Society of Human Genetics 54<sup>th</sup> Annual Meeting. Toronto, CN, 2004.

## **Research Support**

### **Ongoing**

1R01 HL071862-01A1 L. Lange (PI) 07/01/03 – 06/30/08  
NIH/Subcontract with U. of Washington

#### **Thrombosis/Inflammation Genes and Risk of Cardiovascular Events in Older Adults**

This study will evaluate the association of thrombosis and inflammation genes with a number of cardiovascular measures, including incident MI and stroke, carotid IMT, CRP and D-dimer levels in adults over the age of 65 years who were followed up to 12 years as participants in the Cardiovascular Health Study, a large, bi-racial cohort of older adults.  
Role: PI

1 Ro1 CA79596 E. Lange (PI) 08/01/00 – 07/31/04\*  
NIH/Subcontract with the U. of Michigan

#### **Genetic Analysis of Hereditary Prostate Cancer Families**

The purpose of this project is to examine in an independent set of hereditary prostate cancer families collected at the University of Michigan Medical Center for evidence of linkage to these identified candidate regions. The identification of prostate cancer genes should help facilitate a better understanding of the molecular pathways that lead to prostate cancer and should eventually lead to better preventative measures and potential cures.

Role: Statistician/Genetic Epidemiologist

**\* Currently operating under no cost extension. Grant renewal has been funded with retroactive start date 08/01/04 (awaiting final award notice).**

CFDA No. 93.399 E. Lange (PI) 07/01/02 – 04/30/06  
NIH/Subcontract with the U. of Michigan

#### **Prostate Cancer Susceptibility: The ICPG Study**

This is a collaborative study of prostate cancer genetics. This grant allows for continued collection of medical information and DNA from prostate cancer families, genotyping, and collaborative analyses with the other eleven participating ICPG groups.

Role: Statistician/Genetic Epidemiologist

### **Completed in Last 3 years**

RO1 HL48341 Meyers (PI) 07/99-06/04  
NIH

#### **Genetics of Asthma and Bronchial Hyperresponsiveness**

The major goals of this project are to perform segregation analysis to determine genetic models for asthma and associated phenotypes and to perform a genome screen to detect evidence for linkage for those phenotypes in a population of Dutch families ascertained through an asthmatic proband originally studies 25 years ago.

Role: Co-Investigator

I-R01-HL67895 Wagenknecht (PI) 09/01-08/05\*  
NIH

#### **GENCAC - North Carolina Field Center**

The purpose of the proposed study is to identify genetic factors that establish susceptibility to (a) coronary and aortic atherosclerosis and (b) inter-individual variability in the inflammatory response.

Role: Co-Investigator

1R01 AG-18702-01A1 Pahor (PI)

08/01-07/04

NIH/NIA

Gene Polymorphisms and Prevention of Disability

The major goals of this project are to explore the interactions of polymorphisms of the angiotensin converting enzyme (ACE) and cytokines genes with behavior and medication use in determining physical function outcomes in older persons.

Role: Co-Investigator

Ohar (PI)

12/01/03-11/30/05\*

Mesothelioma Applied Research Foundation

Phenotypic and Genotypic Determinants to Identify Patients at High Risk for Mesothelioma

The major goal of this proposed project is to test the hypothesis that certain phenotypic and genotypic characteristics can be used to identify a population at high risk for mesothelioma. Potential benefits of this study are early detection and treatment of mesothelioma that may lead to more prolonged survival or cure.

Role: Co-Investigator

\* I left these studies when changing institutions.

**OVERLAP**

None

### BIOGRAPHICAL SKETCH

Provide the following information for the key personnel in the order listed on Form Page 2.  
Photocopy this page or follow this format for each person.

NAME  <b>Mark W. Majesky, Ph.D.</b>	POSITION TITLE  Professor of Medicine & Genetics		
EDUCATION/TRAINING ( <i>Begin with baccalaureate or other initial professional education, such as nursing, and include postdoctoral training.</i> )			
INSTITUTION AND LOCATION	DEGREE <i>(if applicable)</i>	YEAR(s)	FIELD OF STUDY
San Jose State University, San Jose, CA	B.S.	1977	Molecular Biology
University of Washington, Seattle, WA	Ph.D.	1984	Pharmacology

RESEARCH AND PROFESSIONAL EXPERIENCE: Concluding with present position, list, in chronological order, previous employment, experience, and honors. Include present membership on any Federal Government public advisory committee. List, in chronological order, the titles, all authors, and complete references to all publications during the past three years and to representative earlier publications pertinent to this application. If the list of publications in the last three years exceeds two pages, select the most pertinent publications. **DO NOT EXCEED TWO PAGES.**

#### Professional Experience

1980-1984	Predoctoral Trainee, Dept. of Pharmacology, University of Washington, Seattle, WA
1985-1990	Postdoctoral Fellow, Dept. of Pathology, University of Washington, Seattle, WA
1990-1996	<b>Assistant Professor</b> , Dept. of Pathology, Baylor College of Medicine, Houston, TX
1997-2002	<b>Associate Professor (with tenure)</b> , Depts. of Pathology, Molecular & Cellular Biology, and Center for Cardiovascular Development, Baylor College of Medicine, Houston, TX
2003-present	<b>Professor</b> , Depts of Medicine & Genetics, University of North Carolina, Chapel Hill, NC <b>Associate Director</b> , Carolina Cardiovascular Biology Center, UNC, Chapel Hill, NC
2004-present	<b>Full Member</b> , Lineberger Comprehensive Cancer Center, UNC, Chapel Hill, NC

#### Honors and Awards

1975-1977	Dean's Scholar, San Jose State University
1980-1984	National Institutes of Health Predoctoral Fellowship
1985-1989	National Institutes of Health Postdoctoral Fellowship
1991	Lyndon Baines Johnson Research Award, American Heart Association, Texas Affiliate
1994	Plenary Lecture, Tenth International Atherosclerosis Meetings, Montreal, Canada
1995	Boren Visiting Professor, University of California, Los Angeles
1996-present	Editorial Board, <b><i>Journal of Vascular Research</i></b>
1996	Visiting Professor, Cardiovascular Research Center, University of Michigan
1997-2000	Established Investigator Award, American Heart Association
1998	Co-chair, Gordon Research Conference on Vascular Cell Biology
1999	Chair and Organizer, Vascular Biology 99 Meetings, Washington, DC
1999-2003	Charter Member, Pathology A Study Section, NIH
2000-2004	Associate Editor, <b><i>Circulation</i></b>
2001	Distinguished Guest Lecture, Richard Lewar Heart&Stroke Centre, University of Toronto
2002-present	Editorial Board, <b><i>Circulation Research</i></b>
2002	Invited Speaker & Chair, XIIth Int. Vascular Biol Mtgs, Karuizawa, Japan
2003	Symposium Chair, National American Heart Assocn Meetings, Orlando, FL
2004	Invited Speaker, Asilomar Conference on Vascular Development, Asilomar, CA
2004	Invited Speaker, XIIth Int. Vascular Biology Mtgs, Toronto, Canada
2005-present	Editorial Board, <b><i>American Journal of Physiology, Heart &amp; Circulatory Physiology</i></b>

### Appendix 3.4

#### Majesky, Mark

Invited lecturer on 51 occasions since 1995, including 7 Gordon Conferences and 9 International Scientific Research Conferences. Symposium chair-14 times.

#### Publications: (Selected of 62 Total Publications)

1. Majesky, MW (2004) Development of the coronary vessels. *Curr. Top. Devel. Biol.*, in press.
2. Hirschi KK, Majesky MW (2004) Smooth muscle stem cells. *Anat. Rec.* 276:22-33.
3. Chang D, Belaguli NS, Iyer D, Wu SP, Dong XR, Moore MS, Beckerle MC, Marx JB, Majesky, MW,\* Schwartz, RJ\* (2003) Cysteine-rich LIM-only proteins Crp1 and Crp2 are potent smooth muscle differentiation cofactors. *Dev. Cell*, 4: 107-118. \*both laboratories contributed equally to this work.
4. Majka, SM, Jackson, K, Kienstra, K, Majesky, MW, Goodell, MA, Hirschi, KK (2003) Distinct progenitor populations in skeletal muscle exhibit different cell fates during vascular regeneration. *J. Clin. Invest.* 111:71-79.
5. Majesky, MW (2003) Vascular smooth muscle diversity: Insights from developmental biology. *Curr. Atherosclerosis Reports* 5:208-213.
6. Majesky, MW (2002) Smooth muscle specific transcription without a CArG box element. *Circ. Res.* 90: 628-630.
7. Majesky, MW (2002) A mouse model for plaque rupture. *Circulation* 105: 2010-2011.
8. Lu, J, Landerholm, TE, Wei, J, Dong, XR, Liu, X, Nagata, K, Inagaki, M, Majesky, MW (2001) Coronary smooth muscle differentiation from proepicardial cells requires rhoA-mediated actin reorganization and p160 rho kinase activity. *Dev. Biol.*, 240:404-418.
9. Jackson, KA, Majka, SM, Wang, H, Pocius, J, Hartley, C, Majesky, MW, Entman, M, Michael, L, Hirschi, K, Goodell, MA (2001) Regeneration of ischemic cardiac muscle and vascular endothelium by adult stem cells. *J. Clin. Invest.* 107:1395-1402.
10. Goodell, MA, Jackson, KA, Majka, SM, Mi, T, Wang, H, Pocius, J, Hartley, CJ, Majesky, MW, Entman, ML, Michael, LH, Hirschi, KK (2001) Stem cell plasticity in muscle and bone marrow. *Ann. N.Y. Acad. Sci.*, 938:208-220.
11. Majesky, MW (2000) Novel genes for mitogen-independent smooth muscle replication. *Circ. Res.* 87: 532-534.
12. Landerholm, TE, Dong, XR, Lu, J, Belaguli, NS, Schwartz, RJ, Majesky, MW (1999) A role for serum response factor in coronary smooth muscle differentiation from proepicardial cells. *Development* 126:2053-62.
13. Belaguli, NS, Zhou, W, Trinh, TH, Majesky, MW, Schwartz, RJ (1999) Dominant negative murine serum response factor: Alternative splicing within the activation domain inhibits transactivation of serum response factor binding targets. *Mol. Cell. Biol.* 19:4582-4591.
14. Wei, J, Dong, XR, Topouzis, S, Zimmer, WE, Broders, F, Thiery, JP, Koteliansky, V, Majesky, MW (1999) Molecular cloning of chick cadherin 11 and its expression during smooth muscle differentiation and formation of the tunica media. *Circ. Res.* In revision.
15. Majesky, MW, Schwartz, SM (1997) An origin for smooth muscle cells from endothelium? *Circ. Res.* 80:601-603.
16. MacLellan, WR, Majesky, MW (1997) Cell cycle regulators in vascular disease. *Circulation* 96:1717-1719.
17. Chen, Y, Croissant, J, Majesky, MW, Topouzis, S, McQuinn, T, Frankovsky, MJ, Schwartz, RJ (1996) Transcriptional regulation of striated muscle specific actin genes: Role of serum response factor and the murine tinman homolog, Nkx-2.5. *Dev. Genet.* 19:119-130.
18. Topouzis, S, Majesky, MW (1996) Smooth muscle lineage diversity in the chick embryo: Two types of aortic smooth muscle cell differ in growth and receptor-mediated transcriptional responses to transforming growth factor- $\beta$ . *Dev. Biol.* 178:430-445.
19. Majesky, MW (1996) A little VEGF goes a long way: Therapeutic angiogenesis by direct injection of naked plasmid DNA encoding VEGF. *Circulation* 94:3062-3064.
20. Winkles, JA, Alberts, GF, Peifley, KA, Liao, G, Majesky, MW (1996) Postnatal regulation of fibroblast growth factor ligand and receptor mRNA expression in rat thoracic aorta. *Am. J. Pathol.* 149:2119-2131.

### Appendix 3.4 Majesky, Mark

21. Miano, JM, Topouzis, S, Majesky, MW, Olson, EN (1996) Retinoid receptor expression and all-trans retinoic acid-mediated growth inhibition in vascular smooth muscle cells. *Circulation* 93:1886-1895.
22. Lipke, D, Aziz, SM, Fagerland, JA, Majesky, MW, Arcot, SS (1996) Tenascin synthesis, deposition and isoforms in monocrotaline-induced pulmonary hypertension. *Am. J. Physiol.* 271:L208-L215.
23. Schwartz, SM, Majesky, MW, Murry, CE (1995) The intima: Development and monoclonal responses to injury. *Atherosclerosis* 118:S125-S140.
24. Kapur, V, Majesky, MW, Li, L, Black, RA, Tocci, MJ, Musser, JM (1993) A *Streptococcus pyogenes* cysteine protease cleaves interleukin-1 $\beta$  precursor to produce active IL-1 $\beta$ . *Proc. Natl. Acad. Sci. USA* 90:7676-7680.
25. Majesky, MW, Giachelli, CM, Reidy, MA, Schwartz, SM. (1992) Rat carotid neointimal smooth muscle cells reexpress a developmentally regulated phenotype during repair of arterial injury. *Circ. Res.* 71: 759-768.
26. Okazaki, H, Majesky, MW, Harker, LA, Schwartz, SM. (1992) Regulation of platelet-derived growth factor ligand and receptor gene expression by  $\alpha$ -thrombin in vascular smooth muscle cells. *Circ. Res.* 71:1285-1293
27. Majesky, MW, Lindner, V, Twardzik, DR, Schwartz, SM, Reidy, MA. (1991) Production of transforming growth factor  $\beta$ 1 during repair of arterial injury. *J. Clin. Invest.* 88:904-910.
28. Giachelli, CM, Majesky, MW, Schwartz, SM. (1991) Developmentally regulated cytochrome P-4501A1 expression in cultured rat vascular smooth muscle cells. *J. Biol. Chem.* 266:3981-3986.
29. Johnson, RJ, Ida, H, Alpers, C, Majesky, MW, Schwartz, SM, Pritzel, P, Gordon, K, Gown, AM. (1991) Expression of smooth muscle phenotype by rat mesangial cells in immune complex nephritis. *J. Clin. Invest.* 87:847-858.
30. Giachelli, CM, Bae, N, Lombardi, D, Majesky, M, Schwartz, SM. (1991) Molecular cloning and characterization of 2B7, a rat mRNA which distinguishes smooth muscle cell phenotypes in vitro and is identical to osteopontin (secreted phosphoprotein I, 2aR). *Biochem. Biophys. Res. Commun.* 177:867-873.
31. Majesky, MW, Reidy, MA, Bowen-Pope, DF, Hart, CE, Wilcox, JN, Schwartz, SM. (1990) PDGF ligand and receptor gene expression during repair of arterial injury. *J. Cell Biol.* 111:2149-2158.
32. Majesky, MW, Daemen, MJAP, Schwartz, SM. (1990)  $\alpha$ 1-Adrenergic stimulation of platelet-derived growth factor A-chain gene expression in rat aorta. *J. Biol. Chem.* 265:1082-1088.
33. Majack, RA, Majesky, MW, Goodman, LV. (1990) Role of PDGF-A expression in the control of vascular smooth muscle cell growth by TGF- $\beta$ 1. *J. Cell Biol.* 111:239-247.
34. Schwartz, SM, Majesky, MW, Heimark, RL (1990) Developmental mechanisms underlying pathology of arteries. *Physiol. Rev.* 70:1177-1209.
35. Gronwald, RGK, Majesky, MW, Ran, WL, Ross, R. (1990) Growth factors, inflammation and atherosclerosis. In, Growth factors, differentiation factors and cytokines, A. Habenecht, ed., Springer-Verlag, Heidelberg, pp. 279-291.
36. Majesky, MW, Schwartz, SM. (1990) Smooth muscle diversity in arterial wound repair. *Toxicol. Pathol.* 18:554-559.
37. Majesky, MW, Benditt, EP, Schwartz, SM. (1988) Expression and developmental control of platelet-derived growth factor A-chain and B-chain/c-sis genes in rat aortic smooth muscle cells. *Proc. Natl. Acad. Sci USA* 85:1524-1528.

## BIOGRAPHICAL SKETCH

Provide the following information for the key personnel in the order listed for Form Page 2.  
Follow this format for each person. **DO NOT EXCEED FOUR PAGES.**

NAME  <b>Mohlke, Karen L.</b>	POSITION TITLE  <b>Assistant Professor of Genetics</b>		
EDUCATION/TRAINING <i>(Begin with baccalaureate or other initial professional education, such as nursing, and include postdoctoral training.)</i>			
INSTITUTION AND LOCATION	DEGREE <i>(if applicable)</i>	YEAR(s)	FIELD OF STUDY
Cornell University, Ithaca, NY	B.S.	1991	Biological Sciences
University of Michigan, Ann Arbor, MI	Ph.D.	1996	Human Genetics
University of Michigan, Ann Arbor, MI	Postdoctoral fellow	1996-1998	Human Genetics
National Human Genome Research Institute, Bethesda, MD	Research fellow	1998-2004	Human Genetics

**NOTE: The Biographical Sketch may not exceed four pages. Items A and B may not exceed two of the four-page limit.**

### A. Positions and Honors.

#### Positions

1991-1996 Graduate student, Laboratory of Dr. David Ginsburg  
Department of Human Genetics, University of Michigan, Ann Arbor, MI

1996-1998 Postdoctoral training, Laboratory of Dr. David Ginsburg  
Department of Human Genetics, University of Michigan, Ann Arbor, MI

1998-2004 Postdoctoral training, Laboratory of Dr. Francis Collins  
National Human Genome Research Institute, National Institutes of Health, Bethesda, MD

2004- Assistant Professor of Genetics, University of North Carolina, Chapel Hill, NC

2004- Member, Carolina Center for Genome Sciences, University of North Carolina, Chapel Hill, NC

#### Honors

1991 Cum laude with distinction, Cornell University

1991-1993 Fellow, NIH genetics training grant, University of Michigan

1992 James V. Neel Fellowship for Academic Excellence

1995-1996 University of Michigan Rackham Predoctoral Fellowship

1998-2001 NIH Intramural Research Training Award fellowship

2000-2006 Recipient, Burroughs Wellcome Career Development Award in the Biomedical Sciences

2003 NHGRI Intramural Research Award

### B. Selected peer-reviewed publications (in chronological order).

Nichols WC, Cooney KA, **Mohlke KL**, Ballew JD, Yang A, Bruck ME, Reddington M, Novak EK, Swank RT, and Ginsburg D (1994) von Willebrand disease in the RIIS/J mouse is caused by a defect outside of the von Willebrand factor gene. Blood 83, 3225-3231

**Mohlke KL**, Nichols WC, Rehemtulla A, Kaufman RJ, Fagerström HM, Ritvanen KL, Kekomäki R, and Ginsburg D (1996) A common frameshift mutation in von Willebrand factor does not alter mRNA stability but interferes with normal propeptide processing. Br J Haematol 95, 184-191

**Mohlke KL**, Nichols WC, Westrick RJ, Novak EK, Cooney KA, Swank RT, and Ginsburg D (1996) A novel

- modifier gene for plasma von Willebrand factor level maps to distal mouse chromosome 11. Proc Natl Acad Sci 93, 15352-15357
- Mohlke KL** and Ginsburg D (1997) von Willebrand disease and quantitative variation in von Willebrand factor. J Lab Clin Med 130, 252-261
- Mohlke KL**, Purkayastha AA, Westrick RJ, and Ginsburg D (1998) Comparative mapping of distal murine chromosome 11 and human 17q213 in a region containing a modifying locus for murine plasma von Willebrand factor level. Genomics 54, 19-30
- Mohlke KL**, Purkayastha AA, Westrick RJ, Smith PL, Petryniak B, Lowe JB, and Ginsburg D (1999) Mvfw, a dominant modifier of murine von Willebrand factor, results from altered lineage-specific expression of a glycosyltransferase. Cell 96, 111-20
- Mohlke KL**, Nichols WC, and Ginsburg D (1999) The molecular basis of von Willebrand disease. Int J Clin Lab Res 29, 1-7
- Watanabe RM, Ghosh S, Hauser ER, Langefeld C, Valle T, Magnuson VL, **Mohlke KL**, Silander K, Ally DS, Blaschak-Harvan J, Douglas JA, Duren WL, Epstein MP, Fingerlin TE, Kaleta H-S, Lange EM, Li C, McEachin RC, Stringham HM, Trager E, White PP, Balow J, Birznieks G, Chang J, Chines P, Eldridge W, Erdos MR, Karanjawala ZE, Knapp JI, Kudelko K, Martin C, Morales-Mena A, Musick A, Musick T, Pfahl C, Porter R, Rayman JB, Rha D, Segal L, Shapiro S, Sharaf R, Shurtleff B, So A, Tannenbaum J, Tovar J, Te C, Unni A, Welch C, Whiten R, Witt A, Kohtamaki K, Eriksson J, Toivanen L, Vidgren G, Nylund SJ, Tuomilehto-Wolf E, Ross E, Demircyan E, Hagopian WA, Buchanan TA, Tuomilehto J, Bergman RN, Collins FS, and Boehnke M (2000) The Finland-United States Investigation of Non-Insulin Dependent Diabetes Mellitus (FUSION) genetic study: II An autosomal genome scan for quantitative trait loci. Am J Hum Genet 67, 1186-1200
- Ghosh S, Watanabe RM, Valle T, Hauser ER, Magnuson VL, Langefeld CD, Ally DS, **Mohlke KL**, Silander K, Kohtamaki K, Chines P, Porter R, Balow J, Musick A, Tannenbaum J, Te C, Segal L, Unni A, Karanjawala ZE, Rayman JB, Knapp JI, Whiten R, Birznieks G, Chang J, Eldridge W, Erdos MR, Kudelko K, Martin C, Morales-Mena A, Musick T, Pfahl C, Rha D, Shapiro S, Sharaf R, Shurtleff B, So A, Tovar J, Welch C, Witt A, Blaschak-Harvan J, Douglas JA, Duren WL, Epstein MP, Fingerlin TE, Kaleta H-S, Lange EM, Li C, McEachin RC, Stringham HM, Trager E, White PP, Eriksson J, Toivanen L, Vidgren G, Nylund SJ, Tuomilehto-Wolf E, Ross E, Demircyan E, Hagopian WA, Buchanan TA, Tuomilehto J, Bergman RN, Collins FS, and Boehnke M (2000) The Finland-United States Investigation of Non-Insulin Dependent Diabetes Mellitus (FUSION) genetic study: I An autosomal genome scan for type 2 diabetes genes. Am J Hum Genet 67, 1174-1185
- Douglas JA,\* Erdos MR,\* Watanabe RM, Braun A, Johnston CL, Oeth P, **Mohlke KL**, Valle T, Ehnholm C, Buchanan TA, Bergman RN, Collins FS, Boehnke M, Tuomilehto J (2001) The PPAR-gamma2 Pro12Ala variant: association with type 2 diabetes, trait differences, and interaction with the beta3-adrenergic receptor. Diabetes 50, 886-890
- Mohlke KL**,\* Lange E,\* Valle TT, Ghosh S, Magnuson VL, Silander K, Watanabe RM, Chines PS, Bergman RN, Tuomilehto J, Collins FS, and Boehnke M (2001) Linkage disequilibrium between microsatellite markers extends beyond 1 cM on chromosome 20 in Finns. Genome Research 11, 1221-1226
- Fingerlin TE,\* Erdos MR,\* Watanabe RM, Wiles KR, Stringham HM, **Mohlke KL**, Silander K, Valle TT, Buchanan TA, Tuomilehto J, Bergman RN, Boehnke M and Collins FS (2002) Variation in three single nucleotide polymorphisms in the Calpain-10 gene not associated with type 2 diabetes in a large Finnish cohort. Diabetes 51, 1644-1648
- Mohlke KL**,\* Erdos MR,\* Scott LJ,\* Fingerlin TE, Jackson AU, Silander K, Hollstein P, Boehnke M, Collins FS (2002) High-throughput screening for evidence of association using mass spectrometry genotyping of single nucleotide polymorphisms. Proc Natl Acad Sci 99, 16928-16933
- Silander K, Valle TT, Scott LJ, **Mohlke KL**, Stringham HM, Wiles KR, Duren WL, Doheny K, Pugh E, Chines P, Narisu N, White PP, Watanabe RM, Fingerlin TE, Jackson AU, Li C, Colby K, Hollstein, P, Humphreys KM, Lambert J, Lazaridis KN, Lin G, Morales-Mena A, Patzkowski K, Pfahl C, Porter R, Rha D, Segal L, Suh Y, Tovar J, Unni A, Welch C, Douglas JA, Epstein M, Hauser ER, Hagopian W, Buchanan TA, Bergman RN, Tuomilehto J, Collins FS, Boehnke M (2004) A large set of Finnish affected sibling pair families with type 2



diabetes mellitus suggests susceptibility loci on chromosomes 6, 11, and 14. *Diabetes* 53, 821-829  
Silander K,\* **Mohlke KL**,\* Scott LJ, Peck EC, Hollstein P, Skol AD, Jackson AJ, Deloukas P, Hunt S, Stavrides G, Chines PS, Erdos MR, Narisu N, Conneely KN, Li C, Fingerlin TE, Dhanjal SK, Valle TT, Bergman RN, Tuomilehto J, Watanabe RM, Boehnke M, Collins FS (2004) Genetic variation near the Hepatocyte Nuclear Factor-4 Alpha gene predicts susceptibility to type 2 diabetes. *Diabetes* 53:1141-1149  
Conneely KN\*, Silander K\*, Scott L, **Mohlke KL**, Lazaridis KN, Valle TT, Tuomilehto J, Bergman RN, Watanabe RM, Buchanan TA, Collins FS, Boehnke M (2004) Variation in the Resistin gene is associated with obesity and insulin-related phenotypes in Finnish subjects. *Diabetologia*, 47:1782-1788.

## C. Research Support

### Ongoing Research Support

Career Award in the Biological Sciences (Mohlke)

1/01/04-12/31/06

Burroughs Wellcome Fund

Genetic analysis of type 2 diabetes susceptibility

This study investigates chr 20q DNA variants associated with type 2 diabetes to identify the allele(s) responsible for increased susceptibility.

Role: PI

FF

## BIOGRAPHICAL SKETCH

Provide the following information for the key personnel in the order listed for Form Page 2.  
Photocopy this page or follow this format for each person.

NAME	POSITION TITLE		
Joseph Muenzer, M.D., Ph.D.	Associate Professor of Pediatrics		
EDUCATION/TRAINING <i>(Begin with baccalaureate or other initial professional education, such as nursing, and include postdoctoral training.)</i>			
INSTITUTION AND LOCATION	DEGREE <i>(if applicable)</i>	YEAR(s)	FIELD OF STUDY
Kalamazoo College, Kalamazoo, MI	B.A.	1970	Chemistry
Case Western Reserve University, Cleveland, OH	Ph.D.	1976	Biochemistry
Case Western Reserve University, Cleveland, OH	M.D.	1979	
University of Wisconsin Hospital, Madison, WI		1979-1982	Pediatric Residency
Human Genetics Branch, NICHD, Bethesda, MD		1982-1986	Endocrine/Genetics Fellowship

RESEARCH AND PROFESSIONAL EXPERIENCE: Concluding with present position, list, in chronological order, previous employment, experience, and honors. Include present membership on any Federal Government public advisory committee. List, in chronological order, the titles, all authors, and complete references to all publications during the past three years and to representative earlier publications pertinent to this application. If the list of publications in the last three years exceeds two pages, select the most pertinent publications. **DO NOT EXCEED TWO PAGES.**

### Employment and Professional Experience

1970-1971: **Chemist**, National Institute of Arthritis, Metabolic and Digestive Diseases, Bethesda, MD

1982-1985: **Medical Staff Fellow**, Human Genetics Branch  
National Institute of Child Health and Human Development, Bethesda, MD

1984  
Certified by the American Board of Pediatrics

1985-1986: **Senior Staff Fellow**, Human Genetics Branch  
National Institute of Child Health and Human Development Bethesda, MD

1986-1993: **Assistant Professor**, Department of Pediatrics  
University of Michigan School of Medicine

1990  
Diplomate of the American Board of Medical Genetics as a Clinical Biochemical/Molecular Geneticist

1993-present: **Associate Professor**, Department of Pediatrics  
University of North Carolina at Chapel Hill

2001-present: **Research Associate Professor**, Department of Genetics  
University of North Carolina at Chapel Hill

### Publications

1. Muenzer, J., Bildstein, C., Gleason, M., and Carlson, D.M. Purification of proline-rich proteins from parotid gland of isoproterenol-treated rats. *J Biol Chem* 1979; 254: 5623.
2. Muenzer, J., Bildstein, C., Gleason, M., and Carlson, D.M. Properties of proline-rich proteins from parotid gland of isoproterenol-treated rats. *J Biol Chem* 1979; 254: 5629.
3. Caruso, R.C., Kaiser-Kupfer, M.I., Muenzer, J., Ludwig, I.H., Zasloff, M.A., and Mercer, P.A. Electroretinographic Findings in the Mucopolysaccharidosis. *Ophthalmology* 1986, 93:1612.
4. Blizotes, M., Yergey, A., Nanes, M., Muenzer, J., Begley, M., Vieira, N., Kher, K., Brandi, M.L., and Marx, S. Absent intestinal response to 1,25 dihydroxyvitamin Documentation in vivo and in vitro and effective therapy with high dose intravenous calcium infusions. *J Clin Endocrinol Metab* 1988, 66:294.
5. Buchanan, D.N., Muenzer, J., and Thoene, J.G. Positive ion thermospray liquid chromatography/mass spectrometry: Detection of organic acidurias. *J Chromatogr/Biomedical Applications* 1990, 534:1-11.
6. Robertson, P.L., Buchanan, D.N., and Muenzer, J. 5-Oxoprolineuria in an adolescent with chronic metabolic acidosis, mental retardation, and psychosis. *J Pediatr* 1991, 118:92-5.
7. Abrams, S.A., Sidbury, J.B., Muenzer, J., Esteban, N.V., Vieira, N.E., and Yergey, A.L. Stable isotopic measurement of endogenous fecal calcium excretion in children. *J Pediatr Gastroenterol Nutr* 1991, 12:469-473.
8. Muenzer, J., Neufeld, E.F., Contanopolus, G.G. et al. Attempted enzyme replacement using human amnion membrane implantations in mucopolysaccharidosis. *J Inher Metab Dis* 1992, 15:25-37.
9. Muenzer, J., Beekman, R.H., Profera, L.M., and Bove, E.L. Severe mitral insufficiency in mucopolysaccharidosis type III-B (Sanfilippo syndrome). *Pediatr Cardiol* 14:130-132, 1993.

10. Marowitz, AJ, Chen, YT, Muenzer, J, Delbunono, EA, and Lucey, MR. A man with Type III glycogenosis associated with cirrhosis and portal hypertension. *Gastroenterology* 1993, 105: 1882-5.
11. Van Hove, JL, Kishnani, P, Muenzer, et al. Benzoate therapy and carnitine deficiency in non-ketotic hyperglycinemia. *Am. J. Medical Genetics* 1995, 59:444-53.
12. Reitnauer, PJ, Chaing, S and Muenzer, J. Why do critically ill newborns not get mandated screening? *North Carolina Medical Journal* 1999, 60: 256-58.
13. Weston, BW, Lin, J, Muenzer, J, et al. Glucose-6-phosphate mutation G188R confers an atypical glycogen storage disease type 1b phenotype. *Pediatric Research* 2000, 48: 329-34.
14. Andresen BS, Dobrowolski SF, O'Reilly L, Muenzer J, et al. Medium-chain acyl-CoA dehydrogenase (MCAD) mutations identified by MS/MS-based prospective screening of newborns differ from those observed in patients with clinical symptoms: identification and characterization of a new, prevalent mutation that results in mild MCAD deficiency. *American Journal of Human Genetics*. 68(6):1408-18, 2001
15. Kakkis, ED, Muenzer, J, Tiller, GE, et al. Enzyme-replacement therapy in mucopolysaccharidosis I. *NEJM* 2001, 344:182-8.
16. Fu, H, Samulski, RJ, McCown, TJ, Picornel, YJ, Fletcher, D and Muenzer, J. Neurological correction of lysosomal storage in a mucopolysaccharidosis IIIB mouse model by adeno-associated virus-mediated gene delivery. *Molecular Therapy* 2002, 5:42-9.
17. Muenzer J, Lamsa JC, Garcia A, Dacosta J, Garcia J, Treco DA. Enzyme replacement therapy in mucopolysaccharidosis type II (Hunter syndrome): a preliminary report. *Acta Paediatr Suppl.* 2002;91(439):98-9.
18. Koeberl DD, Millington DS, Smith WE, Weavil SD, Muenzer J, McCandless SE, Kishnani PS, McDonald MT, Chaing S, Boney A, Moore E, Frazier DM. Evaluation of 3-methylcrotonyl-CoA carboxylase deficiency detected by tandem mass spectrometry newborn screening. *J Inherit Metab Dis.* 2003;26(1):25-35.
19. Fu H, Muenzer J, Samulski RJ, Breese G, Sifford J, Zeng X, McCarty DM. Self-complementary adeno-associated virus serotype 2 vector: global distribution and broad dispersion of AAV-mediated transgene expression in mouse brain. *Mol Ther.* 2003 Dec;8(6):911-7

#### **Chapters in Books:**

1. Yergey, A.L., Vieira, N.E., Covell, D., and Muenzer, J. Studies of human calcium kinetics with stable isotopic kinetics, In: *Synthesis and Application of Isotopically Labeled Compounds*, 1985, R.R. Mucino (Ed.) Elsevier Science Publishers, Amsterdam p. 343-348, 1986.
2. Muenzer, J. Mucopolysaccharidosis. In *Advances in Pediatrics* Vol. 33: 269, 1986.
3. Neufeld, E.F. and Muenzer, J. The Mucopolysaccharidosis. In *Metabolic Basis of Inherited Disease*, 6th edition, Chapter 61, 1989.
4. Muenzer, J., Catastrophic metabolic disease in the newborn. In *Neonatal Emergency*, Ed., Donn, S.M. and Faix, R.G., Futura Publishing, NY Chapter 28: 501-511, 1991.
5. Neufeld, E.F. and Muenzer, J. The Mucopolysaccharidosis. In *Metabolic Basis of Inherited Disease*, 7th edition, Chapter 78, 1995.
6. Muenzer, J. Mucopolysaccharidoses. *Nelson Textbook of Pediatrics*, 16th edition, Chapter 85: 420-423, 2000.
7. Neufeld, E.F. and Muenzer, J. The Mucopolysaccharidosis. In *Metabolic Basis of Inherited Disease*, 8th edition, Chapter 136, 2001.

#### **Abstracts:**

1. Muenzer, J, Frazier, DM, Chace, DH, Naylor, EW, Moore, EG and Chaing, SH. Newborn screening by tandem mass spectrometry: A North Carolina Pilot Study. The 14<sup>th</sup> National Neonatal Screening Symposium, 1999.
2. Muenzer, J and Fu, H. Targeted disruption of the mouse iduronate sulfatase gene. *Am J Human Genetics* 65: A427, 1999.
3. McCandless, SE, Muenzer, J, Chaing SH et al. Tandem mass spectrometry newborn screening for medium-chain acyl-CoA dehydrogenase deficiency in North Carolina. *Am J Human Genetics* 67: 3, 2000.
4. Muenzer, J, Frazier, DM, Weavil, SD et al. Incidence of metabolic disorders detected by newborn screening in North Carolina using tandem mass spectrometry. *Am J Human Genetics* 67: 36, 2000.
5. Fu, H and Muenzer, J. In vitro correction of glycosaminoglycan storage in human and mouse MPS IIIB cell cultures using AAV-mediated recombinant  $\alpha$ -N-acetylglucosaminidase. *Am J Human Genetics* 67: 428, 2000.
6. Fu, H, Picornel, Y, Sifford, J and Muenzer, J. Long-term liver correction of lysosomal storage in adult mucopolysaccharidosis II knock-out mice by intravenous delivery of a single dose of AAV viral vector expressing iduronate sulfatase. *Molecular Therapy* 5:S12, 2002.
7. McCandless, S, Millington, D, Andresen BS, Gregersen, N, Muenzer, J, Frazier, DM. Clinical finds in MCAD patients heterozygous for the common mutation identified by MS/MS newborn screening. *Am J Hum Genet* 71: S419, 2002.
8. Muenzer, J, Towle, D, Calikoglu, M, McCandless, S. A phase I/II clinical study evaluating the safety and clinical activity of enzyme replacement therapy in Mucopolysaccharidosis II. *Am J Hum Genet* 71:S582, 2002.
9. Muenzer J, Towle D, Calikoglu, M, McCandless S. Enzyme replacement for mucopolysaccharidosis II (hunter syndrome) - The 12-month experience. *Am J Hum Genet* 2003 meeting

## Appendix 3.4

### Pardo-Manuel de Villena, Fernando

#### BIOGRAPHICAL SKETCH

NAME Fernando Pardo Manuel de Villena		POSITION TITLE Assistant Professor	
EDUCATION/TRAINING <i>(Begin with baccalaureate or other initial professional education, such as nursing, and include postdoctoral training.)</i>			
INSTITUTION AND LOCATION	DEGREE <i>(if applicable)</i>	YEAR(s)	FIELD OF STUDY
University of Leon (Spain)	Baccalaurea	1984-89	Biology
University Complutense of Madrid (Spain)	Ph.D.	1990-1994	Biology
Temple University (Philadelphia PA)	Postdoctoral	1994-2000	Genetics

#### A. Positions and Honors

##### Positions and Employment

Member of the Curriculum of Genetics and Molecular Biology. UNC-Chapel Hill. 2001

Member of the Lineberger Comprehensive Cancer Center. UNC-Chapel Hill. 2002

Member of the Carolina Center for Genome Sciences, UNC-Chapel Hill, 2004

Assistant Professor: Department of Genetics, University of North Carolina at Chapel Hill, Chapel Hill NC. January 2001.

Associate Scientist: Fels Institute for Cancer Research and Molecular Biology, Temple University School of Medicine, Philadelphia, Pennsylvania. 1998-2001.

Postdoctoral: Fels Institute for Cancer Research and Molecular Biology, Temple University School of Medicine, Philadelphia Pennsylvania. 1994 –1998.

Graduate fellow: Department of Immunology, Centro de Investigaciones Biológicas, CSIC, Madrid Spain. 1989-1994

Practice contract: Quality Control Laboratory, Antibioticos S.A. Leon, Spain. 1989.

##### Honors

1990 - 1993. Fellow of the Plan Nacional de Formación del Personal Investigador. Ministerio de Educación y Ciencia. Spain

1995 - 1997. Fellow of the Programa Sectorial de Formación de Profesorado y Personal Investigador. Subprograma General en el Extranjero. Ministerio de Educación y Ciencia. Spain

#### B. Selected peer reviewed publications (selected out of total of 33)

1. **Pardo-Manuel F**, Rey-Campos J, Hillarp A, Dahlback B and Rodriguez de Córdoba S. 1990. Human genes for the  $\alpha$  and  $\beta$  chains of complement C4b-binding protein are closely linked in a head-to tail arrangement. *Proc. Natl. Acad. Sci. (USA)* 87: 4529-4532.

2. Sánchez-Corral P, **Pardo-Manuel de Villena F**, Rey-Campos J and Rodriguez de Córdoba S. 1993. *C4BPAL1*, a member of the human regulator of complement activation (RCA) gene cluster that resulted from the duplication of the gene coding for the  $\alpha$ -chain of C4b-binding protein. *Genomics* 17: 185.

3. Hillarp A, **Pardo-Manuel F**, Ramos-Ruiz R, Rodriguez de Córdoba S and Dahlback B. 1993. The human C4b-binding protein  $\beta$ -chain gene. *J. Biol. Chem.* 268: 15017-15023.

4. Rodriguez de Córdoba S, Perez-Blas M, Ramos-Ruiz R, Sánchez-Corral P, **Pardo-Manuel de Villena F** and Rey-Campos J. 1994. The gene encoding for the  $\beta$ -chain of C4b-binding protein (*C4BPB*) has become a pseudogene in the mouse. *Genomics* 21: 501-509.

5. **Pardo-Manuel de Villena F** and Rodriguez de Córdoba S. 1995. *C4BPAL2*: a second duplication of the *C4BPA* gene in the RCA human gene cluster. *Immunogenetics* 41:139-143.

6. **Pardo-Manuel de Villena F** and Sapienza C. 1996. Genetic mapping of *DXYMov15*-associated sequences in the pseudoautosomal region of the C57BL/6J strain. *Mamm. Genome* 7: 237-239

7. **Pardo-Manuel de Villena F**, Slamka C, Fonseca M, Naumova AK, Paquete J, Panunzio P, Smith M, Verner AE, Morgan K, and Sapienza C. 1996. Transmission-ratio distortion through F1 females at chromosome 11 loci linked to *Om* in the mouse DDK syndrome. *Genetics* 142: 1299-1304
8. **Pardo-Manuel de Villena F**, Heine Suñer D and Rodríguez de Córdoba S. 1996. Ordering of the human regulator of complement activation gene cluster on 1q32 by two-colour FISH. *Cytogenet. Cell Genet.* 72: 339.
9. Heine Suñer D, Diaz-Guillen MA, **Pardo-Manuel de Villena F**, Robledo M, Benitez J and Rodríguez de Córdoba S. 1997. A high resolution map of the regulator of complement activation (RCA) gene cluster on 1q32 that integrates new genes and markers. *Immunogenetics* 45: 422-427.
10. **Pardo-Manuel de Villena F**, Naumova AK, Verner AE, Jin WH and Sapienza C. 1997. Confirmation of transmission ratio distortion at *Om* and direct evidence that the maternal and paternal "DDK syndrome" genes are linked. *Mamm. Genome* 8, 642-646.
11. **Pardo-Manuel de Villena F**, de la Casa-Esperon E, Verner AE, Morgan K and Sapienza C. 1999. The DDK syndrome maternal phenotype is determined by modifier genes that are not linked to *Om*, *Mamm. Genome* 10, 492-497.
12. **Pardo-Manuel de Villena F**, de La Casa-Esperon E, Briscoe TL and Sapienza C. 2000. A genetic test to determine the origin of maternal transmission ratio distortion: meiotic drive at mouse *Om* locus. *Genetics* 154, 333-342
13. **Pardo-Manuel de Villena F**, de la Casa-Esperon E, Briscoe TL, Malette JM and Sapienza C. 2000. Male offspring-specific, haplotype-dependent, nonrandom cosegregation of alleles at loci on two chromosomes. *Genetics* 154, 351-356.
14. **Pardo-Manuel de Villena F**, de La Casa-Esperon E, Williams J, Malette JM, Rosa M and Sapienza C. 2000. Heritability of the maternal meiotic drive system linked to *Om* and high resolution mapping of the *Responder* locus in mouse. *Genetics* 155, 283-289.
15. **Pardo-Manuel de Villena F**, de la Casa-Esperon E and Sapienza C. 2000. Natural selection and the function of genome imprinting: Beyond the silenced minority. *Trends in Genetics* 16, 573-579.
16. Paz-Miguel JE, **Pardo-Manuel de Villena F**, Sanchez-Velasco P and Leyva-Cobian F. 2001. *H2*-haplotype dependent unequal transmission of the 17<sup>16</sup> translocation chromosome from Ts65Dn females. *Mamm. Genome* 12, 83-85
17. **Pardo-Manuel de Villena F** and Sapienza C. 2001. Transmission ratio distortion in offspring of heterozygous female carriers of Robertsonian translocations. *Hum. Genet.* 108, 31-36.
18. **Pardo-Manuel de Villena F** and Sapienza C. 2001. Recombination is proportional to the number of chromosome arms in mammals. *Mamm. Genome* 12, 318-322.
19. **Pardo-Manuel de Villena F** and Sapienza C. 2001. Nonrandom segregation during meiosis: The unfairness of females. *Mamm. Genome* 12, 331-339.
20. **Pardo-Manuel de Villena F** and Sapienza C. 2001. Transmission of Robertsonian translocations through human female meiosis. *Cytogenet. Cell Genet* 92, 342-344.
21. **Pardo-Manuel de Villena F** and Sapienza C. 2001. Female meiosis drives karyotypic evolution in mammals. *Genetics* 159, 1179-1189.
22. de la Casa-Esperon E, Loredó-Osti J C , **Pardo-Manuel de Villena F**, Briscoe T L, Malette J M, Vaughan J, Morgan K and Sapienza C. 2002. X chromosome effect on maternal recombination and meiotic drive in the mouse. *Genetics* 161, 1651-1659
23. Mager JC, Montgomery ND, **Pardo-Manuel de Villena F** and Magnuson T. 2003. Genome imprinting regulated by a mouse Polycomb group protein. *Nat. Genet* 33, 502-507.
24. **Pardo-Manuel de Villena F**. 2003. Mammalian karyotype: Evolution. *The Encyclopedia of the Human Genome*. Nature Publishing Group.
25. Ideraabdullah FY, De la Casa-Esperon E, Bell TA, Detwiler DA, Magnuson T, Sapienza C, **Pardo-Manuel de Villena F**. 2004. Genetic and haplotype diversity among wild derived mouse inbred strains. *Genome Res.* (in press)
26. Kim K, Thomas S, Howard IB, Bell TA, Doherty HE, Ideraabdullah F, Detwiler D, **Pardo-Manuel de Villena. F** 2004. Meiotic drive at the *Om* locus in wild derived mouse inbred strains. *Biological Journal of the Linnean Society* (in press).

27. Wu, G., Hao L., Han, Z., Gao, S., Latham, KE., **Pardo Manuel de Villena, F.** and Sapienza, C. 2004. Maternal Transmission Ratio Distortion at the Mouse *Om* Locus Results from Meiotic Drive at the Second Meiotic Division. (submitted to Genetics 12/04).

### C. Research Support

#### Ongoing Research Support

MCB-0133526 Pardo Manuel de Villena (PI) 2/01/2002-1/31/2007

National Science Foundation. Faculty Early Career Development (CAREER) Program.

The limits of Mendelian Genetics: Sperm influences female chromosome segregation

The goal of this project is the cloning and characterization of the *Shade* locus in the mouse. *Shade* is a sperm gene that influences the segregation of chromatids during the second meiotic division of female meiosis.

*Shade* maps to a 5 cM interval on mouse chromosome 11. The Specific Aims in this proposal are:

- 1) Determine the mode of inheritance and map the *Shade* locus responsible for the effect of the sire on nonrandom segregation of chromatids during female meiosis.
- 2) Define a 1 cM candidate interval and characterize candidate genes located within it.
- 3) Clone and characterize the gene responsible for the effect on chromatid segregation; and
- 4) Generate a congenic strain to test whether the gene identified is responsible for nonrandom segregation in other systems.

Role: PI

Junior Investigator Award. CONRAD Program. Pardo Manuel de Villena (PI) 4/01/2002-3/31/2005

Andrew W. Mellon Foundation.

Genetic and molecular characterization of a sperm factor involved in egg activation.

The Specific Aims of this study are:

- 1) Identification of candidate genes in the interval using Celera Genomics Database: a) Tissue specificity; b) Postnatal development in juvenile mouse testes to monitor the initial appearance of the message and its levels during postnatal development; and c) In isolated male germ cells (including round spermatids, condensing spermatids, pachytene spermatocytes, and Sertoli cells).
- 2) Functional characterization of candidate genes and identification of the sperm factor using targeted mutation approaches.
- 3) Characterization of the role of the sperm factor in egg activation with special emphasis in determining the pathway in which the sperm factor is involved and its molecular partners.

Role: PI

#### Pending Research Support

R01-NIH Pardo Manuel de Villena (PI) 07/01/05 – 06/30/10

Discovery of causative cis-regulatory variation in mouse.

The Specific Aims of this study are:

1. Identify an optimal panel of inbred strains for identification of *cis*-regulatory variants in a genome wide manner. To accomplish this aim we propose:
  - 1.1. Estimate the mapping resolution in our panel of 25 strains for a previously described, but no yet identified, regulatory variant responsible for differential allelic expression of the *119r* gene.
  - 1.2. Estimate the level of genetic diversity, the fraction of informative genes, and the level and extent of LD in our initial panel of inbred strains.
  - 1.3. Define the optimal panel of strains for high-resolution mapping of *cis*-regulatory variants.
2. Provide proof of principles for this approach by the identification and validation of the causal variants for multiple genes (*eg.*, *119r*, *Comt*, *Ccnf*, *Uros*, *etc*). To accomplish this aim we propose to:
  - 2.1. Generate the mapping panel(s). Establish priority criteria for high-resolution mapping.
  - 2.2. Statistical methods.
  - 2.3. Comprehensive analysis of *cis*-regulatory variation in the *119r* gene, including identification of the genetic variant(s) responsible for the differential allelic expression in the spleen.
  - 2.4. High-resolution mapping of *cis*-regulatory variants in high-priority genes.

## BIOGRAPHICAL SKETCH

Provide the following information for the key personnel in the order listed for Form Page 2.  
Follow this format for each person. **DO NOT EXCEED FOUR PAGES.**

NAME <b>Charles Maurice Perou</b>	Assistant Professor of Genetics and Pathology Member, Lineberger Comprehensive Cancer Center University of North Carolina at Chapel Hill		
EDUCATION/TRAINING <i>(Begin with baccalaureate or other initial professional education, such as nursing, and include postdoctoral training.)</i>			
INSTITUTION AND LOCATION	DEGREE <i>(if applicable)</i>	YEAR(s)	FIELD OF STUDY
Bates College, Lewiston, ME University of Utah, Salt Lake City, UT	B.S. Ph.D.	1987 1996	Biology Cell Biology

**NOTE: The Biographical Sketch may not exceed four pages. Items A and B, together, may not exceed two of the four-page limit.**

### A. Positions and Honors.

- |              |   |
|--------------|---|
| 1992-1995    | Recipient, National Institutes of Health Genetics Predoctoral Training Grant, Jerry Kaplan Lab<br>University of Utah, Salt Lake City, UT (PhD advisor)    |
| 1997-2000    | Postdoctoral Fellow, David Botstein Lab, Department of Genetics, Stanford University, CA  |
| 1997-2000    | Recipient, Life Sciences Research Foundation Postdoctoral Fellowship (Botstein Lab)   |
| 1999         | Awarded U.S. Patent No. US5952223, "Compositions for the diagnosis and treatment of Chediak-Higashi syndrome"   |
| 2000-present | Assistant Professor of Genetics and Member of the Lineberger Comprehensive Cancer Center,<br>University of North Carolina at Chapel Hill, Chapel Hill, NC |
| 2001-present | Member, American Association for Cancer Research  |
| 2001-present | Co-Director of the UNC-CH Genomics and Bioinformatics Core Facility   |
| 2002-present | Adjunct appointment as Assistant Professor of Pathology and Laboratory Sciences, UNC-CH   |
| 2002-present | Member, The Cancer and Leukemia Group B (CALGB) and Member of the CALGB Breast Cancer Correlative Sciences Committee                                      |
| 2003-present | Member of the Komen Foundation Breast Health Advisory Committee   |

### B. Selected Peer-reviewed publications (in chronological order).

1. **C. M. Perou**, K. J. Moore, D. L. Nagle, D. J. Misumi, E. A. Woolf, S. H. McGrail, L. Holmgren, T. H. Brody, B. J. Dussault Jr., C. A. Monroe, G. M. Duyk, R. J. Pryor, L. Li, M. J. Justice, and J. Kaplan. Identification of the murine *beige* gene by YAC complementation and positional cloning, **Nature Genetics** 13, 303-308 (1996).
2. D. J. Nagle, M. A. Karim, E. A. Wolf, L. Holmgren, P. Bork, D. Misumi, S. H. McGrail, B. J. Dussault Jr., **C. M. Perou**, R. E. Boissy, G. M. Duyk, R. A. Spritz, and K. J. Moore. Identification and mutation analysis of the complete gene for Chediak-Higashi syndrome, **Nature Genetics** 14, 307-311 (1996).
3. **C. M. Perou**, J. D. Leslie, W. Green, L. Li, D. McVey-Ward, and J. Kaplan. The Beige/Chediak-Higashi gene encodes a widely expressed cytosolic protein, **J. Biol. Chem.** 272, 29790-29794 (1997).
4. **C. M. Perou**, S. S. Jeffrey, M. van de Rijn, M. B. Eisen, D. T. Ross, A. Pergamenschikov, C. A. Rees, C. F. Williams, S. X. Zhu, J. C. F. Lee, D. Lashkari, D. Shalon, P. O. Brown, and D. Botstein. Distinctive Gene Expression Patterns in Human Mammary Epithelial Cells and Breast Cancers, **Proc. Natl. Acad. Sci. U.S.A.** 96, 9212-9217 (1999).

5. J. R. Pollack, **C. M. Perou**, A. Alizadeh, M. B. Eisen, A. Pergamenschikov, C. F. Williams, S. S. Jeffrey, D. Botstein and P. O. Brown. Genome-Wide Analysis of DNA Copy Number Variations Using cDNA Microarrays, **Nature Genetics** 23, 41-46 (1999).
6. D. T. Ross, U. Scherf, M. B. Eisen, **C. M. Perou**, P. Spellman, V. Iyer, S. S. Jeffrey, M. van de Rijn, M. Waltham, A. Pergamenschikov, J. C. F. Lee, D. Lashkari, D. Shalon, T. G. Myers, J. N. Weinstein, D. Botstein, and Patrick O. Brown. Systematic Variation in Gene Expression Patterns in Human Cancer Cell Lines, **Nature Genetics**, 24, 227-35 (2000).
7. **C. M. Perou**, T. Sørlie, M. B. Eisen, M. van de Rijn, S. S. Jeffrey, C. A. Rees, J. R. Pollack, D. T. Ross, H. Johnsen, L. A. Akslen, Ø. Fluge, A. Pergamenschikov, C. Williams, S. X. Zhu, P. E. Lønning, A.-L. Børresen-Dale, Patrick O. Brown, and David Botstein. Molecular Portraits of Human Breast Tumors, **Nature**, 406, 747-52 (2000).
8. T. Sørlie, **C. M. Perou**, R. Tibshirani, T. Aas, S. Geisler, H. Johnsen, T. Hastie, M. B. Eisen, M. van de Rijn, S. S. Jeffrey, T. Thorsen, H. Quist, C. A. Rees, P. O. Brown, D. Botstein, P. E. Lønning, A.-L. Børresen-Dale. Gene expression patterns of breast carcinomas distinguish tumor subclasses with potential clinical implications, **Proc. Natl. Acad. Sci. U.S.A.** 19, 10869-10874 (2001).
9. B. S. Finlin, C.-L. Gau, G. A. Murphy, H. Shao, T. Kimel, R. S. Seitz, Y.-F. Chiu, D. Botstein, P. O. Brown, C. J. Der, F. Tamanoi, D. A. Andres and **C. M. Perou**. *REG*, an estrogen-regulated and growth-inhibitory gene, encodes a novel Ras-related protein, **J. Biol. Chem.** 276, 42259-67 (2001).
10. M. E. Garber, O. G. Troyanskaya, K. Schluens, S. Petersen, Z. Thaesler, M. Pacyna-Gengelbach, M. van de Rijn, G. D. Rosen, **C. M. Perou**, R. I. Whyte, R. B. Altman, P. O. Brown, D. Botstein and I. Petersen. Diversity of gene expression in adenocarcinoma of the lung, **Proc. Natl. Acad. Sci. U.S.A.** 98, 13784-9 (2001).
11. D. T. Ross and **C. M. Perou**. A comparison of gene expression signatures from breast tumors and breast tissue derived cell lines, **Disease Markers** 17, 99-109 (2001).
12. **C. M. Perou**. Show Me The Data! **Nature Genetics** 29, 373 (2001).
13. M. W. Whitfield, G. Sherlock, A. Saldanha, J. Murray, C. A. Ball, K. E. Alexander, J. C. Matese, **C. M. Perou**, M. M. Hurt, P. O. Brown and D. Botstein. Identification of genes periodically expressed in the human cell cycle and their expression in tumors, **Molecular Biology of the Cell** 13, 1977-2000 (2002).
14. J. R. Pollack, T. Sørlie, **C. M. Perou**, C. A. Rees, P. E. Lønning, R. Tibshirani, D. Botstein, A.-L. Børresen-Dale and P. O. Brown. Microarray analysis reveals a major direct role of DNA copy number alteration in the transcriptional program of human breast tumors, **Proc. Natl. Acad. Sci. U.S.A.**, 99, 12963-12968 (2002).
15. M. van de Rijn, **C. M. Perou**, R. Tibshirani, P. Haas, O. Kallioniemi, J. Kononen, J. Torhorst, G. Sauter, M. Zuber, O. R Köchli, F. Mross, H. Dieterich, S. S. Jeffrey, R. Seitz, D. T. Ross, D. Botstein and P. O. Brown. Expression of cytokeratins 17 and 5 identifies a group of breast carcinomas with poor clinical outcome, **Amer. J. of Pathology**, 161 1991-1996 (2002).
16. C. H. Chung, P. S. Bernard and **C. M. Perou**, Molecular Portraits and the Family Tree of Cancer, **Nature Genetics**, 32, 533-540 (2002).
17. T. Sørlie, R. Tibshirani, J. Parker, T. Hastie, J. S. Marron, A. Nobel, S. Deng, H. Johnsen, R. Pesich, S. Geisler, **C. M. Perou**, P. E. Lønning, P. O. Brown, A.-L. Børresen-Dale and D. Botstein. Repeated Observation of Breast Tumor Subtypes in Independent Gene Expression Data Sets **Proc. Natl. Acad. Sci.** 100, 8418-23 (2003).
18. S. Ramaswamy and **C. M. Perou**, DNA Microarrays in Breast Cancer: The Promise of Personalized Medicine, **Lancet** 361, 1576-7 (2003).



19. M. Benito, J. Parker, Q. Du, J. Wu, D. Xiang, **C. M. Perou** and J. S. Marron, Adjustment of systematic microarray data biases, **Bioinformatics** 20, 105-14 (2004).
20. T. Grushko, J. Dignam, S. Das, A.M. Blackwood, **C. M. Perou**, K.K. Ridderstrale, K.N. Anderson, M.-J. Wei, A.J. Adams, F.G. Hagos, L. Sveen, H.T. Lynch, B.L. Weber and O.I. Olopade. MYC is Amplified in BRCA1-Associated Breast Cancers, **Clinical Cancer Research** 10, 499-507 (2004).
21. C.H. Chung, J.S. Parker, G. Karaca, J. Wu, W.K. Funkhouser, D. Moore, D. Butterfoss, D. Xiang, A. Zanation, X. Yin, W.W. Shockley, M.C. Weissler, L.G. Dressler, C.G. Shores, W.G. Yarbrough and **C.M. Perou**. Molecular Classification of Head and Neck Squamous Cell Carcinomas using Patterns of Gene Expression, **Cancer Cell** 5, 489-500 (2004).
22. M.A. Troester, K.A. Hoadley, T. Sørli, A.-L. Børresen-Dale, P.E. Lønning, B. Shea-Herbert, J.W. Shay, and **C.M. Perou**. Cell-type Specific Responses to Chemotherapeutics in Breast Cancer, **Cancer Research**, 64, 4218-26 (2004).
23. J. Usary, V. Llaca, G. Karaca, S. Presswala, M. Karaca, X. He, A. Langerød, R. Kåresen, D.S. Oh, L.G. Dressler, P.E. Lønning, R.L. Strausberg, S. Chanock, A.-L. Børresen-Dale and **C.M. Perou**. Mutations of GATA3 in human breast tumors, **Oncogene**, 46, 7669-78 (2004).
24. T.O. Nielsen, F.D. Hsu, K. Jensen, M. Cheang, G. Karaca, Z. Hu, T. Hernandez-Boussard, C. Livasy, D. Cowan, L. Dressler, L. A. Akslen, Joseph Ragaz, A.M. Gown, C.B. Gilks, M. van de Rijn and **C.M. Perou**. Immunohistochemical and Clinical Characterization of the Breast Basal-like Subtype of Invasive Carcinoma, **Clinical Cancer Research** 10, 5367-74 (2004).
25. A. Szabo, **C.M. Perou**, M. Karaca, L. Perreard, J.F. Quackenbush and PS Bernard. Statistical Modeling for Selecting Housekeeper Genes. **Genome Biology**, 5 R59 (2004).
26. J. M. Thomson, J. Parker, **C. M. Perou** and S. M. Hammond. A Custom Microarray Platform for Analysis of MicroRNA Gene Expression, **Nature Methods**, 1, 1-7 (2004).
27. M.A. Troester, K.A. Hoadley, J.S. Parker and **C.M. Perou**. Prediction of Toxicant-Specific Gene Expression Signatures following Chemotherapeutic Treatment of Breast Cell Lines, **Environmental Health Perspectives**, 112, 1607-13 (2004).
28. Z. Hu, C. Fan, J.S. Marron, X. He, B.F. Qaqish, G. Karaca, C. Livasy, L.A. Carey, E. Reynolds, L. Dressler, A. Nobel, J. Parker, M.G. Ewend, L.R. Sawyer, D. Xiang, J. Wu, Y. Liu, M. Karaca, R. Nanda, M. Tretiakova, A.R. Orrico, D. Dreher, J.P. Palazzo, L. Perreard, E. Nelson, M. Mone, H. Hansen, M. Mullins, J.F. Quackenbush, O.I. Olopade, Philip S. Bernard and **C.M. Perou**. The Molecular Portraits of Breast Tumors Are Conserved Across Microarray Platforms, **Submitted** (2004).
29. R. Rouzier, **C.M. Perou**, W.F. Symmans, N. Ibrahim, M. Cristofanilli, K. Anderson, K.R. Hess, J. Stec, M. Ayers, P. Wagner, B. Wang, D. Gold, P. Morandi, C. Fan, I. Rabiul, D.J. Fitterman, J.S. Ross, G.N. Hortobagyi and L. Pusztai. Different molecular subtypes of breast cancer respond differently to preoperative chemotherapy, **Submitted** (2004).

**C. Research Support**  
**ACTIVE**

5-P50-CA58223-09A1	(Earp)	08/01/01	7/31/06	20.00%
National Cancer Institute				\$161,685.00
<b>SPORE in Breast Cancer, Project 6 Breast Tumor Molecular "Profiling" Using cDNA Microarrays</b>				
Aim: To identify biologically and clinically relevant breast tumor subtypes using cDNA microarrays, and searching for molecular "signatures" of response or resistance to chemotherapy.				
5-P50-CA58223-09A1	(Earp)	08/01/01	7/31/06	2.50%
National Cancer Institute				\$149,831.00

**SPORE in Breast Cancer, Project 5: Correlation of Molecular Markers with Response to Neoadjuvant Chemotherapy**

Aim: To collect serial samples from primary breast cancers before, during and after neoadjuvant chemotherapy (anthracycline-based) followed by a taxane with or without Herceptin) to identify markers correlated with response.

5-P50-CA58223-09A1	(Earp)	08/01/01 7/31/06	2.50%
National Cancer Institute			\$72,019.00

**SPORE in Breast Cancer, Core 2 Genomics and Microarray Core**

The Genomics and Microarray Core provides scientific services and computational support for SPORE projects using DNA microarrays.

1-U19-ES11391-02	(Kaufman and Perou)	09/01/01 8/31/06	20.00%
National Institute of Environmental Health Sciences			\$225,121.00

**Profiles of Susceptibility to Toxicant Stress: Project #1**

Aim: to use cDNA microarrays to examine the changes in gene expression that are induced by various chemotherapeutic agents and other toxicants in various lines of human mammary epithelial cells to identify patterns of response

1-RO1-CA-101227-01	(Perou)	04/01/03 3/31/08	20.00%
National Cancer Institute			\$250,106.00

**Molecular Characterization of Breast Basal-like Tumors**

Aim: To identify using gene expression profiling, and then characterize breast basal-like tumors using molecular genetics and immunohistochemistry. Tissue arrays will also be used to characterize the progression of basal-like tumors and determine if any of the commonly used chemoprevention targets are present within these lesions.

2-RO1-CA69577-06	(Der)	03/01/02 2/28/07	5.00%
National Cancer Institute			\$200,250.00

**Ras Signal Transduction and Transformation**

Aim: The primary goal of this project will be to determine the gene targets important for oncogenic Ras growth transformation of rodent and human epithelial cells.

2-R01-HL072347-01	(Patterson)	09/30/02 9/29/06	5.00%
National Institute of Health			\$496,560.00

**Carolina Cardiopulmonary Gene Expression Services**

Aim: to supply NHBLI funded investigators at UNC-CH with complete microarray services including bioinformatics.

1-R33-CA97769-01	(Bernard and Perou)	07/01/02 6/30/05	10.00%
National Cancer Institute			\$102,070.00

**Molecular Diagnostic Tests for Breast Cancer - Subcontract with University of Utah**

Aim: To develop and test quantitative RT-PCR based tests to score for breast tumor gene expression defined subtypes, and to test these classifications for clinical significance.

Research Services contract from Eli Lilly	(Perou)	07/01/02 6/30/04	5.00%
<b>Molecular Profiling of Gemcitabine Treated Breast Tumor Patients</b>			\$141,000

Aim: to perform gene expression profiling on breast tumor patients before, during and after treatment with Gemcitabine in order to identify patterns of response that will predict response or resistance to therapy.

Research Services contract from BD Technologies	(Perou)	07/01/04 6/30/05	5.00%
<b>Characterization of Breast Epithelial Cell Lines and Isolation of Primary Luminal Lines</b>			\$120,000

Aim: to characterize the growth factor and extracellular matrix requirements of number of breast epithelial cell lines, and then to use this information and BDT Discovery Platform, to isolate luminal/ER+ primary cell lines.

**PENDING**

NCI RFA-CA-04-015	(Ellis-PI)	06/01-/05 – 05/31/09	15%
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**Biological Breast Cancer Classification by qRT-PCR**

Develop and refine a quantitative RT-PCR based assay that works from formalin-fixed, paraffin-embedded (FFPE) tissues so that RNA from aged blocks can be accurately profiled for breast tumor gene expression defined subtypes, and to test these classifications for clinical significance using homogeneously treated patient cohorts.

FF

## BIOGRAPHICAL SKETCH

Provide the following information for the key personnel in the order listed for Form Page 2.  
Photocopy this page or follow this format for each person.

NAME  Dr. Larysa Pevny	POSITION TITLE  Assistant Professor
------------------------------	---

EDUCATION/TRAINING <i>(Begin with baccalaureate or other initial professional education, such as nursing, and include postdoctoral training.)</i>			
INSTITUTION AND LOCATION	DEGREE <i>(if applicable)</i>	YEAR(s)	FIELD OF STUDY
Columbia University, N.Y.C., NY, U.S.A.	B.A.	1987	Biochemistry
Columbia University, N.Y.C., NY, U.S.A.	M.A.	1988	Genetics
Columbia University, N.Y.C., NY, U.S.A.	M.Phil	1990	Genetics
Columbia University, N.Y.C., NY, U.S.A.	Ph.D.	1992	Genetics

RESEARCH AND PROFESSIONAL EXPERIENCE: Concluding with present position, list, in chronological order, previous employment, experience, and honors. Include present membership on any Federal Government public advisory committee. List, in chronological order, the titles, all authors, and complete references to all publications during the past three years and to representative earlier publications pertinent to this application. If the list of publications in the last three years exceeds two pages, select the most pertinent publications. **DO NOT EXCEED TWO PAGES.**

### Professional Positions

January. 2001-present	Assistant Professor, University of North Carolina at Chapel Hill, Department of Genetics/Neuroscience Center
November 1998-January, 2001	Lecturer, Developmental Genetics Programme, Krebs Institute University of Sheffield, U.K.
November, 1992 - November, 1998	Postdoctoral Fellow, Laboratory of Dr. Robin Lovell-Badge, National Institute for Medical Research, London, U.K.

### Honors and Other Professional Activities

January 2001 – present	Honorary lectureship, University of Sheffield, U.K.
October, 1992 - October, 1993	Post-doctoral fellowship, National Foundation of the March of Dimes U.S.A.
September, 1989 - September, 1992	Pre-doctoral award National Foundation of the March of Dimes U.S.A.
September, 1988 - September, 1989	Pre-doctoral training grant, National Cancer Institute, U.S.A.

### Research Projects Ongoing or Completed during the last 3 years

Wellcome Trust Project Grant: £260,000.00 (October, 1999- October, 2002)  
 “The SOX factors in Human ES cells”  
 Collaboration with Dr. Peter Andrews, University of Sheffield, Sheffield,  
 U.K.

National Institutes of Health (RO1 grant-MH64798-01):  
 \$1,250,000.00 (December, 2001 – December, 2006)  
 “Role of SOXB1 factors in neural progenitors”

Christopher Reeves Foundation

\$120,000 (June 2004-June 2006)

“Role of SOX2 during spinal cord injury”

### **Patents**

Sox1, neuronal stem cell gene. Filing number: GB9713469.6, Publication number: WO9900516.

Sox2 gene in ES cell manipulation. Filing number: GB9828383.1

### **Publications**

#### **PUBLICATIONS**

Pevny, L., et al. (1990) Chromosome 21 sequences are not duplicated in Alzheimer's disease: An analysis by PFGE. *Biotechnology and Human Predisposition to Disease*. Vol. **126**, pp. 21-28.

Pachnis, V., Pevny, L., Rothstein, R., and Costantini, F\*. (1990) Transfer of a Yeast Artificial Chromosome carrying human DNA from *Sacchomyces cerevisiae* into mammalian cells. *PNAS* **87**, 5109-5113.

Pevny, L., Simon, C., Robertson, E., Klein, W., Tsai, F., D'Agati, V., Orkin, S., and Costantini, F\*. (1991) Erythroid differentiation in chimeric mice blocked by targeted mutation in the transcription factor GATA-1. *Nature* **349**, 257-260.

Sainz, J., Pevny, L., Yue, W., Cantor, C., and Smith, C\*. (1992) Distribution of interspersed repeats (Alu and Kpn) on NotI restriction fragments of human chromosome 21. *PNAS* **89**, 1080-1084.

Pevny, L., Simon, C., Robertson, E., Klein, W., Tsai, F., D'Agati, V., Orkin, S., and Costantini, F\*. (1992) Developmental function of transcription factor GATA-1 analyzed by gene targeting in murine embryonic stem cells. G. Stamatoyanopoulos and A. Nienhuis, Eds. *Proceedings of Seventh Conference on Hb Switching*, Johns Hopkins Univ. Press.

Simon, M.C., Pevny, L., Wiles, V.M., Keller, G., Costantini, F\*, and Orkin, S+. (1992) Rescue of erythroid development in gene targeted GATA-1 mouse embryonic stem cells. *Nature Genetics* **1**, 92-98.

Pevny, L., Simon, M.C., D'Agati, V., Orkin, S., and Costantini, F\*. (1993) Role of transcription factor GATA-1 in the differentiation of hemopoietic cells. In *Cell-Cell Signaling in Vertebrate Development*, Academic Press. Inc., pp. 201-208.

Pevny, L., Lin, C.S., D'Agati, V., Simon, M.C., Orkin, S., and Costantini, F\*. (1995) Development of hemopoietic cells lacking transcription factor GATA-1. *Development* **121**, 163-172.

Pevny, L., and Lovell-Badge, R\*. (1997) Sox genes find their feet. *Current Opinions in Genetics and Development* **7**, 338-344.

Pevny, L., Sockanathan, S., Placzek, M. and Lovell-Badge, R\*. (1998). A role for SOX1 in neural determination. *Development* **125**, 1967-1978.

Li, M., Pevny, L., Lovell-Badge, R\*, and Smith A+. (1998). Generation of purified neural precursors from embryonic stem cells by lineage selection. *Current Biology* **8**, 971-974.

Mankoo, B., Collins, N., Ashby, P., Grigorieva, E., Pevny, L., Candia, A., Wright, C., Rigby, P. and Pachnis, V+. (1999) Mox2 is a component of the genetic hierarchy controlling limb muscle development. *Nature* **400**, 69-73.

Liu, Y., Wu, Y., Lee, J., Xue, H., Pevny, L., Kaprielian, Z., and Rao, M<sup>+</sup> (2002) Oligodendrocyte and astrocyte development in rodents – An *in situ* and immunocytological analysis during embryonic development. *Glia* 40, 25-43.

Hayashi, S., Lewis, P., Pevny, L., and McMahon, A<sup>+</sup>. (2002) Efficient gene modulation in mouse epiblast using a Sox2Cre transgenic mouse strain. *Mechanisms of Development* 119, 93-97.

Avilion, A., \* Nicholas, S.,\*Pevny, L., Perez, L., Vivian, N., and Lovell-Badge, R.\* (2003). Multipotent cell lineages in early mouse development depend on SOX2 function. *Genes and Development* 17, 126-140.

\*These authors contributed equally to this work.

Pevny, L and Rao, M<sup>+</sup>. (2003) Stem cell menagerie. *Trends in Neuroscience* 26, 351-359.

Rao M. S. and Pevny L. (2003) Isolation of stem cells from multiple sites in the CNS. In “Neural Stem cells”. Humana press. Totowa, New Jersey. Eds. Bottenstein J. pgs 127-154.

Graham, V., Khudyakov, J., Ellis, P. and Pevny, L. (2003) SOX2 functions to maintain neural progenitor identity. *Neuron* 39, 749-765.

Fair, J.H., Cairns, B.A., Lapaglia, M., Wang, J., Meyer, A.A., Kim, H., Hatada, S., Smithies, O. and Pevny, L. (2003) Induction of hepatic differentiation in embryonic stem cells by co-culture with embryonic cardiac mesoderm. *Surgery* 134, 189-196.

Ellis, P., Fagan, M., Taranova, O., Magness, S., Hayashi, S., McMahon, A. Rao, M and Pevny, L. SOX2 a persistent marker for neural stem cells derived from ES cells, the embryo or the adult (2005) *Developmental Neuroscience* (in press)

Fair, J. et al., (2005) Correction of factor IX deficiency in mice by embryonic stem cells differentiated in vitro *PNAS* (in press)

Placzek, M. and Pevny, L. (2005) SOX factors and progenitor identity. *Current Opinions in Neurobiology* (in press)

Taranova, O., Fagan, M., Magness, S. and Pevny, L (2005) SOX2 maintains retinal progenitor identity (manuscript in preparation).

Magness, S., Fagan, M., and Pevny, L. (2005) SOX2 expression is upregulated in response to spinal cord injury (manuscript in preparation).

<b>BIOGRAPHICAL SKETCH</b> <small>Provide the following information for the key personnel in the order listed for Form Page 2. Follow the sample format for each person. <b>DO NOT EXCEED FOUR PAGES.</b></small>			
NAME		POSITION TITLE	
Cynthia M. Powell		Associate Professor of Pediatrics and Genetics	
EDUCATION/TRAINING <i>(Begin with baccalaureate or other initial professional education, such as nursing, and include postdoctoral training.)</i>			
INSTITUTION AND LOCATION	DEGREE <i>(if applicable)</i>	YEAR(s)	FIELD OF STUDY
Cornell University, Ithaca, NY	B.A.	1972-1976	Biology
Sarah Lawrence College, Bronxville, NY	M.S.	1976-1978	Human Genetics
Medical College of Virginia, Virginia Commonwealth University, Richmond, VA	M.D.	1983-1987	Medicine

**A. Positions and Honors**

**Positions and Employment**

1978-1983	Genetic Counselor, Department of Clinical Genetics, Children's Hospital National Medical Center, Washington, DC
1987-1990	Medical Residency, Pediatrics, Children's National Medical Center, Washington, DC
1990-1993	Fellow in Clinical Genetics and Cytogenetics, Children's National Medical Center, Washington, DC and National Institutes of Health, Bethesda, MD
1993-2000	Assistant Professor of Pediatrics, Division of Genetics and Metabolism, University of North Carolina at Chapel Hill, Chapel Hill, NC
1995-	Medical Director, Cytogenetics Laboratory, UNC Hospitals, Chapel Hill, NC
2000-	Associate Professor of Pediatrics, Division of Genetics and Metabolism, University of North Carolina at Chapel Hill, Chapel Hill, NC
2001-	Research Associate Professor of Genetics, University of North Carolina at Chapel Hill, Chapel Hill, NC
2001-	Medical Genetics Residency Program Director, Department of Genetics, University of North Carolina at Chapel Hill
2004-	Division Chief, Division of Genetics and Metabolism, Department of Pediatrics, University of North Carolina at Chapel Hill

**Other Experience and Professional Memberships**

1978-	Member, American Society of Human Genetics
1990-	Member, American College of Genetic Counselors
1993-	Member, American Academy of Pediatrics
1994-	Member, American College of Medical Genetics
1996-1998	Consultant, The Hastings Center, Project on Prenatal Testing for Genetic Disability, funded by the ELSI division of the National Human Genome Research Institute, grant 5R01HG01168
1998-1999	President, North Carolina Medical Genetics Association
2002	Advisory Panel for Association of State and Territorial Health Officers Genomics Toolkit Project, North Carolina site visit February 21, 2002

2002- Advisory Board, North Carolina Collaborative Project for Surveillance, Prevention and Treatment of Birth Defects. Project funded by the National Center on Birth Defects and Developmental Disabilities and the Centers for Disease Control and Prevention

### **Honors**

1987 Elizabeth J. Harbison Memorial Award in Pediatrics, Medical College of Virginia

### **B. Selected peer-reviewed publications (in chronological order)**

1. Powell CM, Chandra RS, Saal HM. PHAVER syndrome: an autosomal recessive syndrome of limb pterygia, congenital heart anomalies, vertebral defects, ear anomalies, and radial defects. *Am J Med Genet* 1993; 47:807-811.
2. Murphy DGM, DeCarli C, Daly E, Haxby JV, Allen G, White BJ, McIntosh AR, Powell CM, Horwitz B, Rapoport SI, Schapiro MB. X-chromosome effects on female brain: a magnetic resonance imaging study of Turner's syndrome. *Lancet* 1993; 342:1197-1200.
3. Powell CM, Taggart RT, Drumheller TC, Wangsa D, Qian C, Nelson LM, White BJ: Molecular and cytogenetic studies of an X;autosome translocation in a patient with premature ovarian failure and review of the literature. *Am J Med Genet* 1994; 52:19-26.
4. Murphy DG, Allen G, Haxby JV, Largay KA, Daly E, White BJ, Powell CM, Schapiro MB: The effects of sex steroids, and the X chromosome, on female brain function: a study of the neuropsychology of adult Turner syndrome. *Neuropsychologia* 1994; 32(11):1309-23.
5. Bartsch O, Wuyts W, Van Hul W, Hecht JT, Meinecke P, Hogue D, Werner W, Zabel B, Hinkel GK, Powell CM, Shaffer LG, Willems PJ: Delineation of a contiguous gene syndrome with multiple exostoses, enlarged parietal foramina, craniofacial dysostosis, and mental retardation, caused by deletions on the short arm of chromosome 11. *Am J Hum Genet* 1996; 58:734-742.
6. Murphy DG, Mentis MJ, Pietrini P, Grady C, Daly E, Haxby JV, De La Granja M, Allen G, Largay K, White BJ, Powell CM, Horwitz B, Rapoport SI, Schapiro MB: A PET study of Turner's syndrome: effects of sex steroids and the X chromosome on brain. *Biol Psychiatry* 1997; 41(3):285-98.
7. Eubanks SR, Kuller JA, Amjadi D, Powell CM: Prenatal diagnosis of mosaic trisomy 13: a case report. *Prenat Diagn* 1998; 18: 971-974.
8. Powell CM, Michaelis RC: Townes-Brocks syndrome. *J Med Genet* 1999; 36:89-93.
9. Parens E, Asch A, Baily MA, Bianchi D, Biesecker BB, Botkin J, Crigger B-J, Dreher D, Ferguson P, Gartner A, Kittay EF, Lipsky DK, Jennings B, Murray TH, Nelson JL, Ossorio P, Powell C, Press N, Punaless-Morejon D, Ralston S, Ruddick W, Saxton M, Steinbock B, Wertz D, Wilfond B: The disability rights critique of prenatal genetic testing. *Hastings Center Report-Special Supplement*, September-October 1999.
10. Ashley-Koch A, Wolpert CM, Menold MM, Zaeem L, Basu S, Donnelly SL, Ravan SA, Powell CM, Qumsiyeh MB, Aylsworth AS, Vance JM, Gilbert JR, Wright HH, Abramson RK, DeLong GR, Cuccaro, Pericak-Vance MA: Genetic studies of autistic disorder and chromosome 7. *Genomics* 1999; 61:227-236.
11. Mah ML, Wallace, DK, Powell CM: Ophthalmic manifestations of Angelman syndrome. *J AAPOS* 2000; 4(4):248-249.
12. Kaiser-Rogers KA, Rao KW, Michaelis RC, Lese CM, Powell CM: Usefulness and limitations of FISH to characterize partially cryptic complex chromosome rearrangements. *Am J Med Genet* 2000; 95:28-35.

### **C. Research Support**

#### **Ongoing Research Support**

MM-0645-04/04 Powell (PI)  
CDC/AAMC

10/01/2003-09/30/2005



**Genetic Services for Congenital Hearing Loss.**

This is a population study of how many infants identified with congenital hearing loss through a state newborn hearing screening program are having genetic evaluations, factors that determine access to genetic services, parents' understanding of genetic information provided, and parental attitudes regarding this information.

Role: PI

<b>BIOGRAPHICAL SKETCH</b> Provide the following information for the key personnel in the order listed for Form Page 2. Follow the sample format for each person. <b>DO NOT EXCEED FOUR PAGES.</b>			
NAME		POSITION TITLE	
Kathleen Waldron Rao		Professor of Pediatrics and Genetics	
EDUCATION/TRAINING <i>(Begin with baccalaureate or other initial professional education, such as nursing, and include postdoctoral training.)</i>			
INSTITUTION AND LOCATION	DEGREE <i>(if applicable)</i>	YEAR(s)	FIELD OF STUDY
College of William and Mary	BS	1970	Biology
UNC-Chapel Hill	Ph.D.	1980	Genetics

**A. Positions and Honors**

**Positions and Employment**

9/01/80 - 6/30/81	Instructor, Department of Pediatrics; Director, Cytogenetics Laboratory, East Carolina University, Greenville, N.C.
7/01/81 - 5/14/84	Assistant Professor, Department of Pediatrics; Director, Cytogenetics Laboratory, East Carolina University, Greenville, N.C.
5/14/84 - 5/14/91	Assistant Professor, Departments of Pediatrics and Pathology; Director, Cytogenetics Laboratory; Research Scientist, Biological Sciences Research Center, University of North Carolina at Hill
5/15/91 – 11/30/99	Associate Professor, Departments of Pediatrics and Pathology; Director, Cytogenetics Laboratory; Scientist, Biological Sciences Research Center, University of North Carolina at Chapel Hill
12/01/99 – present	Professor, Dept of Pediatrics and Pathology and Lab Medicine; Director, Cytogenetics Laboratory; Research Scientist, Biological Sciences Research Center, University of North Carolina at Chapel Hill
11/1/01 – present	Research Professor, Department of Genetics, University of North Carolina at Chapel Hill

**Publications**

- Estabrooks, Laurel L., Rao, Kathleen W., Driscoll, Deborah, A., et al: A Preliminary Phenotypic Map of Chromosome 4p16 Based on 4p Deletions. American Journal of Medical Genetics. 57:581-586, 1995.
- Pettenati, M.J., Rao, P.N., Phelan, M.C., Grass, F., Rao, K.W., et al: Paracentric Inversions in Man: A Review of 446 Paracentric Inversions with Presentation of 120 New Cases. American Journal of Medical Genetics. 55:171-187, 1995.
- Wells, S.R., Kuller, J.A., Rao, K.W., & Aylsworth, A.S.: Multiple congenital malformations in an infant prenatally diagnosed with mosaicism for dup (1q) and del (Xq). Clinical Genetics. 49: 216-219, 1996.
- Slack, J.L., Arthur, D.C., Lawrence, D., Mrózek, K., Mayer, R.J., Davey, F.R., Tantravehi, R., Pettenati, M.J., Bigner, S., Carroll, A.J., Rao, K.W., Schiffer, C.A. & Bloomfield, C.D. Secondary cytogenetic changes in acute promyelocytic leukemia: Prognostic importance and association with the intron 3 breakpoint of the PML gene. A Cancer and Leukemia Group B study. Journal of Clinical Oncology. 15(5):1786-95, 1997 May.
- Hansen, Wendy F., Bernard, Lynn E., Langlois, Sylvie, Rao, Kathleen W., Chescheir, Nancy C., Aylsworth, Arthur S., Smith, Ian D., Robinson, Wendy P., Barrett, Irene J., Kalousek, Dagmar K. Maternal

uniparental disomy of chromosome 2 and confined placental mosaicism for trisomy 2 in a fetus with intrauterine growth restriction, hypospadias and oligohydramnios. Prenatal Diagnosis. Vol. 17:5:443-450, 1997.

Kai-Ling Fu, Jerome R. Lo Ten Foe, Hans Joenje, Kathleen W. Rao, Johnson M. Liu, and Christopher E. Walsh: Functional Correction of Fanconi Anemia Group A Hematopoietic Cells by Retroviral Gene Transfer Blood, Vol 90:9:3296-3303, 1997.

K. Mrozek, K. Heinonen, D. Lawrence, A.J. Carroll, P.R.K. Koduru, K.W. Rao, M.P. Strout, R.E. Hutchison, J.O. Moore, R.J. Mayer, C.A. Schiffer, C.D. Bloomfield: Adult patients with de novo acute myeloid leukemia and t(9;11)(p21-22;q23) has a superior outcome to patients with other translocations involving band 11q23: A Cancer and Leukemia Group B study. Blood, Vol. 90:11:4532-4538, 1997.

Priest, J. and Rao, K.W.: Prenatal Chromosome Diagnosis. In: The AGT Cytogenetics Laboratory Manual, Third Edition. M.Barch, T. Knutsen, J. Spurbeck, Eds., Lippencott-Raven, New York, pp199-258, 1997.

Woodward K., Palmer R., Rao K., Malcolm S. Prenatal diagnosis by FISH in a family with Pelizaeus-merzbacher disease caused by duplication of PLP gene. Prenatal Diagnosis. Vol. 19(3):266-8, 1999

Park, Jonathan, Arthur Brothman, Merlin Butler, Linda Cooley, Gordon Dewald, Kurt Lundquist, Catherine Palmer, Shivanand Patil, Kathleen Rao, Irene Saikovich, Nancy Schneider, Gail Vance: Extensive Analysis of Mosaicism in a Case of Turner Syndrome: The Experience of 287 Cytogenetic Laboratories. Archives of Pathology & Laboratory Medicine, 123(5):381-5, 1999 May.

K.A. Kaiser-Rogers, K.W. Rao, R.C. Michaelis C.M. Lese, C.M. Powell. The Usefulness and limitations of FISH to Characterize Partially Cryptic Complex Chromosome Rearrangements. Am. J. Med. Genet, 6 (1): 28-35, 2000.

K. Yamada, J.C. Olsen, M. Patel, K.W. Rao, C.E. Walsh. Functional Correction of Fanconi Anemia Group C Hematopoietic Cells by the Use of a Novel Lentiviral Vector. Molecular Therapy, Vol.3, No. 4, April 2001

R. R. Tubbs, L. Cooley, P. C. Roche, E. D. His, M. D. Linden, N. M. Pettigrew, R. R. Rickert, J. W. Said, I. B. Bayer-Garner, R. B. Nagel, A. R. Brothman, D. L. Persons, G. Habegger Vance, J. T. Mascarello, K. W. Rao, M. Herrmann, G. DeWald and J. P. Park. Clinical laboratory assays for Her 2/Neu amplification and overexpression: Quality Assurance, Standardization, and Proficiency Testing. Archives of Pathology & Laboratory Medicine 2002;126: 803-808.

James T. Mascarello, PhD; Arthur R. Brothman, PhD; Keri Davison; Gordon W. Dewald, PhD; Marille Herrman, MD, PhD; Danette McCandless, MD; Jonathan P. Park, PhD; Diane L. Persons, MD; Kathleen W. Rao, PhD; Nancy Schneider, MD, PhD; Gail H. Vance, MD; Linda D. Cooley, MD. Proficiency Testing for Laboratories Performing Fluorescence in Situ Hybridization with Chromosome-Specific DNA Probes. Archives of Pathology & Laboratory Medicine. 126:1458-1462, 2002.

John C. Byrd, Krzysztof Mrozek, Richard K. Dodge, Andrew J. Carroll, Colin Edwards, Diane C. Arthur, Mark J. Pettenati, Shivanand R. Patil, Kathleen W. Rao, Micheal S. Watson, Joseph O. Moore, Richard M. Stone, Robert J. Mayer, Frederick R. Davey, Charles A. Schiffer, Richard A. Larson, Clara D. Bloomfield. Pre-Treatment Cytogenetic Abnormalities are Predictive of Induction Success, Cumulative Incidence of Relapse, and Overall Survival in Adult Patients with de novo Acute Myeloid Leukemia: Results from Cancer and Leukemia Group B (CALGB 8461). Blood 100(13):4325-36, 2002.

Amgad L. Nashed, Kathleen W. Rao, Margaret Gulley. Clinical Applications of BCR-ABL Molecular Testing in Acute Leukemia. Journal of Molecular Diagnostics. Vol. 5, No. 2, May 2003.

Cherie H. Dunphy, MD, Hendrik W. Van Deventer, MD, Kathryn J. Carder MT(ASCP)-SH, Kathleen W. Rao, PhD, Georgette Dent, MD. Mature B-Cell Acute Lymphoblastic Leukemia With Associated Translocations (14;18)(q32;q21) and (8;9)(q24;p13): A Burkitt Variant? Arch Pathol Lab Med. Vol. 127, May 2003.

Mascarello JT, Cooley LD, Davison K, Dewald GW, Brothman AR, Herrman M, Park JP, Persons DL, Rao KW, Schneider NR, Vance GH; Cytogenetics Resource Committee, College of the American Pathologist Cytogenetics Resource Committee, American College of Medical Genetics. As currently formulated, ISCN FISH nomenclature make it not practical for use in clinical test reports or cytogenetics databases. Genet Med. 2003, September-October; 5(5): 370-7.

Denise I. Quigley, Kathleen Kaiser-Rogers, Arthur S. Aylsworth, Kathleen W. Rao; Submicroscopic deletion 9(q34.3) and duplication 19(p13.3): Identified by subtelomere specific FISH probes. American Journal of Medical Genetics, Published Online: August 29, 2003 (Early View). In press, December 2003.

William Blum, M.D., Krzysztof Mrozek, M.D., Amy S. Ruppert, M.A.S., Andrew J. Carroll, Ph.D., Kathleen W. Rao, Ph.D., Mark J. Pettenati, Ph.D., John Anastasi, M.D., Richard A. Larson, M.D., and Clara D. Bloomfield, M.D.; Early allogeneic transplantation should be considered for adults with de novo acute myeloid leukemia presenting with t(6;11)(q27;q23): results from Cancer and Leukemia Group B study 8461 and review of the literature. Cancer and Leukemia . May 2004.

## **OTHER SUPPORT**

### **ACTIVE**

**PI:** Arthur S. Aylsworth [CON# 05201006 (00781)]  
**Title of Research:** Genetic counseling Program Contract (3% of salary)  
**Objective:** To provide Genetic Counseling Services  
**Dates:** 7/1/01 – 06/30/02  
**Source of Support & Grant#:** NC Dept of Health and Human Services, Div of Public Health  
**Annual Direct Costs:** \$706,171

**PI:** Kathleen Rao (477)  
**Title of Research:** Provision of Genetic Counseling Services (Support of 1/2 time genetic counselor)  
**Objective:** To provide Genetic Counseling Services  
**Source of Support & Grant#:** UNC Hospitals  
**Annual Period:** 7/1/01 – 6/30/02  
**Annual Direct Costs:** \$ 25,756

The remainder of salary support (97%) is from clinical sources.

## BIOGRAPHICAL SKETCH

Provide the following information for the key personnel in the order listed for Form Page 2.  
Photocopy this page or follow this format for each person.

NAME Norman E. Sharpless		POSITION TITLE Assistant Professor	
EDUCATION/TRAINING <i>(Begin with baccalaureate or other initial professional education, such as nursing, and include postdoctoral training.)</i>			
INSTITUTION AND LOCATION	DEGREE <i>(if applicable)</i>	YEAR(s)	FIELD OF STUDY
UNC-Chapel Hill; Chapel Hill, NC	BS	1988	Mathematics
UNC-Chapel Hill; Chapel Hill, NC	MD	1993	Medicine

### A. Positions and Honors

#### Positions and Employment

1993-1994	Intern in Medicine, Massachusetts General Hospital, Boston, MA
1994-1996	Medical Resident, Massachusetts General Hospital, Boston, MA
1996-2000	Clinical and Research Fellow in Hematology and Oncology, Dana Farber / Partners Cancer Care, Boston, MA. Precepted by Dr. Anil Rustgi and Dr. Ronald A. DePinho.
2000-2002	Instructor in Medicine, Harvard Medical School; Boston, MA
2000-2002	Staff Physician, Brigham and Women's Hospital and Dana Farber Cancer Institute; Boston, MA
2002-present	Assistant Professor of Medicine and Genetics, The University of North Carolina School of Medicine; Chapel Hill, NC

#### Honors

1984	National Merit Scholar
1984-1988	John Motley Morehead Scholar, the University of North Carolina, Chapel Hill, NC.
1986	Phi Beta Kappa
1991	W. R. Berryhill Merit Scholarship
1990-1991	Howard Hughes Medical Institute National Institutes of Health Research Scholar, Bethesda, MD
1992	Alpha Omega Alpha
1998-2001	Howard Hughes Medical Institute Physician Post-Doctoral Research Fellow
2003-2005	Sidney Kimmel Foundation for Cancer Research Scholar Award
2003-2006	Paul Beeson Physician Faculty Scholar in Aging Research
2003	William Guy Forbeck Scholar for Cancer Research
2003-present	Contributing Editor, <i>SAGE KE</i> , Science of Aging Knowledge Environment, American Association for the Advancement of Science

### B. Selected publications (in chronological order)

1. **Sharpless NE**, O'Brien W, Verdin E, Kufta C, Chen I, Dubois-Dalcq M. Human immunodeficiency virus type I tropism for brain microglial cells is determined by a region of the *env* glycoprotein that also controls macrophage tropism. *J Virol* 1992; 66: 2588-93.
2. **Sharpless N**, Gilbert D, Vandercam B, Zhou J, Verdin E, Ronnett G, Friedman E, And Dubois-Dalcq M. The restricted nature of HIV-1 tropism for cultured neural cells. *Virology* 1992; 191: 813-25.
3. **Sharpless NE** and Seiden, M. Managing advanced ovarian cancer. *IM Internal Medicine* 1997, 18: 46-55.
4. **Sharpless NE**, and DePinho R. The *Ink4a/Arf* locus and its two gene products. *Curr Opin Genet Dev* 1999; 9: 22-30.
5. Frank K\*, **Sharpless NE\***, Gao Y, Sekiguchi J, Ferguson D, Zhu C; Manis J, Horner J, DePinho R, and Alt F. Interactions Between Pathways Involving DNA Ligase IV and p53 in Development, Senescence and Tumorigenesis. *Molecular Cell* 2000; 5:993-1002. (\*=authors contributed equally).
6. Bardeesy N, **Sharpless NE**, DePinho R, Merlino G. The genetics of pancreatic adenocarcinoma: a roadmap for a mouse model. *Sem in Canc Bio* 2001, 11: 201-218.
7. Martelli F, Hamilton T, Silver DP, **Sharpless NE**, Bardeesy N, Rokas M, DePinho RA, Livingston DM, Grossman SR. p19ARF targets certain E2F species for degradation. *Proc Natl Acad Sci U S A* 2001; 98(8):4455-60.

8. **Sharpless NE**, Bardeesy N, Lee KH, Carrasco R, Castrillon DH, Aguirre A, Wu E, Horner JW, DePinho RA Loss of p16<sup>INK4a</sup> with Retention of p19<sup>ARF</sup> Predisposes to Tumorigenesis in Mice. *Nature* 2001; 413(6851):86-91.
9. **Sharpless NE\***, Ferguson DO\*, O'Hagan RC, Castrillon DH, Lee C, Farazi PA, Alson S, Fleming J, Morton CC, Frank K, Alt FW, DePinho RA. Impaired Non-Homologous End-Joining Provokes Soft Tissue Sarcomas Harboring Chromosomal Translocations, Amplifications and Deletions. *Molecular Cell* 2001; 8(6):1187-96. (**\*=authors contributed equally**).
10. Bachoo RM, Maher EA, Ligon K, **Sharpless NE**, Chan SS, You MJ, Tang Y, DeFrances J, Stover E, Weissleder R, Rowitch D, Louis DN, DePinho RA. EGF Receptor and *Ink4a/Arf*: Convergent mechanisms governing terminal differentiation and transformation along the neural stem cell to astrocyte axis. *Cancer Cell*, 2002; 1(3):269-277.
11. **Sharpless NE**, Alson S, Chan S, Silver DP Castrillon DC, DePinho, RA. p16<sup>INK4a</sup> and p53 Deficiency Cooperate in Tumorigenesis. *Canc. Res* 2002; 62(10):2761-5.
12. Artandi S, Alson S, Tietze MK, **Sharpless NE**, Ye S, Greenberg R, Castrillon DH, Horner JH, Weiler S, Carrasco DR, DePinho RA. Constitutive telomerase expression promotes mammary carcinomas in aging mice. *Proc Natl Acad Sci U S A* 2002; 99(12):8191-8196.
13. Bardeesy N, Sinha M, Hezel AF, Signorretti S, Hathaway N, **Sharpless NE**, Loda M, Carrasco DR, DePinho, RA. Loss of the Lkb1 tumor suppressor provokes intestinal polyposis but resistance to transformation. *Nature* 2002; 419(6903): 162-167.
14. Opitz OP, Harada H, Suliman Y, Rhoades B, **Sharpless NE**, Kent R, Kopelivich L, Nakagawa H, Rustgi AK. A mouse model of human oral-esophageal cancer, *Jour Clin Invest*, 2002; 110(6):761-769
15. **Sharpless NE** and DePinho RA. p53: Good Cop / Bad Cop. *Cell* 2002; 110(1): 9-12.
16. Kulke MH, Demetri GD, **Sharpless NE**, Ryan DP, Shivdasani R, Clark JS, Spiegelman BM, Kim H, Mayer RJ, Fuchs CS. A phase II study of troglitazone, an activator of the PPARgamma receptor, in patients with chemotherapy-resistant metastatic colorectal cancer., *Cancer J* 2002; 8(5):395-9.
17. Kannan K\*, **Sharpless NE\***, Xu J, O'Hagan R, Bosenberg M, Chin L. Components of the Rb pathway are critical targets of UV mutagenesis in a murine melanoma model. *Proc Natl Acad Sci U S A*, 2003; 100(3):1221-5. (**\*=authors contributed equally**).
18. **Sharpless NE**. The persistence of senescence. *Sci Aging Knowl Environ*, 2003; PE24.
19. **Sharpless NE** and Chin, L. The *INK4a/ARF* locus and melanoma. *Oncogene* 2003; 22:3092-3098.
20. **Sharpless NE**. The Preparation and Immortalization of Primary Murine Cells. *In: J. Celis (ed.), Cell Biology: A Laboratory Handbook*, Third Edition. London, UK: Elsevier Science, 2004; In Press.
21. **Sharpless NE\***, Kannan K, Xu J, Bosenberg MW, and Chin L. Both products of the mouse *Ink4a/Arf* locus suppress melanoma formation *in vivo*. *Oncogene* 2003; 22:5055-5059. (**\*=authors contributed equally**).
22. O'Hagan RC, Brennan CW, Strahs A, Zhang X, Kannan K, Donovan M, Cauwels C, **Sharpless NE**, Wong WH, and Chin L. Array comparative genome hybridization for tumor classification and gene discovery in mouse models of malignant melanoma. *Cancer Res* 2003; 63:5352-5356.
23. **Sharpless NE**, DePinho RA. Telomeres, Stem Cells, Senescence and Cancer. *J Clin Invest*, 2004; 113: 160-168.
24. **Sharpless NE**<sup>+</sup>, Ramsey MR, Balasubramanian P, Castrillon DH, DePinho RA. The differential impact of p16<sup>INK4a</sup> or p19<sup>ARF</sup> deficiency on cell growth and tumorigenesis. *Oncogene* 2004; 23: 379-385.
25. Sachs Z, **Sharpless NE**, DePinho RA Rosenberg NE. p16<sup>INK4a</sup> Interferes with Abelson Virus Transformation by Enhancing Apoptosis, *J Virol*, 2004; 78: 3304-3311.
26. Magness ST, Jijon H, Van Houten Fisher N, **Sharpless NE**, Brenner DA, Jobin C. *In vivo* pattern of lipopolysaccharide and anti-CD3-induced NF-kappa B activation using a novel gene-targeted enhanced GFP reporter gene mouse. *J Immunol*. 2004; 173:1561-70.
27. Turner JE, Alley JG, **Sharpless NE**. Wernicke's encephalopathy: an unusual acute neurologic complication of lymphoma and its therapy. *J Clin Oncol*, 2004; 22: 4020-2.
28. Krishnamurthy J, Torrice C, Ramsey MR, Kovalev GI, Al-Regaiey K, Su L, and **Sharpless NE**. *Ink4a/Arf* expression is a biomarker of aging. *J Clin Invest*, 2004; 114: 1299-307.
29. Sarkar-Agrawal P, Vergilis I, **Sharpless NE**, Depinho RA, Runger TM, Impaired Processing of DNA Photoproducts and Ultraviolet Hypermutability With Loss of p16<sup>INK4a</sup> or p19<sup>ARF</sup>. *J Natl Cancer Inst*, 2004; 96: 1790-3.
30. **Sharpless NE**. *Ink4a/Arf* Links Senescence and Aging. *Exper. Gerontol, Exper. Gerontol*, 2004;39:1751-9.
31. **Sharpless NE**, Chin L. The biology and genetics of melanoma. *In: VJ Hearing and SPL Leong (eds.), Melanocytes to melanoma: The progression to malignancy*, Humana Press, 2005; In Press.
32. **Sharpless NE**. *INK4a/ARF*: a multifunctional tumor suppressor locus. *Mutation Res*, 2005; In Press.

## **C. Research Support**

### **Ongoing Research Support**

Beeson Physician Faculty Scholar Award    Sharpless (PI)    7/1/03 - 7/1/06  
The Hartford Foundation, the Alliance for Aging Research, the Starr Foundation and the Commonwealth Fund  
Harkness House.

The role of the tumor suppressor p16<sup>INK4a</sup> in mammalian aging.  
Role: P.I. (Percent Effort = 20%)

Kimmel Scholar Award    Sharpless (PI)    7/1/03 - 7/1/05

The Sidney Kimmel Foundation for Cancer Research Scholar Award.

The regulation of the tumor suppressor p16<sup>INK4a</sup> in cancer and aging.  
Role: P.I. (Percent Effort = 10%)

K08 CA90679    Sharpless (PI)    12/1/2001-12/1/2006

NCI

Melanoma in p16<sup>INK4a</sup> and p19<sup>ARF</sup> Deficient Mice

Role: P.I. (Percent Effort = 70%)

RO1 AG024379-01    Sharpless (PI)    8/1/04 to 8/1/09

NIH, NIA

The role of the tumor suppressor p16<sup>INK4a</sup> in mammalian aging.

Role: P.I. (Percent Effort 25% overlapping with KO8)

1P50CA106991-01    Tepper (overall PI)    10/1/04 to 10/1/05

NIH, NCI

RNA expression analysis in colorectal carcinoma and correlation with clinical outcome

Role: Project co-P.I. with Shannon Penland, M.D. a post-doctoral fellow in Sharpless lab (0% effort)

### **Completed Research Support**

Physican-Postdoctoral Scientist Fellowship    Sharpless (PI) 10/1/98-10/1/2001.

Howard Hughes Medical Institute

The INK4a/ARF Locus in Murine Models of Cancer

This study entailed the generation and characterization of two novel knock-out strains (p16<sup>INK4a</sup> and p19<sup>ARF</sup> deficient) of mice.

Role: P.I.

### BIOGRAPHICAL SKETCH

Provide the following information for the key personnel in the order listed for Form Page 2.  
Follow the sample format for each person. **DO NOT EXCEED FOUR PAGES.**

5/19/03			
NAME	POSITION TITLE		
SULLIVAN, Patrick Francis	Professor of Genetics, Psychiatry, & Epidemiology		
EDUCATION/TRAINING (Begin with baccalaureate or other initial professional education, such as nursing, and include postdoctoral training.)			
INSTITUTION AND LOCATION	DEGREE	YEAR(s)	FIELD OF STUDY
University of Notre Dame, Notre Dame, Indiana	BS	1981	Biology
University of California, San Francisco, California	MD	1988	Medicine
University of Pittsburgh	-	1992	Residency in Psychiatry
Royal Australian & New Zealand College of Psychiatrists	FRANZCP	1994	Psychiatry

#### **A. Positions & Honors**

##### Positions & Employment

1988-1992	Resident, Western Psychiatric Institute & Clinic, Univ. Pittsburgh School of Medicine, PA
1991-1994	Registrar Psychological Medicine, Christchurch School of Medicine, Christchurch, New Zealand
1992-1995	Health Research Council Training Fellow, Christchurch School Med., Christchurch, New Zealand
1995-1996	Senior Lecturer, Christchurch School of Medicine, Christchurch, New Zealand
1996-2002	Associate Professor, Virginia Institute for Psychiatric & Behavioral Genetics, Richmond, VA
2002-2003	Professor, Virginia Institute for Psychiatric & Behavioral Genetics, Richmond, VA
2003-	Professor, Departments of Genetics & Psychiatry, Carolina Center for Genome Sciences, University of North Carolina, Chapel Hill, NC
2003-	Adjunct Professor, Department of Epidemiology, UNC-Chapel Hill
2003-	Member scientist, Lineberger Comprehensive Cancer Center, UNC-Chapel Hill
2004-	Faculty, Curriculum in Genetics & Molecular Biology, UNC-Chapel Hill, NC

##### Honors & Awards

1981	Magna Cum Laude, University of Notre Dame
1988	"Outstanding" graduate (top 10% of class), University of California, San Francisco
1991	Laughlin Fellow, American College of Psychiatrists
1993	Glaxo Young Investigator Award, New Zealand Branch of the RANZCP
1994	Organon Research Award, Australasian Society for Psychiatric Research

#### **B. Selected Peer-Reviewed Publications**

135 publications (118 peer-reviewed papers, 15 chapters and invited manuscripts, and 2 miscellaneous items).

1. Sullivan PF, Neale BM, van den Oord EJCG, Miles MF, Neale MC, Bulik CM, Joyce PR, Straub RE, Kendler KS. Candidate genes for nicotine dependence via linkage, epistasis, and bioinformatics. Am. J. Med. Gen. (Neuropsych. Gen.) In press.
2. Sullivan PF, Kendler KS, Neale MC. Schizophrenia as a complex trait: evidence from a meta-analysis of twin studies. Arch. Gen. Psychiatry In press.
3. Sullivan PF, Neale BM, Neale MC, van den Oord EJCG, Kendler KS. Multipoint and single point non-parametric linkage analysis with imperfect data. Am J Med Genet 2003;121B:89-94.
4. Sullivan PF, Kovalenko P, York TP, Prescott CA, Kendler KS. Fatigue in a community sample of twins. Psychol. Med. 2003;33:263-81.
5. Sullivan PF, Eaves LJ. Evaluation of analyses of univariate discrete twin data. Beh Gen 2002;32:221-7.
6. Neale MC, Neale BM, Sullivan PF. Non-paternity in linkage studies of extreme discordant sibling pairs. American Journal of Human Genetics 2002;70:526-529.



7. Sullivan PF, O'Neill FA, Walsh D, Ma Y, Kendler KS, Straub RE. Analysis of epistasis in linked regions in the Irish Study of High-Density Schizophrenia Families. *Am J Medical Genetics* 2001;105:266-270.
8. Sullivan PF, Jiang X, Neale MC, Kendler KS, Straub RE. Association of the tryptophan hydroxylase gene with smoking initiation but not progression to nicotine dependence. *American Journal of Medical Genetics* 2001;105:479-484.
9. Sullivan PF, Eaves LJ, Kendler KS, Neale MC. Genetic case-control association studies in neuropsychiatry. *Arch Gen Psychiatry* 2001;58:1015-24.
10. Sullivan PF, Neale MC, Kendler KS. The genetic epidemiology of major depression: review and meta-analysis. *Am. J. Psychiatry* 2000;157:1552-1562.
11. Bulik CM, Sullivan PF, Wade TD, Kendler KS. Twin studies of eating disorders: a review. *Int. J. Eat. Dis.* 2000;27:1-20.
12. Bulik CM, Sullivan PF, Kendler KS. An empirical study of the classification of eating disorders. *Am. J. Psychiatry* 2000;157:886-895.
13. Sullivan PF, Kendler KS. The genetic epidemiology of smoking. *Nicotine and Tobacco Research* 1999;1 (Suppl 2):549-555.
14. Straub RE, Sullivan PF, Ma Y, Myakishev MV, Harris-Kerr C, Wormley B, Kadambi B, Sadek H, Silverman MA, Webb BT, Neale MC, Bulik CM, Joyce PR, Kendler KS. Susceptibility genes for nicotine dependence: a genome scan and followup in an independent sample suggest that regions on chromosomes 2, 4, 10, 16, 17 and 18 merit further study. *Molecular Psychiatry* 1999;4:129-144.
15. Sullivan PF, Kessler RC, Kendler KS. Latent class analysis of lifetime depressive symptoms in the National Comorbidity Survey. *Am. J. Psychiatry* 1998;155:1398-1406.
16. Sullivan PF, Kendler KS. The typology of common psychiatric syndromes: an empirical study. *Br. J. Psychiatry* 1998;173:312-319.
17. Sullivan PF, Kendler KS. The genetic epidemiology of "neurotic" disorders. *Current Opinion in Psychiatry* 1998;11:143-147.
18. Sullivan PF, Fifeild WJ, Kennedy MA, Mulder RT, Sellman JD, Joyce PR. No association between novelty seeking and the type 4 dopamine receptor gene (*DRD4*) in two New Zealand samples. *Am. J. Psychiatry* 1998;155:98-101.
19. Sullivan PF, Bulik CM, Kendler KS. The epidemiology and classification of bulimia nervosa. *Psychol. Med.* 1998;28:599-610.
20. Sullivan PF, Bulik CM, Kendler KS. Genetic epidemiology of bingeing and vomiting. *Br. J. Psychiatry* 1998;173:75-79; 173:439-440.
21. Sullivan PF, Bulik CM, Fear JL, Pickering A. The outcome of anorexia nervosa: a case-control study. *Am. J. Psychiatry* 1998;115:939-946.
22. Bulik CM, Sullivan PF, Kendler KS. Heritability and reliability of binge-eating and bulimia nervosa. *Biol. Psychiatry* 1998;44:1210-1218.
23. Bulik CM, Sullivan PF, Joyce PR, Carter FA, McIntosh VV. Predictors of one-year treatment outcome in bulimia nervosa. *Compr. Psychiatry* 1998;39:206-214.
24. Sullivan PF, Wilson DA, Mulder RT, Joyce PR. The hypothalamic-pituitary-thyroid axis in major depression. *Acta Psychiatrica Scandanavica* 1997;95:370-378.
25. Sullivan PF, Fifeild WJ, Kennedy MA, Mulder RT, Sellman JD, Joyce PR. Novelty seeking and a dopamine transporter gene polymorphism (*DAT1*). *Biol. Psychiatry* 1997;42:1070-1072.
26. Sullivan PF, Wells JE, Joyce PR, Bushnell JA, Mulder RT, Oakley-Browne MA. Family history of depression in clinic and community samples. *J. Affective Disord.* 1996;40:159-168.
27. Sullivan PF, Wells JE, Bushnell JA. Adoption as a risk factor for mental disorders. *Acta Psychiatr. Scand.* 1995;92:119-124.
28. Sullivan PF, Bulik CM, Carter FA, Joyce PR. The significance of a history of childhood sexual abuse in bulimia nervosa. *Br. J. Psychiatry* 1995;167:679-682.
29. Sullivan PF. Mortality in anorexia nervosa. *Am. J. Psychiatry* 1995;152:1073-1074.
30. Sullivan PF, Joyce PR, Bulik CM, Mulder RT, Oakley-Browne M. Total cholesterol and suicidality in depression. *Biol. Psychiatry* 1994;36:472-477.

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32. Sullivan PF, Joyce PR. Effects of exclusion criteria in depression treatment studies. *J. Affective Disord.* 1994;32:21-26.
32. Sullivan PF, Petitti D, Barbaccia J. Head trauma and age of onset of dementia of the Alzheimer's type. *J.A.M.A.* 1987;257:2289-2290.

**C. Research Support**

**On-Going Research Support**

R01 MH-059160 NIMH	Patrick Sullivan (PI)	12/01/99–11/30/2004
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Detecting Susceptibility Loci for Recurrent Major Depression

The goal of the study is to determine the locations of the loci that influence susceptibility to major depression.

Role: PI

R01 CA-085739 NIAID	Patrick Sullivan (PI)	12/01/2000–11/30/2005
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Genetic & Environmental Determinants of Smoking Cessation

In this longitudinal study, we will identify and follow a large number of twins to identify and attempt to understand the sources of variation in smoking behavior.

Role: PI

R01 NS-041483 NINDS	Nancy Pedersen (PI)	8/15/2001–07/31/2004
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A Twin Study of Chronic Fatigue in Sweden

This study analyzes data from the Swedish Twin Registry for CFS and related illnesses.

Role: co-PI

R01 AA-011408 NIAAA	Carol Prescott (PI)	09/01/2002–08/31/2006
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An Irish Affected Sib Pair Study of Alcohol Dependence

The major goal of the study is to determine the locations of the loci that influence susceptibility to alcohol dependence.

Role: Co-Investigator

R01 NIMH	John Gilmore (PI)	12/01/03–11/30/06
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A Twin Study of Fetal Brain Development

The major goal of this study is to estimate the genetic and environmental components of variation in fetal brain structures.

Role: Co-Investigator

Foundation grant Foundation of Hope	Patricia Maness (PI)	03/01/04–02/28/05
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Is NCAM1 Associated with Schizophrenia?

The major goal of this study is to conduct a case-control association study of *NCAM1* with schizophrenia

Role: Co-Investigator

**Pending Research Support:**

R01 NIMH	Jeffrey Lieberman (PI)	04/01/04–03/31/07
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Pharmacogenetic Prediction of Clinical Outcomes in CATIE

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The major goal of the study is to determine the molecular genetic correlates of treatment outcome in a large randomized clinical trial for schizophrenia.

Role: co-PI

R01 Fred Jarskog (PI) 07/01/04–06/30/07

NIH/NIMH

Proteomic Analysis of Prefrontal Cortex in Schizophrenia and Bipolar Disorders

This project will use proteomics to address the pathophysiology of schizophrenia and bipolar disorder.

Role: Co-Investigator

**Completed Research Support (past 3 years):**

R01 MH041953-09A1 Kenneth Kendler (PI) 07/01/1998–06/30/2002

NIMH

The Genetic Epidemiology of Schizophrenia in Ireland

This study expanded upon work performed in the Irish Study of High Density Schizophrenia Family Study, with the goal of replicating and increasing evidence for linkage in several putative susceptibility regions of the genome.

Role: Co-Investigator

R01 DA11287-01A1 Kenneth Kendler (PI) 04/01/1998–03/31/2003

NIDA

A Twin-Family Study of Drug Use, Abuse, and Dependence

This was a revision of a grant to collect and analyze data on the use and abuse of a variety of licit and illicit drugs in a sample of adult twin pairs from the Virginia Twin Registry.

Role: Co-Investigator

U19 AI38429 Dedra Buchwald (PI) 08/01/1999–07/31/2002

NIAID

Population Based Twin Study of Chronic Fatigue Syndrome

The intent of this study was to screen a large sample to create a twin sample with CFS-like illness and then to use these data to address important questions about the nature of CFS.

Role: Project Leader

Overlap:

None. There is no overlap between any of the active or pending proposals.

### BIOGRAPHICAL SKETCH

Provide the following information for the key personnel in the order listed for Form Page 2.  
Follow the sample format on preceding page for each person. **DO NOT EXCEED FOUR PAGES.**

NAME		POSITION TITLE	
Deborah S. Threadgill		Assistant Professor	
EDUCATION/TRAINING (Begin with baccalaureate or other initial professional education, such as nursing, and include postdoctoral training.)			
INSTITUTION AND LOCATION	DEGREE (if applicable)	YEAR(s)	FIELD OF STUDY
Texas A&M University	B.S.	1980	Animal Sciences
Purdue University	M.S.	1985	Cytogenetics
Texas A&M University	Ph.D.	1990	Genetics
Case Western Reserve University	Post-doc	1990-1993	Virology
Case Western Reserve University	Post-doc	1993-1996	Immunology

#### A. Positions and Honors.

##### Professional Positions:

1996-2000     Research Assistant Professor, Vanderbilt University

*(Note: 1996-2000, part-time)*

2000-present     Research Assistant Professor of Genetics, University of North Carolina

##### Honors, Awards, Fellowships:

Phi Kappa Phi National Honor Society

Gamma Sigma Delta Agricultural Honor Society

Alpha Lamda Delta Freshman Honor Society

1980             Graduated *Magna Cum Laude* from Texas A&M University

1985-1988     Recipient of a USDA Biotechnology Pre-Doctoral Fellowship

1989             Recipient of Texas A&M Univ, College of Veterinary Medicine Graduate  
Research Award

1989             Recipient of a Texas A&M Univ Association of Former Students Graduate  
Student Grant to attend the 10<sup>th</sup> *International Workshop on Human Gene  
Mapping*: New Haven, CT

1991-1993     Recipient of a NIAID Institutional Post-Doctoral Fellowship in Virology

#### B. Selected peer-reviewed publications (in chronological order).

1. **Threadgill, DS**, Kraus, JP, Krawetz, SA, and Womack, JE. 1991. Evidence for the evolutionary origin of human chromosome 21 from comparative gene mapping in the bovine and the mouse. *Proc. Natl. Acad. Sci.* 88:154-158.

2. Georges, M, Gunawardana, A, Threadgill, DW, Lathrop, M, Olsaker, I, Mishra, A, Sargeant, LL, Schoeberlein, A, Steeley, MR, Terry, C, **Threadgill, DS**, Zhao, X, Holm, T, Fries, R and Womack, JE. 1991. Characterization of a set of variable number of tandem repeat markers conserved in Bovidae. *Genomics* 11:24-32.

3. **Threadgill, DS**, and Womack, JE. 1991. Mapping HSA 3 loci in cattle: additional support for the ancestral synteny of HSA 3 and 21. *Genomics* 11:1143-1148.
4. **Threadgill, DS**, and Womack, JE. 1991. Mapping HSA 10 homologous loci in the bovine. *Cytogenet. Cell Genet.* 57:123-126.
5. **Threadgill, DS**, and Womack, JE. 1991. The bovine pancreatic spasmodic polypeptide gene maps to syntenic group U10: implications for the evolution of the human breast cancer estrogen inducible locus. *J. Heredity* 82: 496-498.
6. Sherman, GB, Wolfe, MW, Farmerie, TA, Clay, CM, **Threadgill, DS**, Sharp, DC, and Nilson, JH. 1992. A single gene encodes the b-subunits of equine luteinizing hormone and chorionic gonadotropin. *Mol. Endo.* 6: 951-959.
7. **Threadgill, DS**, Steagall, WK, Flaherty, MT, Fuller, FJ, Perry, ST, Rushlow, KE, LeGrice, SFJ, and Payne, SL. 1993. Characterization of equine infectious anemia virus dUTPase: growth properties of a dUTPase-deficient mutant. *J. of Virology* 67:2592-2600.
8. **Threadgill, DS**, Threadgill, DW, Moll, YD, Weiss, JA, Zhang, N, Davey, HW, Wildeman, AG, and Womack, JE. 1994. Syntenic assignment of human chromosome 1 homologous loci in the bovine. *Genomics* 22:626-630.
9. Shao, H, Robek, MD, **Threadgill, DS**, Mankowski, LS, Cameron, CE, Fuller, FJ, and Payne, SL. 1997. Characterization and mutational studies of equine infectious anemia virus dUTPase. *Biochim. Biophys. Acta.* 1339:181-191.
10. **Threadgill, DS**, McCormick, LL, McCool, TL, Greenspan, NS, and Schreiber, JR. 1998. Mitogenic synthetic polynucleotides suppress the antibody response to a bacterial polysaccharide. *Vaccine* 16:76-82.
11. Shapiro, DA, **Threadgill, DS**, Copfer, MJ, Corey, DA, McCool, TL, McCormick, LL, Magnuson, TR, Greenspan, NS, and Schreiber, JR. 1998. Gamma 3 gene-disrupted mice selectively deficient in the dominant IgG subclass made to bacterial polysaccharides undergo normal isotype switching after immunization with polysaccharide-protein conjugate vaccines. *J. Immunol.* 161:3393-3399.
12. Poly, F, **Threadgill, D.**, and Stintzi, A. 2004. Identification of *Campylobacter jejuni* ATCC 43431 specific genes by whole microbial genome comparisons. *J. Bacteriol.* 186:4781-4791.
13. Palyada, K, **Threadgill, D**, and Stintzi, A. 2004. Iron Acquisition and Regulation in *Campylobacter jejuni*. *J. Bacteriol.* 186:4714-4729.
14. Poly, F., **Threadgill, D.** and Stintzi, A. 2005. Genomic Diversity in *Campylobacter jejuni*: Identification of *C. jejuni* 81-176 Specific Genes. *J. Clin. Micro.* In press.

### **C. Research Support.**

Ongoing Research Support:

U01CA084239 (Coffey, Vanderbilt Univ.) 8/01/04-3/31/09 25%  
(NCI-MMHCC)

subcontract to UNC for project: bacterial impact on colon cancer progression, bacterial delivery of therapeutics with mouse models of human colon cancer

Completed Research Support:

UNC Department of Genetics, Threadgill 07/01/00-08/31/04

Title: Start-up funding

Role: PI

MCB-9973861, Threadgill 08/15/99-6/30/00

National Science Foundation

POWRE: Regulation of glycosylation in *Campylobacter jejuni*.

The major goals of this project were to determine the environmental regulators of glycosylation of surface molecules associated with *C jejuni*.

Role: PI

### BIOGRAPHICAL SKETCH

Provide the following information for the key personnel in the order listed for Form Page 2.  
Follow the sample format on for each person. (See attached sample). **DO NOT EXCEED FOUR PAGES.**

NAME		POSITION TITLE	
Threadgill, David W.		Assistant Professor	
EDUCATION/TRAINING <i>(Begin with baccalaureate or other initial professional education, such as nursing, and include postdoctoral training.)</i>			
INSTITUTION AND LOCATION	DEGREE <i>(if applicable)</i>	YEAR(s)	FIELD OF STUDY
Texas A&M University, College Station, TX	B.S.	1983	Zoology
Texas A&M University, College Station, TX	Ph.D.	1989	Genetics
Case Western Reserve University, Cleveland, OH	Post-doc	1996	Mouse Genetics

#### **A. Positions and Honors.**

##### **Positions and Employment**

1996-2000 Assistant Professor, Department of Cell Biology, Vanderbilt University, Nashville, TN  
 2000-Present Assistant Professor, Department of Genetics, University of North Carolina, Chapel Hill, NC  
 2000-Present Member, Lineberger Comprehensive Cancer Center, Univ of North Carolina, Chapel Hill, NC  
 2000-Present Member, Curriculum in Genetics and Molecular Biology, Univ of North Carolina, Chapel Hill, NC  
 2001-Present Member, Curriculum in Toxicology, Univ of North Carolina, Chapel Hill, NC  
 2001-Present Member, Center for Gastrointestinal Biology and Disease, Univ of North Carolina, Chapel Hill  
 2003-Present Member and Leader of the Mammalian Genomics Subgroup, Carolina Center for Genome Sciences, Univ of North Carolina, Chapel Hill  
 2003-present Member and Director of the Transomics Research Core, Center for Environmental Health and Susceptibility, Univ of North Carolina, Chapel Hill  
 2001-2004 Scientific Co-Advisor, UNC Genomics Core and Microarray Facility

##### **Other Experience and Professional Memberships**

1993, 1995, 1997 USDA Animal Molecular Genetics and Gene Mapping study section member  
 1999 NIH International and Cooperative Projects Study Section temporary member  
 1999, 2000, 2001 NIH Biological Sciences 1 Study Section temporary member  
 2001, 2002, 2003 NIH Mammalian Genetics Study Section temporary member  
 2002, 2003 DOD MBG-3 Molecular Biology and Genetics of Breast Cancer review panel member  
 2002 NIH ZRG1 Experimental Therapeutics-1 Study Section member  
 1998-Present Mouse Models of Human Cancer Consortium steering committee member  
 2000-Present Co-founder and Member Scientific Advisory Board, Microarrays, Inc, Nashville, TN  
 2003-present Co-fonder and Member Scientific Advisory Board, Karyogen, Inc, RTP, NC  
 2004 NIH Cancer Genetics Study Section temporary member  
 2004-present External Advisor, Vanderbilt SPORE in GI Cancer, 2005-present  
 2004 NCI Director's Think Tank on Susceptibility and Resistance to Cancer, Co-Chair

##### **Honors**

1987 Texas A&M University, Graduate Award for Research  
 1989 Texas A&M University, Outstanding Graduate Award for Research  
 1991-1993 NIGMS Individual NRSA postdoctoral fellowship  
 1998-2000 March of Dimes Basil O'Conner Award  
 1998-2000 V Foundation Scholar  
 2004-2008 Jefferson Pilot Scholar Award

#### **B. Selected peer-reviewed publications (from over 50 total).**

1. Threadgill, DW and Womack, JE. 1990. Genomic analysis of the major bovine milk protein genes. Nucleic Acids Research 18:6935-6942.

2. Georges, M, Gunawardana, A, Threadgill, DW, Lathrop, M, Olsaker, I, Mishra, A, Sargeant, L, Schoeberlein, A, Steele, M, Terry, C, Threadgill, DS, Zhao, X, Holm, T, Fries, R, and Womack, JE. 1991. Characterization of a set of variable number of tandem repeat markers conserved in Bovidae. *Genomics* 11:24-32.
3. Bishop, MD, Tavakkol, A, Threadgill, DW, Simmen, FA, Simmen, RCM, Davis, ME, and Womack, JE. 1991. Somatic cell mapping and restriction fragment length polymorphism analysis of bovine insulin-like growth factor 1 (IGF1). *Journal of Animal Science* 69:4306-4311.
4. Dietz, AB, Georges, M, Threadgill, DW, Womack, JE, and Schuler, LA. 1992. Somatic cell mapping, polymorphism, and linkage analysis of bovine prolactin-related proteins and placental lactogen. *Genomics* 14:137-143.
5. Nan, Z, Threadgill, DW, and Womack, JE. 1992. Synteny mapping in the bovine: genes from human chromosome 4. *Genomics* 14:131-136.
6. Sharan, SK, Holdener-Kenny, B, Threadgill, DW, and Magunson, T. 1992. Genomic mapping within the albino-deletion complex using individual early postimplantation mouse embryos. *Mammalian Genome* 3:79-83.
7. Gallagher, DS, Threadgill, DW, Ryan, AM, Womack, JE, and Irwin, DM. 1993. Physical mapping of the lysozyme gene family in cattle. *Mammalian Genome* 4:368-373.
8. Threadgill, DS, Threadgill, DW, Moll, YD, Weiss, JA, Zhang, N, Davey, HW, Wildeman, AG, and Womack, JE. 1994. Syntenic assignment of human chromosome 1 homologous loci in the bovine. *Genomics* 22:626-630.
9. Threadgill, DW, Dlugosz, AA, Hansen, L, Tennenbaum, T, Lichti, U, Yee, D, LeMantia, C, Mourton, T, Herrup, K, Harris, RC, Barnard, JA, Yuspa, SH, Coffey, RJ, and Magnuson, T. 1995. Targeted disruption of mouse EGF-receptor: effect of genetic background on mutant phenotype. *Science* 269:230-234.
10. Denning, MF, Dlugosz, AA, Threadgill, DW, Magnuson, T, and Yuspa, SH. 1996. Activation of the epidermal growth factor receptor signal transduction pathway stimulates tyrosine phosphorylation of protein kinase C $\delta$ . *Journal of Biological Chemistry* 271:5325-5331.
11. Tong, BJ, Das, SK, Threadgill, DW, Magnuson, T, and Dey, SK. 1996. Differential expression of the full-length and truncated forms of the epidermal growth factor receptor in the preimplantation mouse uterus and blastocyst. *Endocrinology* 137:1492-1496.
12. Hansen, LA, Alexander, N, Hogan, ME, Sundberg, JP, Dlugosz, A, Threadgill, DW, Magnuson, T, and Yuspa, SH. 1997. Genetically null mice reveal a central role for epidermal growth factor receptor in the maturation of the hair follicle and normal hair development. *American Journal of Pathology* 150:1959-1975.
13. Threadgill, DW, Yee, D, Matin, A, Nadeau, JH, Magnuson, T. 1997. Genealogy of the 129 inbred strains: 129/SvJ is a contaminated inbred strain. *Mammalian Genome* 8:390-393.
14. Threadgill, DW, Matin, A, Yee, D, Carrasquillo, MM, Henry, KR, Rollins, KG, Nadeau, JH, Magnuson, T. 1997. SSLPs to map genetic differences between the 129 inbred strains and closed-colony random bred CD-1 mice. *Mammalian Genome* 8:441-442.
15. Dlugosz, AA, Hansen, L, Cheng, C, Alexander, N, Denning, MF, Threadgill, DW, Magnuson, T, Coffey, RJ, Yuspa, SH. 1997. Targeted disruption of the epidermal growth factor receptor impairs growth of epidermal tumors expressing the *v-ras*<sup>H1a</sup> oncogene and alters the distribution of S phase nuclei within tumor compartments. *Cancer Research* 57:3180-3188.
16. Nishimura, H, Yerkes, E, Hohendellner, K, Miyazaki, Y, Ma, J, Hunley, TE, Yoshida, H, Ichiki, T, Threadgill, DW, Phillips, JA, Hogan, BLM, Fogo, A, Brock, JW, Inagami, T, Ichikawa, I. 1999. Role of the angiotensin type 2 receptor gene in congenital anomalies of the kidney and urinary tract, CAKUT, of mice and men. *Molecular Cell* 3:1-10.
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19. Reiter, JL, Threadgill, DW, Eley, GD, Strunk, KE, Danielsen, AJ, Schell-Sinclair, C, Pearsall, RS, Green, PJ, Yee, D, Lampland, AL, Balasubramaniam, S, Crossley, TO, Magnuson, TR, James, CD, Maihle, NJ.



2001. Comparative genomic sequence analysis and isolation of human and mouse alternative Egfr transcripts encoding truncated receptor isoforms. *Genomics* 71:1-20.
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21. Roberts, RB, Min, L, Washington, MK, Olsen, SJ, Settle, S, Coffey, RJ, Threadgill, DW. 2002. The epidermal growth factor receptor is required for establishment of intestinal tumors in the Apc<Min> mouse model. *Proc Natl Acad Sci USA* 99:1521-1526.
22. Threadgill, DW, Hunter, KW, Williams, RW. 2002. Genetic dissection of complex and quantitative traits: from fantasy to reality via a community effort. *Mammalian Genome* 13:175-178.
23. Fitch, KR, McGowan, KA, van Raamsdonk, CD, Fuchs, H, Lee, D, Puech, A, Herault, Y, Threadgill, DW, Hrabe de Angelis, M, Barsh, GS. 2003. Genetics of dark skin in mice. *Genes and Development* 17:214-228.
24. Williams, RW, Flaherty, L, Threadgill, DW. 2003. The math of making mutant mice. *Genes, Brain and Behavior* 2:191-200.
25. Roberts, RB, Arteaga, C, Threadgill, DW. 2004. Modeling the cancer patient with genetically engineered mice: Prediction of toxicity from molecule-targeted therapies. *Cancer Cell* 5:115-120.
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29. Lee, D, Threadgill, DW. 2004. Investigating gene function using mouse models. *Current Opinion in Gen and Devel Biol* 14:246-252.
30. Wilson W, Pardo-Manueal de Villena F, Lyn-Cook BD, Chatterjee PK, Gilmore RC, Valladeras IC, Wright CC, Threadgill DW, Grant DJ. 2004. Characterization of a common deletion polymorphism of the UGT2B17 gene linked to UGT2B15. *Genomics* 84:707-714.
31. Hahn H, Nitzki F, Schorban T, Hemmerlein B, Threadgill D, Rosemann M. 2004. Genetic mapping of a *Ptch*-associated rhabdomyosarcoma susceptibility locus on mouse Chromosome 2. *Genomics* 84:853-858.
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33. Roberts RB, Threadgill DW. 2005. The mouse in biomedical research in Eisen, E (ed), *The Mouse in Animal Genetics and Breeding Research*, Imperial College Press.
34. Franklin JL, Yoshiura K, Dempsey PJ, Bogatcheva G, Jeyakumar L, Meise S, Pearsall RS, Threadgill DW, Coffey RJ. 2005. Identification of MAGI-3 as a transforming growth factor- $\alpha$  binding protein. *Experimental Cell Research*, in press.
35. Chesler EJ, Lu L, Shou S, Qu Y, Gu J, Wang J, Hsu HC, Mountz JD, Baldwin N, Langston MA, Hoganesch J, Threadgill DW, Manly KF, Williams RW. Genetic dissection of gene expression reveals pleiotropic networks modulating brain structure and function. *Nature Genetics*, in press.
36. Zou F, Gelfond J, Airey DC, Lu L, Manly KF, Williams RW, Threadgill DW. Extending the utility of recombinant inbred strains through recombinant inbred intercrosses (RIX): theoretical and empirical considerations. *Genetics*, in press.
37. Alexander AD, Baker J, Bissahoyo AC, Orcutt RP, Threadgill DW. Quantitative PCR assays for mouse gastrointestinal bacteria reveal strain-dependent differences in flora composition. Submitted.
38. Bissahoyo A, Pearsall RS, Hanlon KE, Threadgill DW. Genetic and environmental modulation of dose response to azoxymethane-induced colorectal cancer in mice. Submitted.

39. Genter Williams SM, Disbrow G, Schlegel R, Lee D, Threadgill DW, Lambert PF. Epidermal growth factor receptor mediates oncogenic properties of E5, a high risk HPV oncogene. Submitted.
40. Freudenberg J, Kong S, Jegga A, Ebert C, Smith S, Tomlinson C, Sartor M, Medvedovic M, Wagner M, Qiu T, Green J, Shurtleff J, Downing J, Bissahoyo A, Clore J, Ali H, Threadgill DW, Settle SH, Boone B, Levy S, Coffey RJ, Aronow BJ. Maximizing cross-platform and cross-protocol comparability of gene expression microarray data using a universal reference RNA approach. Submitted

### **C. Research Support.**

#### **Ongoing Research Support**

5 R01 CA79869-05 (Threadgill) 7/1/99-6/30/05  
NIH/NCI

Analysis of colorectal cancer susceptibility.

The major goals of this project are to investigate the mechanism and genetically localize genes involved with susceptibility to sporadic colorectal cancer using mouse models.

3 R01 CA79869-05S1 (Threadgill) 7/1/01-6/30/05  
NIH/NCI

Analysis of Colorectal Cancer Susceptibility.

The major goal of this supplement is to provide a minority post-doctoral supplement.

1 R01 CA92479-04 (Threadgill) 6/1/01-5/31/06  
NIH/NCI

EGF-R in normal and cancerous colon biology.

The major goals of this project are to investigate the mechanism by which colorectal cancers require the epidermal growth factor receptor for early establishment and the role of Egfr in normal intestinal biology.

1 R01 HD39896-04 (Threadgill) 7/1/01-6/30/06  
NIH/NICHD

Functional genomics of Egfr in placental development.

The major goals of this project are to elucidate the role of Egfr during placental development and to identify through genetic crosses and microarray gene expression profiling, genetic background modifiers of Egfr-deficiency in mice.

1 U19 ES11391-04 (Kaufmann) 9/27/01-9/26/06  
NIH/NIEHS

Profiles of susceptibility to toxicant stress.

Project #3 (Threadgill)

Mouse strain-specific molecular profiles in response to toxicants.

The major goals of this project are to use microarray gene expression profiling to investigate response to toxicants and to identify expression clusters associated with common responses and with responses differing between individuals.

U01 CA084239-06 (Coffey, Vanderbilt) 4/1/04-3/31/09  
NIH/NCI

Prevention & Metastasis: Final Frontiers in Colon Cancer

The major goal of this project is to develop new mouse models for treatment and metastasis of human cancer as part of the NCI Mouse Models of Human Cancer Consortium.

U01 CA105417-01 (Threadgill) 4/1/04-3/31/09  
NIH/NCI

Integrative genetics of cancer susceptibility

The major goal of this project is develop a systems biology approach to cancer susceptibility as part of the NCI Mouse Models of Human Cancer Consortium.

P50 CA106991 (Tepper)

4/1/04-3/31/09

NIH/NCI

UNC SPORE in Gastrointestinal Cancer

Project #3 (Threadgill)

Investigation of ERBB signaling in colorectal cancer during metastasis

The major goal of this project is to investigate the role of Egfr and Erbb2 during colon cancer metastasis to the liver.

**Pending Research Support**

R01 (Macdonald)

7/1/05-6/30/10

NIH/NIEHS

Metabolic networks in APAP-induced cascade of toxic events

R01 (Rusyn)

7/1/05-6/30/10

NIH/NIEHS

Metabolomic and toxicogenetic study of ethanol toxicity

R21 (Liu)

4/1/05-3/31/07

NIH/NCI

Computational analysis of cancer probabilities

### BIOGRAPHICAL SKETCH

Provide the following information for the key personnel in the order listed on Form Page 2.  
Follow this format for each person. **DO NOT EXCEED FOUR PAGES.**

NAME <b>Randy J. Thresher</b>	POSITION TITLE Research Assistant Professor
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EDUCATION/TRAINING <i>(Begin with baccalaureate or other initial professional education, such as nursing, and include postdoctoral training.)</i>			
INSTITUTION AND LOCATION	DEGREE <i>(if applicable)</i>	YEAR(s)	FIELD OF STUDY
Univ. of Massachusetts	B.S.	1980	Biology
The Univ. of NC at Chapel Hill	Ph.D.	1993	Genetics and Mol. Biol.
The Univ. of NC at Chapel Hill	Postdoc	1993-1995	Recombination/Oliver Smithies

#### RESEARCH EXPERIENCE:

Research Specialist, Duke University Eye Center, 1980-1983  
 Technical Writer/Documentation Supervisor, Cilco, Inc., 1983-1984  
 Research Analyst I and EM Facility Supervisor, UNC/Chapel Hill, 1984-1990  
 Graduate Student, UNC/Chapel Hill, 1990-1993 Advisor: Dr. Jack Griffith  
 Postdoctoral Research Associate, UNC/Chapel Hill, 1993-1998 Mentor: Dr. Oliver Smithies  
 Research Assistant Professor and Director, UNC Animal Models Core Facility, UNC/Chapel Hill, 1998-present

#### PUBLICATIONS:

##### a. Peer-Reviewed Papers

1. Schindler, R., Chandler, D., **Thresher, R.**, Machemer, R. The Clearance of Intravitreal Triamcinolone Acetonide, *American Journal of Ophthalmology*, 96:594-596, 1982.
2. Gonvers, M., **Thresher, R.** Temporary Use of Silicone Oil in the Treatment of Proliferative Vitreoretinopathy, *Graefe's Archives of Clinical and Experimental Ophthalmology*, 221:46-54, 1983.
3. Shields, M.B., **Thresher, R.** Axenfeld-Reigers Syndrome: Its Distinction from the Iridocorneal Endothelial Syndrome, *Transactions of the America Ophthalmological Society*, 81:736-45, 1984.
4. Stoneburner, S., **Thresher, R.**, Cobo, M., Klintworth, G. Endothelial Repopulation of the Cornea Following Intracameral Acetic Acid Irrigation, *Ophthalmology*, 91:78-82, 1984.
5. Bourgeois, J., Shields, M.B., **Thresher, R.** Open-Angle Glaucoma Associated with Posterior Polymorphous Dystrophy, *Ophthalmology*, 91:240-3, 1984.
6. Mendelow, M., Bessler, M., **Thresher, R.**, Chandler, D., Foulks, G. Osmotic Control of Corneal Stroma Rehydration, *Investigative Ophthalmology and Visual Science*, 24:3-5, 1983.
7. **Thresher, R.**, Ehrenberg, M., Machemer, R., Vitreous Compression: An Experimental Alternative to Vitrectomy, *Graefe's Arch Clin Exper. Opth.*, 231:68-78, 1984.
8. Ehrenberg, M., **Thresher, R.**, Machemer, R., Vitreous Hemorrhage: Non-toxic to the Retina and Stimulator of Glial and Fibrous Proliferation, *Amer. J. Opth.*, 97:611-26, 1984.
9. **Thresher, R.**, Ducoli, P., Machemer, R., The Effects of a Long-Acting Corticosteroid on Retinal Scarring Following Transcleral Cryoretinopexy, *Graefe's Arch. Clin. Exper. Opth.*, 226:122-129, 1985.
10. **Thresher, R.**, Christiansen, G., Griffith, J. Assembly of Presynaptic Filaments: Factors Affecting the Assembly of RecA Protein onto Single-Stranded DNA, *J. Mol. Biol.*, 201:101-113, 1988.

11. Su, S-S, Grilley, M., **Thresher, R.**, Griffith, J., Modrich, P., Gap Formation is Associated with Methyl-Directed Mismatch Correction under Conditions of Limited DNA Synthesis, *Genome*, 31:104-111, 1989.
12. Griffith, J., Bortner, C., Christiansen, G., Register, J., **Thresher, R.**, The Structure of Three-Stranded Joints Catalyzed by RecA Protein, *Molecular Mechanisms in DNA Replication and Recombination*, Alan R. Liss (publisher), 1990.
13. **Thresher, R.**, Griffith, J., Intercalators Promote the Binding of RecA Protein to Double-Stranded DNA, *Proc. Natl. Acad. Sci. USA*, 87:5056-5060, 1990.
14. Smith, M., **Thresher, R.**, Pagano, J., Inhibition of Human Immunodeficiency Virus Type 1 Morphogenesis in T-cells by Alpha Interferon, *Anti-Microbial Agents and Chemotherapy*, 35:62-67, 1991.
15. Topal, M., **Thresher, R.**, Conrad, M., Griffith, J., NaeI Endonuclease Binding to pBR322 DNA Induces Looping, *Biochemistry*, 30:2006-2010, 1991.
16. Tamm, J., **Thresher, R.**, Wyrick, P., Identification of a Putative Origin of Replication in Chlamidia, *Plasmid*, 227:231-236, 1992.
17. Alani, E., **Thresher, R.**, Griffith, J., Kolodner, R., Characterization of DNA Binding and Strand Exchange Stimulation Properties of  $\gamma$ -RPA, a Yeast Single-Stranded DNA-Binding Protein, *J. Mol. Biol.*, 227:54-71, 1992.
18. Shi, Q., **Thresher, R.**, Sancar, A., Griffith, J., An Electron Microscopic Study of (A)BC Excinuclease: DNA is sharply Bent in the UVRB-DNA Complex, *J. Mol. Biol.*, 227:54-71, 1992.
19. **Thresher, R.**, Griffith, R., Electron Microscopic Visualization of DNA and DNA-Protein Complexes and an Adjunct to Biochemical Studies, *Methods in Enzymology*, 211:481-490, 1992.
20. Crooke, E., **Thresher, R.**, Griffith, J., Kornberg, A., The Role of E. coli Origin DNA Sequence Elements in the Formation of DNA Replication Initial Complexes, *J. Mol. Biol.*, 233:16-24, 1993.
21. **Thresher, R.J.**, Makhov, A.M., Hall, S.D., Kolodner, R., Griffith, J.D., Electron Microscopic Visualization of RecT Protein and its Complexes with DNA, *J. Mol. Biol.*, 254:364-371, 1995.
22. Allen, D.J., Makhov, A., Grilley, M., Taylor, J., **Thresher, R.J.**, Modrich, P., Griffith, J.D., MutS Mediates Heteroduplex Loop Formation by a Translocation Mechanism, *EMBO J.* 16: 4467-4476, 1997.
23. **Thresher, R.J.**, Vitaterna, M.H., Miyamoto, Y., Hsu, D., Kazantsev, A., Petit, C., Selby, C.P., Dawut, L., Smithies, O., Takahashi, J.S., Sancar, A., Role of Mouse Cryptochrome Blue-Light Photoreceptor in Circadian Photoresponses, *Science* 282:1490-1494, 1998.
24. Vitaterna, M.H., Selby, C.P., Todo, T., Niwa, H., Thompson, C., Fruechte, E.M., Hitomi, K., **Thresher, R.J.**, Ishikawa, T., Miyazaki, J., Takahashi, J.S., Sancar, A. Differential Regulation of Mammalian period Genes and Circadian Rhythmicity by Cryptochromes 1 and 2, *Proc. Natl. Acad. Sci. USA* 96: 12114-12119, 1999.
25. Sancar, A., Thompson, C., **Thresher, R.J.**, Araujo, F., Mo, J., Vagas, E., Dawut, L., Selby, C.P. Photolyase/cryptochrome Family Blue-Light Photoreceptors Use Light Energy to Repair DNA or Set the Circadian Clock. *Cold Spring Harb. Symp. Quant. Biol.* 65:157-71, 2000.
26. Thompson, C.L., Selby, C.P., Stentz, C., Plante, D.T., **Thresher, R.J.**, Araujo, F. and Sancar, A., Further Evidence for the Requirement of Cryptochromes in Light-Regulation of Gene Expression in Mice, *Brain Res. Mol. Brain Res.* 122:158-166, 2004.

#### Grants

"Development of Genotyping and Cryopreservation Capacities in the UNC Animal Models Core Facility." from the North Carolina Biotechnology Center (\$96,100), 1999

"Inducible FSH and Superovulation in the Mouse" NIH, submitted

<b>BIOGRAPHICAL SKETCH</b> Provide the following information for the key personnel in the order listed for Form Page 2. Follow the sample format for each person. <b>DO NOT EXCEED FOUR PAGES.</b>			
NAME		POSITION TITLE	
Terry A. Van Dyke		Professor	
EDUCATION/TRAINING <i>(Begin with baccalaureate or other initial professional education, such as nursing, and include postdoctoral training.)</i>			
INSTITUTION AND LOCATION	DEGREE <i>(if applicable)</i>	YEAR(s)	FIELD OF STUDY
Wake Forest University, Winston-Salem, NC		1975	Biology
University of Florida, Gainesville, FL	B.S.	1977	Biochem, Micro. & Molec. Biol.
University of Florida, Gainesville, FL	Ph.D.	1981	Medical Sciences

#### **A. Positions and Honors**

1981-1982 Postdoctoral Research Fellow, Dept. of Biochemistry, Univ. of Florida (J. Stein)  
 1982-1984 Postdoctoral Research Fellow, Microbiology Dept., SUNY, Stony Brook, NY (A.J. Levine)  
 1984-1986 Research Associate, Dept of Molecular Biology, Princeton University (A.J. Levine)  
 1986-1992 Assistant Professor, Dept. of Biological Sciences, Univ. of Pittsburgh, PA  
 1992-1993 Director, Transgenic Facility; Children's Hospital, Pediatrics & Biological Sciences, Univ. of Pittsburgh  
 1992-1993 Associate Professor (tenured), Dept. of Biological Sciences, University of Pittsburgh, PA  
 1993-1997 Associate Professor, Department of Biochemistry and Biophysics, UNC-Chapel Hill  
 1997-present Professor, Dept. of Biochemistry and Biophysics, UNC-Chapel Hill  
 1993-present Member, Lineberger Comprehensive Cancer Center  
 1993-present Member, Program in Molecular Biology & Biotechnology, UNC-Chapel Hill  
 1993-present Member, UNC Genetics Curriculum  
 1996 Organizer, AACR Workshop  
 1996 Vice-Chair, Gordon Conference on Cancer  
 1997 Chair, Gordon Conference on Cancer  
 1997-present Member, UNC Neuroscience Center  
 1998-present Director, UNC Animal Models Core  
 1999-2001 Director, UNC Mutant Mouse Regional Resource Center  
 1997-2002 Professor, Dept. of Biochemistry and Biophysics, UNC-Chapel Hill  
 2002-present Professor, Department of Genetics, UNC Chapel Hill  
 2002-present Joint Appointment, Department Biochemistry & Biophysics  
 2002 Symposium organizer, ASCB annual meeting, San Francisco, CA  
 2003 co-Organizer, AACR meeting: Mouse Models of Cancer; Orlando, FL.  
 2004 Symposium organizer, AACR Annual Meeting, Orlando, FL.  
 2004-05 2005 AACR annual meeting Program Committee  
 Editorial Boards: *Molecular and Cellular Biology* (1/99-present); *Carcinogenesis* (1/01-1/04); *Cancer Cell* (9/01-present); *Molecular Cancer Research* (9/02-present); *International Journal of Oncology* (11/01-present); *Cancer Research* (2003 –present)

#### **OTHER AWARDS/HONORS:**

ACS Postdoctoral Fellow, August 1982-August 1984, Research Career Development Award, NIH, August 1992 – July 1997

#### **National Committees:**

1991-1993 Ad hoc MBY Study Section  
 1993-1997 Member, NIH Molecular Biology Study Section  
 1996-2003 Army Breast Cancer Program Review  
 1997-present: Preclinical Models Working group, co-chair sub group 2; Advisory to NCI  
 1998-present AACR Special Meeting Committee  
 1999-2002 co-Chair, Preclinical Models of Human Cancer Consortium (NCI supported)  
 1999-2002 Steering Committee, Mutant Mouse Resource Centers (NCRR supported)  
 1999-present Steering Committee, Mouse Models of Human Cancer Consortium

2002-present Goldhirsh Foundation Advisory Committee

**National Committees (continued):**

2002-present External Advisory Board, Dana Farber Brain Tumor P01

2003-present External Advisory Board, Univ. Tenn. Cancer Center

2003-present External Advisory Board, Moffitt Cancer Center National Functional Genomics Center

**B. Publications: (since 1990)**

- Yan C, Costa R, Darnell JE, Chen J, and **Van Dyke TA**. (1990) Distinct positive and negative elements control the limited hepatocyte and choroid plexus expression of transthyretin in transgenic mice. *EMBO J.* 9:869-878.
- Dyson N, Bernards R, Friend S, Gooding L, Hassel J, Major E, Pipas J, Prives C, **Van Dyke T**, & Harlow E. (1990) The large antigens of many polyoma viruses are able to form complexes with the retinoblastoma protein. *J. Virol.* 64:1353-1356.
- Koretsky A, Brosnan J, Chen LH, and **Van Dyke TA**. (1990) NMR detection of creatine kinase expressed in liver of transgenic mice: Determination of free ADP levels. *Proc. Natl. Acad. Sci. USA* 87:3112-3116.
- Brosnan J, Chen L, **Van Dyke T**, and Koretsky AP. (1990) Free ADP levels in transgenic mouse liver expressing creatine kinase: effects of enzyme activity, phosphagen type and substrate concentration. *J. Biol. Chem.* 265:20849-20855.
- Brosnan J, Chen L, Wheeler CE, **Van Dyke T**, and Koretsky A. (1991) Phosphocreatine protects hepatic ATP from a fructose load in transgenic mouse liver expressing creatine kinase. *Am. J. Physiol.* 260:1191-1200.
- Symonds H, Chen J, and **Van Dyke T**. (1991) Complex formation between the lymphotropic papovavirus large tumor antigen and the tumor suppressor protein, p53. *J. Virol.* 65:5417-5424.
- Chen J and **Van Dyke T**. (1991) Uniform cell-autonomous tumorigenesis of the choroid plexus by papovavirus large T antigens. *Mol. Cell. Biol.* 11:5968-5976.
- Chen J, Tobin G, Pipas J, and **Van Dyke TA**. (1992) T antigen mutant activities *in vivo*: roles of p53 and pRB binding in tumorigenesis of the choroid plexus. *Oncogene*. 7:1167-1175.
- Van Dyke TA**. (1993) Tumors of choroid plexus, In: *Molecular Genetics of Nervous System Tumors*, eds. Levine and Schmidek, publisher Wiley & Sons, p287-301.
- Symonds H, McCarthy S, Chen J, Pipas JM, and **Van Dyke T**. (1993) Use of transgenic mice reveals cell-specific transformation by an SV40 T antigen amino-terminal mutant. *Mol. Cell. Biol.* 13:3255-3265.
- Van Dyke T**. (1994) Analysis of viral-host protein interactions and tumorigenesis in transgenic mice. *Semin. in Cancer Biol.*, 5:47-60.
- McCarthy SA, Symonds HS, and **Van Dyke T**. (1994) Regulation of apoptosis in transgenic mice by SV40 T antigen-mediated inactivation of p53. *Proc. Natl. Acad. Sci. USA*. 91:3979-3983.
- Sáenz Robles MT, Symonds HS, Chen J, and **Van Dyke T**. (1994) Induction versus progression of brain tumor development: Differential functions of the pRB- and p53-targeting domains of SV40 T antigen. *Mol. Cell. Biol.* 14:2686-2698.
- Symonds H, Krall L, Remington L, Sáenz Robles MT, Lowe S, Jacks T, and **Van Dyke T**. (1994) p53 dependent apoptosis suppresses tumor growth and progression *in vivo*. *Cell*, 78:703-711.
- Symonds H, Krall L, Remington L, Sáenz Robles MT, Lowe S, Jacks T, and **Van Dyke T**. (1994) p53-dependent apoptosis *in vivo*: Impact of p53 inactivation in tumorigenesis. *Cold Spring Harb. Symp. Quant. Biol.* 49:247-257.
- Wu H, Wade M, Krall L, Grisham J, Xiong Y, and **Van Dyke T**. (1996) Targeted *in vivo* expression of the cyclin-dependent kinase inhibitor p21 halts hepatocyte cell-cycle progression, postnatal liver development, and regeneration. *Genes and Dev.* 10:245-260.
- Bowman T, Symonds H, Gu L, Oren M, and **Van Dyke T**. (1996) Tissue-specific inactivation of p53 tumor suppression in the mouse. *Genes and Dev.* 10:826-835.
- Yin C, Knudson M, Korsmeyer S, and **Van Dyke T**. (1997) Bax suppresses tumorigenesis and stimulates apoptosis *in vivo*. *Nature* 385:637-640.
- Li J, Witte DP, **Van Dyke T**, Askew DS. (1997) Expression of the putative protooncogene *His-1* in normal and neoplastic tissues. *Am. J. of Pathology* 150:1297-1305.
- Patrick T, Dranz D, **Van Dyke T**, and Edward R. (1997) Folate receptors as potential therapeutic targets in choroid plexus tumors of SV11 transgenic mice. *J. of Neuro-Oncology* 32:111-123.
- Pan H, Yin C, and **Van Dyke T**. (1997) Apoptosis and cancer mechanisms. *Cancer Surveys* 29:305-327.
- Liao M-J, Zhang X-X, Hill R, Gao J, Qumsiyeh MB, Nichols W, and **Van Dyke T**. (1998) No requirement for V(D)J recombination in p53-deficient thymic lymphoma. *Mol. Cell. Biol.* 18:3495-3501.
- Pan H, Yin C, Yamaskai L, Dyson N, Harlow E, and **Van Dyke T**. (1998) Key roles for E2F1 in p53-dependent apoptosis and cell cycle regulation within developing tumors. *Mol. Cell.* 2:283-292.
- Liao M-J, Yin C, Barlow C, Wynshaw-Boris A, and **Van Dyke T**. (1999) Atm is dispensable for p53 apoptosis and tumor suppression when signaled by cell cycle dysfunction. *Mol. Cell. Biol.* 19:3095-3102.
- Liao M-J and **Van Dyke TA**. (1999) Critical role for Atm in suppressing VDJ recombination-driven thymic lymphoma, *Genes and Dev.* 13:1246-1250
- de La Coste A., Mignon A, Fabre M, Gilbert E, Porteu A, **Van Dyke T**, Kahn A, and Perret C (1999) Paradoxical inhibition of c-myc-induced carcinogenesis by Bcl-2 in transgenic mice. *Cancer Research* 59:5017-5022.
- Salganik RI, Albright CD, Rodgers J, Kim J, Zeisel SH, Sivanshenskiy MS, and **Van Dyke TA** (2000) Antioxidant depletion: Enhancement of apoptotic tumor cell death and inhibition of brain tumor growth in transgenic mice. *Carcinogenesis*, 21: 909-914.
- Lu, X., G. Magrane, D.N.Louis, J. Gray, and **T. Van Dyke** (2001) Selective inactivation of p53 facilitates mouse epithelial tumor progression without chromosomal instability, *Mol. and Cell Biol.*, 21:6017-6030
- Garciduenas L., Alcaraz, A., Salazar G., Tascareno A., Garcia R., Osnaya N., Calderon A., Devlin R. and **Van Dyke TA** (2001) Nasal Biopsies of Children Exposed to Air Pollutants. *Toxicologic Pathology*. 29:558-564.

- Tolbert D, Lu X, Yin C, Tantama, M and **Van Dyke TA** (2002) p19arf is Dispensable for Oncogenic Stress-Induced p53-dependent Apoptosis and Tumor Suppression in vivo. *Mol. Cell Biol.*, 22:370-377.
- Perkins EJ, Nair A, Cowley DO, **Van Dyke T.**, Chang Y. Ramsden DA (2002) Sensing of Intermediates in V(D)J recombination by ATM. *Genes Dev.* 2002 Jan. 15;16:159-64.
- Van Dyke, T.** and T. Jacks (2002) Cancer Modeling in the Modern Era: Progress and Challenges. *Cell*, Vol. 108,135-144,
- Xiao A, Wu H, Louis DN, Pandolfi PP, **Van Dyke TA**. 2002. Astrocyte inactivation of the pRb pathway predisposes mice to malignant astrocytoma development that is accelerated by PTEN Mutation. *Cancer Cell*,1:157-168.
- Weiss, W A, Israel M., Cobbs C., Holland E., James C D, Louis D N, Marks Cheryl, McClatchey A., Roberts T., **Van Dyke T.** , Wetmore C., Chiu I., Giovannini M., Guha A., Higgins R., Marino S., Radovanovic I., Reilly K., Aldape K. (2002) Neuropathology of genetically engineered mice. *Oncogene*. 21;44
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- Albright\*, C.D., Salganik, R.I., and **Van Dyke TA** (2004) Dietary Depletion of Vitamin E and Vitamin A Inhibits Mammary Tumor Growth and Metastasis in Transgenic Mice. *Journal of Nutrition*, 134(5):1139-44.
- Nistér, M., Beeche, M., Zhang, X-Q., Yin, C., Hu, X., Tang, M., Enblad, G., **Van Dyke, T.**, and Wahl, G. M. (2005) The tumor suppressor function of p53 requires the N-terminal transactivation domain. *Oncogene*, in press.

#### **Submitted or in Preparation:**

- Xiao, A, C. Yin, C. Yang, A. Di Cristofano, P. Pandolfi and T. Van Dyke (2005) Somatic Induction of Pten Loss in a Preclinical Astrocytoma Model Reveals Major Roles in Disease Progression and Avenues for Target Discovery and Validation, submitted.
- Hill, R., Y. Song, R. D. Cardiff, and **T. Van Dyke** (2005) Initiation of Prostate Cancer by Disruption of pRb Function Reveals a Mechanism for Heterogeneous Tumor Evolution Including Selective Alteration of Pten. Submitted.
- Cowley, D., G. Muse and **Van Dyke, T.** (2005) A Dominant Interfering Bub1 Mutant is Insufficient to Induce or Alter Tumorigenesis In Vivo, Even in a Sensitized Genetic Background . Submitted
- Yin, C., and **Van Dyke, T.** (2005) Progression to angiogenesis coincident with somatic inactivation of p53 in a transgenic brain tumor model (to be submitted July 2004).
- Lu, X. and **T. Van Dyke** (2005) Inactivation of GADD45 in tumors significantly increases radiation sensitivity in vivo and extends survival
- Lu, X., Yin, C, Wu, H., Brugarolis, J, Jacks, T. and **T. Van Dyke** (2005) p53 targets p21 and GADD45 are dispensable for apoptosis and tumor suppression induced by cell cycle disruption in vivo.
- Zhang L, Allan R, Wu H, and **Van Dyke TA** (2005) Highly penetrant diabetes induced by targeted expression of cell cycle inhibitors in liver and pancreas (in preparation).

#### **Current Research Support**

##### **Support for Lab:**

<b>U01-CA84314</b>	(Van Dyke)	(20%)
National Cancer Institute	<b>Astrocytic Cancers: How, When, Where?</b>	
Total Award	4/1/04 – 3/31/09	Direct: \$5,273,429 Indirect: \$1,178,948
Current Year	4/1/04 – 3/31/05	Direct: \$677,195.00 Indirect: \$172,805
UNC Award Amount – 3 Lab collaboration		
Total Award	4/1/04 – 3/31/09	Direct: \$1,751,705 Indirect: \$803,044
Current Year	4/1/04 – 3/31/05	Direct: \$331,612 Indirect: \$149,805

While we continue to probe basic genetic and biological mechanisms of Astrocytic cancers we will also utilize genomic and imaging tools to monitor the extent of similarities between the mouse and human diseases. In addition we will work to establish databases and other sharing mechanisms for the data generated by us and others.

Note: This grant includes projects at Washington University and UCSD that total \$345,583.00 This portion of the grant does not provide funds to Dr. Van Dyke's laboratory.

The Brain Tumor Society	(Van Dyke)	(5%)
<b>Modeling Progression from Low Grade Astrocytoma to GBM in Genetically Engineered Mice</b>		

Total Award	11/1/04 – 10/31/06	Direct: \$199,500	Indirect: \$0
Current Year	11/1/04 – 10/31/05	Direct: \$99,742	Indirect: \$0

This grant proposes to study the mechanism underlying increased angiogenesis upon Pten inactivation in a mouse model of high-grade astrocytoma.

The Goldhirsh Foundation	(Van Dyke)	(5%)	
<b>Development and Imaging of Preclinical Mouse Models of High Grade Astrocytoma</b>			
Total Award	7/1/04 – 6/30/05	Direct: \$90,909	Indirect: \$9,091
Current Year	7/1/04 – 6/30/05	Direct: \$90,909	Indirect: \$9,091



This work will not only characterize the astrocytomas with respect to the human disease, but will also provide a mechanism to monitor efficacy of therapeutic assessment in preclinical trials.

**RO1-CA65773-09** (Van Dyke) (15%)  
National Cancer Institute **P53 and ATM Checkpoints in Thymic Lymphoma Suppression**  
Total Award 12/1/00 – 11/30/05 Direct: \$1,206,946 Indirect: \$532,047  
Current Year 12/1/03 – 11/30/04 Direct: \$242,667 Indirect: \$109,289  
This proposal aims to explore cell cycle checkpoint mechanisms and their relationship to tumor suppression by focusing on the analysis of p53 and ATM in lymphocytes.  
*Renewal pending*

**RO1-CA046283-16** (Van Dyke) (20%)  
National Cancer Institute **Mechanisms of Epithelial Cell Tumorigenesis in the Mouse**  
Total Award 3/1/04 – 2/28/09 Direct: \$1,519,976 Indirect: \$848,556  
Current Year 3/1/04 – 2/28/05 Direct: \$286,432 Indirect: \$130,527  
The current proposal aims to: (1) Examine the mechanism(s) by which p53 inactivation contributes to tumor suppression in several epithelial cell types (2) Examine the mechanism(s) by which Pten inactivation contributes to tumor suppression in these cell types (3) Assess the mechanisms of angiogenesis in these tumor models.

Prostate Cancer Foundation (Van Dyke) (5%)  
**Develop a Novel Androgen-Independent Preclinical Model for Prostate Cancer**  
Total Award 1/1/04 – 12/31/04 Direct: \$100,000 Indirect: \$0  
Current Year 1/1/04 – 12/31/04 Direct: \$100,000 Indirect: \$0  
We have generated a genetically engineered mouse (GEM) strain that expresses a dominant inhibitor of the pRb family proteins (T121) in the prostate using an inducible CMV promoter. As a result Tg-TO/CMVT121 mice develop prostatic intraepithelial neoplasia (PIN) lesions by 3-months. We have shown that T121-induced PIN can be advanced to adenocarcinoma with the inactivation of tumor suppressors p53 or PTEN. Thus, we will determine whether transgene expression is androgen-independent, and if so, characterize tumor development.  
*Renewal pending*

Department of Defense (Van Dyke) (10%)  
**Novel Techniques for Exploring the Underlying Genetic Mechanisms of Prostate Cancer**  
Total Award 1/1/05 – 12/31/07 Direct: \$374,976 Indirect: \$168,385  
Current Year 1/1/05 – 12/31/05 Direct: \$122,638 Indirect: \$55,045

**Support for UNC animal models core:**

**1-P01-HL066973** (Samulski) 9/30/01 – 7/31/06 (5%)  
National Inst. of Health

**Gene Therapy for Pulmonary and Hematologic Disorders, Core B, Animal Models Core**

The goal of the PPG is to further the basic knowledge of gene delivery for eventual safe and rigorous human clinical trials.

**5-P30-CA16086-29** (Earp,III) 12/1/99 – 11/30/04 (10%)  
National Cancer Institute  
**Cancer Center Core Support Grant - Animal Models Core Facility**  
Core Facility to provide Center Members with Animal Models services.

**S10-RR019924** (Lin) 6/01/05 – 5/30/06 (0%)  
National Inst. Of Health

**9.4 Tesla Small Animal Magnetic Resonance Scanner**

Shared instrumentation grant funding to purchase the 9.4 Tesla scanner for cancer research.

### BIOGRAPHICAL SKETCH

Provide the following information for the key personnel in the order listed on Form Page 2.  
Follow this format for each person. **DO NOT EXCEED FOUR PAGES.**

NAME Kirk C. Wilhelmsen, M.D., Ph.D.		POSITION TITLE Associate Professor of Neurology	
EDUCATION/TRAINING <i>(Begin with baccalaureate or other initial professional education, such as nursing, and include postdoctoral training.)</i>			
INSTITUTION AND LOCATION	DEGREE <i>(if applicable)</i>	YEAR(s)	FIELD OF STUDY
University of California, San Diego	B.S.	1978	Chemistry
University of Wisconsin, Madison	Ph.D.	1984	Molecular Biology
University of Wisconsin, Madison	M.D.	1986	Medicine

#### Professional Experience

1986-1987	Columbia-Presbyterian Medical Center, New York, NY: Internship, Dept. of Medicine; NY State License
1987-1990	Columbia-Presbyterian Medical Center, New York, NY: Resident, Dept. of Neurology; Board Eligible
1988-1990	Columbia-Presbyterian Medical Center, New York, NY: DANA Fellow and Keck Scholar, Depts. of Neurology and Psychiatry, Laboratory of Conrad Gilliam, Ph.D.
1990-1995	Columbia University College of Physicians and Surgeons, New York, NY: Asst. Professor in Residence, Dept. Of Neurology
1995-1999	University of California-San Francisco, San Francisco, CA. Asst. Professor in Residence, Dept. of Neurology, Ernest Gallo Clinic and Research Center.
1999-2003	University of California-San Francisco, San Francisco, CA. Assoc. Professor in Residence, Dept. of Neurology, Ernest Gallo Clinic and Research Center.
2003-present	University of North Carolina-Chapel Hill, Chapel Hill, NC, Assoc. Professor, Dept. of Genetics and Neurology, Carolina Genome Center, and Bolls Addiction Research Center

#### Honors and Awards

California State Scholarship; Price Award for Cancer Research; Forester Award for Neurology; Klingenstein Fellow Award; Herbert Irving Assistant Professor of Neurology; Potamkin Prize (AAN, 1999); Decade of the Brain Lecture (AAN, 1999)

#### Selected Publications (From 76)

Wilhelmsen,K.C., Eggleton,K., and Temin,H.M. (1984). Nucleic acid sequences of the oncogene v-rel in reticuloendotheliosis virus strain T and its cellular homolog, the proto-oncogene c-rel. *J. Virol.* 52, 172-182.

Brzustowicz,L.M., Lehner,T., Castilla,L.H., Penchaszadeh,G.K., Wilhelmsen,K.C., Daniels,R., Davies,K.E., Leppert,M., Ziter,F., Wood,D., Dubowitz,V., Zerres,K., Hausmanowa-Petrusewicz,I., Ott,J., Munsat,T.L., and Gilliam,T.C. (1990). Genetic mapping of chronic childhood-onset spinal muscular atrophy to chromosome 5q11.2-13.3. *Nature* 344, 540-541.

Brzustowicz,L.M., Wilhelmsen,K.C., and Gilliam,T.C. (1991). Genetic analysis of childhood-onset spinal muscular atrophy. *Adv Neurol* 56, 181-187.

Wilhelmsen,K.C., Weeks,D.E., Nygaard,T.G., Moskowitz,C.B., Rosales,R.L., dela Paz,D.C., Sobrevega,E.E., Fahn,S., and Gilliam,T.C. (1991). Genetic mapping of "Lubag" (X-linked dystonia-parkinsonism) in a Filipino kindred to the pericentromeric region of the X chromosome. *Ann. Neurol.* 29, 124-131.

Nygaard,T.G., Wilhelmsen,K.C., Risch,N.J., Brown,D.L., Trugman,J.M., Gilliam,T.C., Fahn,S., and Weeks,D.E. (1993). Linkage mapping of dopa-responsive dystonia (DRD) to chromosome 14q. *Nat Genet* 5, 386-391.

Lasser,D.M., Devivo,D.C., Garvin,J., and Wilhelmsen,K.C. (1994). Turcot's syndrome: evidence for linkage to the adenomatous polyposis coli (APC) locus. *Neurology* 44, 1083-1086.

Lynch,T.S., Sano,M., Marder,K.S., Bell,K.L., Foster,N.L., Defendini,R.F., Sima,A.A.F., Keohane,C., Nygaard,T.G., Fahn,S., Mayeux,R., Rowland,L.P., and Wilhelmsen,K.C. (1994). Clinical characteristics of a family with chromosome 17-linked Disinhibition-Dementia-Parkinsonism-Amyotrophy-Complex (DDPAC). *Neurology* 44, 1878-1884.

Wilhelmsen,K.C., Lynch,T., and Nygaard,T.G. (1994). Localization of disinhibition-dementia-parkinsonism-amyotrophy complex to 17q21-22. *Am J Hum Genet* 55, 1159-1165.

Ottman,R., Risch,N.J., Hauser,W.A., Pedley,T.A., Lee,J.H., Barker-Cummings,C., Lustenberger,A., Nagle,K.J., Lee,K.S., Scheuer,M.L., Neystat,M., Susser,M., and Wilhelmsen,K.C. (1995). Localization of a gene for partial epilepsy to chromosome 10q. *Nat Genet* 10, 56-60.

- Petersen,R.B., Tabaton,M., Chen,S.G., Monari,M.D., Richardson,S.L., Lynch,T., Manetto,V., Lanska,D.J., Markesbery,W.R., Currier,R.D., Autilio-Gambetti,L., Wilhelmsen,K.C., and Gambetti,P. (1995). Familial progressive subcortical gliosis: presence of prions and linkage to chromosome 17. *Neurology* 45, 1062-1067.
- Wijker,M., Wszolek,Z.K., Wolters,E.C.H., Rooimans,M.A., Pals,G., Pfeiffer,R.F., Rodnitzky,R.L., Wilhelmsen,K.C., and Arwert,F. (1996). Heterogeneous neurological diseases map to the same region on chromosome 17q. *Hum Mol Genet* 5(1), 151-154.
- Wilhelmsen,K.C., Blake,D.M., Lynch,T., Mabutas,J., De Vera,M., Neystat,M., Bernstein,M., Hiarno,M., Gilliam,T.C., Murphy,P.L., Sola,M.D., Bonilla,E., Schotland,D.L., Hays,A.P., and Rowland,L.P. (1996). Chromosome 12-linked Autosomal Dominant Scapuloperoneal Muscular Dystrophy. *Ann. Neurol.* 39, 507-520.
- Foster,N.L., Wilhelmsen,K.C., Sima,A.A.F., Jones,M.Z., Damato,C.J., Gilman,S., Spillantini,M.G., Lynch,T., Mayeux,R.P., Gaskell,P.C., Hulette,C.M., PericakVance,M.A., WelshBohmer,K.A., Dickson,D.W., Heutink,P., Kros,J., vanSwieten,J.C., Arwert,F., Ghetti,M.B., Murrell,J., Lannfelt,L., Hutton,M., Jones,M., Phelps,C.H., Snyder,D.S., Oliver,E., Ball,M.J., Cummings,J.L., Miller,B.L., Katzman,R., Reed,L., Schelper,R.L., Landska,D.J., Brun,A., Fink,J.K., Kuhl,D.E., Knopman,D.S., Wszolek,Z., Miller,C.A., Bird,T.D., Lendon,C., and Elechi,C. (1997). Frontotemporal dementia and parkinsonism linked to chromosome 17: A consensus conference. *Annals of Neurology* 41, 706-715.
- Morse,J.H., Jones,A.C., Barst,R.J., Hodge,S.E., Wilhelmsen,K.C., and Nygaard,T.G. (1997). Mapping of familial primary pulmonary hypertension locus (PPH1) to chromosome 2q31-q32. *Circulation* 95, 2603-2606.
- Wilhelmsen,K.C., Mirel,D.B., Marder,K., Bernstein,M., Naini,A., Leal,S.M., Cote,L.J., Tang,M.-X., Freyer,G., Graziano,J., and Mayeux,R. (1997). Is there a genetic susceptibility locus for Parkinson's disease on chromosome 22q13? *Ann. Neurol.* 41, 813-817.
- Clark,L.N., Poorkaj,P., Wszolek,Z.K., Geschwind,D.H., Nasreddine,Z.S., Miller,B., Payami,H., Arwert,F., Markopoulou,K., D'Souza,I., Lee,V.M.Y., Reed,L., Trojanowski,J.Q., Zhukareva,V., Bird,T., Schellenberg,G.D., and Wilhelmsen,K.C. (1998). Pathogenic implications of mutations in the tau gene in pallido-ponto-nigral degeneration and related chromosome 17-linked neurodegenerative disorders. *Proc. Natl. Acad. Sci. USA* 95, 13103-13107.
- Hong,M., Zhukareva,V., Vogelsberg-Ragaglia,V., Wszolek,Z.K., Reed,L., Miller,B.L., Geschwind,D., Bird,T.D., McKeel,D., Goate,A.M., Morris,J.C., Wilhelmsen,K.C., Schellenberg,G.D., Trojanowski,J.Q., and Lee,V.M.Y. (1998). Mutation-specific functional impairments in distinct tau isoforms of hereditary FTDP-17. *Science* 282(5395), 1914-1917.
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- Morse,J.H., Jones,A.C., Barst,R.J., Hodge,S.E., Wilhelmsen,K.C., and Nygaard,T.G. (1998). Familial primary pulmonary hypertension locus mapped to chromosome 2q31-q32. *Chest* 114, 57S-58S.
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- Wilhelmsen,K.C., Schuckit,M.A., Smith,T.L., Lee,J.V., Segall,S.K., Feiler,H.S., and Kalmijn,J. (2003). The search for genes related to a low-level response to alcohol determined by alcohol challenges. *Alcohol Clin Exp Res* 27, 1041-1047.
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- Neilson,D.E., Feiler,H.S., Wilhelmsen,K.C., Lynn,A., Eiben,R.M., Kerr,D.S., and Warman,M.L. (2004). Autosomal dominant acute necrotizing encephalopathy maps to 2q12.1-2q13. *Annals of Neurology* 55, 291-294.
- Seaton,K.L., Cornell,J.L., Wilhelmsen,K.C., and Vieten,C. (2004). Effective strategies for recruiting families ascertained through alcoholic probands. *Alcohol Clin Exp Res* 28, 78-84.

Vieten,C., Seaton,K.L., Feiler,H.S., and Wilhelmsen,K.C. (2004). The University of California, San Francisco Family Alcoholism Study. I. Design, methods, and demographics. *Alcohol Clin Exp Res* 28, 1509-1516.

Wilhelmsen,K.C., Forman,M.S., Rosen,H.J., Alving,L.I., Goldman,J., Feiger,J., Lee,J.V., Segall,S.K., Kramer,J.H., Lomen-Hoerth,C., Rankin,K.P., Johnson,J., Feiler,H.S., Weiner,M.W., Lee,V.M., Trojanowski,J.Q., and Miller,B.L. (2004). 17q-linked frontotemporal dementia-amyotrophic lateral sclerosis without tau mutations with tau and alpha-synuclein inclusions. *Arch. Neurol.* 61, 398-406.

**RESEARCH SUPPORT:**

**Ongoing Research Support**

3052sc (P01 AG19724) (Miller)	09/01/02 - 08/31/07	7%
NIH/NIA (Subcontract through UCSF)		\$77,039
<i>Frontotemporal Dementia: Genes, Images, and Emotions</i>		
The major goal of this project is to positionally close a gene on chromosome 15 that causes FTLN with amyotrophy. Identification of this gene will lead to a greater understanding of the spectrum of diseases in which tau is implicated.		
Role: P.I., Project I		
N/A (Wilhelmsen)	05/01/01 - 04/30/04 extended to 04/30/05	5%
ALSA		\$55,556
<i>Positional Cloning of a New Locus for ALS with Dementia</i>		
The major goal of this project is to perform segregation analysis and begin testing candidate genes for ALS in the region of chromosome 15.		
RO1 HD048179-01		
NICHD		
<i>Genetic Factors In Outcome of Traumatic Brain Injury.</i> (Diaz-Arrastia PI)	12/1/04-11/31/09	5%
The major goal of this grant is to identify gene polymorphisms that modify outcome of traumatic brain injury.		
Role: Co-Investigator		
P20		
NIH		
<i>The Carolina Center for Exploratory Genetic Analysis Relating Genotype to Phenotype via Integrated Experimental and Clinical Data Analysis</i> (Daniel Reed PI)		
	10/1/05-9/31/09	5%
Submitted in Response to RFA-RM-04-004		
Role: Co-Investigator		
Pending RO1 (Wilhelmsen)	07/01/05-06/30/10	20%
NIDA		
<i>Fine Mapping Marijuana and Drug Dependence Genes</i>		
Submitted in response to PA-03-175		
Role: PI		
<b>Institutional Grants, in which Dr. Wilhelmsen was the PI, that remained at EGCRC when he moved to UNC.</b>		
01-15946 (Wilhelmsen)	07/01/01 - 06/30/04	
	3%	
California Dept. of Health Services/ADP		\$138,889
<i>The Alzheimer's Research Centers of California Genetics Initiative</i>		
The major goal of this project is to improve the care of dementia patients by increasing the understanding of the etiology through genetic research and analysis.		
DAMD17-01-1-0800 (Wilhelmsen)	09/15/01 - 09/15/05	10%
U.S. Army/Dept. of Defense		\$195,300
<i>Identification of Alcoholism Susceptibility Genes</i>		
The major goal of this project is to examine a large number of genes implicated in the biology of alcoholism to see whether common alleles of these genes affect susceptibility.		
DAMD17-03-1-0060 (Wilhelmsen)	01/15/03 - 01/15/06	11%
U.S. Army/Dept. of Defense		\$170,981
<i>Identification of Genes that Modulate a Low Level of Response to Alcohol, A Risk Factor for Alcoholism</i>		
The major goal of this project is to identify genes that modulate a low level of response to alcohol, a well-documented risk factor for the development of alcoholism.		
N/A (Wilhelmsen)	07/01/01 - 06/30/04	
	59%	
State of California/UCSF Dept. of Neurology		Appropriated Annually

*Human Genetics Study on Alcoholism*

At the request of the Governor, the State Legislature augmented funds to UCSF to support additional staff and a new drug development program for alcoholism and addiction. Funding for future years is very uncertain, can only be appropriated one year at a time, and will depend on prevailing economic and political circumstances in California, and at the University.

**Completed Research Support**

I N/A (Wilhelmsen)	06/01/99 - 05/31/04	5%
JDFAF	\$100,000	

*Creation of Mouse with Human tau Disease Mutations*

The major goal of this project is to create transgenic mice that over-express human tau genes with mutations known to cause frontotemporal dementia and parkinsonism linked to chromosome 17 in man.

**FACULTY ACTIVITY REPORT**  
**Department of Genetics, UNC-Chapel Hill**  
**July 1, 2003 – June 30, 2004**

*This form should be filled out to reflect activities during the 2003-2004 academic year. Please use additional pages if the space provided is insufficient. The completed form should be returned to the department chair.*

**Name:**

**Rank:**

**Appointments:**

**I. TEACHING.**

*Fill in all that applies.*

**A. MEDICAL SCHOOL COURSES.**

*Please note that inquiries about teaching in clinical settings follow this section.*

**B. CLINICAL TEACHING.**

**C. GRADUATE SCHOOL COURSES.**

<u>Course Title</u>	<u>Required (R) or Elective (E)</u>	<u>Student Contact Hours</u>
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**D. CONTINUING MEDICAL EDUCATION.**

**E. TEACHING AT OTHER SCHOOLS WITHIN UNC OR AT OTHER INSTITUTIONS.**

**F. RESEARCH SUPERVISION.**

*Provide requested information on medical students, graduate students, postdoctoral fellows, residents, and any others whom you have supervised during the past academic year.*

<u>Name</u>	<u>Type of Trainee</u>	<u>Did trainee's work result in publications this year?</u>
<u>Yes/No</u>		

## **G. TEACHING AWARDS**

*List any awards for teaching received during the past academic year.*

## **II. SCHOLARLY WORK**

### **A. PUBLICATIONS**

*List publications (1) published , (2) "in press" (accepted for publication), (3) submitted, and (4) in preparation. Include title, coauthors, and citation.*

### **B. PRESENTATIONS**

#### **1. Talks or Posters**

*Include title, institution or organization, date, form of presentation (e.g., talk, poster), indicate whether invited.*

#### **2. Conferences, seminars**

*Include conferences attended at which you served as chairperson or discussant.*

### **C. GRANTS/CONTRACTS**

*Include title, funding agency, amount of funding, your role in project.*

#### **1. Presently Funded:**

#### **2. Pending**

#### **3. In Preparation**

### **D. SPECIAL AWARDS**

*List any awards received for research.*

## **III. CLINICAL ACTIVITIES**

*Describe the nature of your clinical activities and specify the amount of time devoted to each.*

## **IV. SERVICE**

### **A. SERVICE ON COMMITTEES**

*Note service as committee chair or other special role.*

#### **1. Departmental Committees**



**2. Medical School/Hospital Committees**

**3. University Committees**

**4. National or International Committees**

**5. Professional Organizations - membership, leadership roles**

**B. PEER REVIEW ACTIVITIES (e.g., EDITORIAL BOARDS, *AD HOC* REVIEWER, FUNDING AGENCY REVIEW COMMITTEES)**

**C. CONSULTING**

*Describe any consulting or service on advisory boards; specify the amount of time devoted to each activity.*

**IV. SELF REFLECTIONS**

*If you wish, please comment on any of the activities you have included in this report.*

**V. GOALS FOR THE COMING ACADEMIC YEAR**

*Comment on professional goals that you have set for yourself for the coming academic year.*

**Academic:**

**Laboratory:**

**Research:**

**Funding:**

**DEPARTMENTAL COMMENTS:**

*Signature - Faculty Member*

*Signature - Department Chair*

*Date*

*Date*

## Genetics Curriculum Faculty

Name	Department	Research Area
Shawn Ahmed	Genetics/Biology	Telomere Replication and Germline Immortality in <i>C. elegans</i> .
Steven L. Bachenheimer	Microbiology & Immunology	Alterations To Cell-cycle and Signal Transduction pathways following herpes simplex virus infection
Albert S. Baldwin	Lineberger Comprehensive Cancer Center	Regulation of gene expression; control of oncogenesis and apoptosis
Victoria Bautch	Biology	Molecular genetics of blood vessel formation in mouse models
Kerry S. Bloom	Biology	Mechanisms of chromosome segregation in yeast; chromosome and spindle dynamics
Robert B. Bourret	Microbiology & Immunology	Molecular mechanisms of signal transduction in bacteria, including protein phosphorylation
Miriam Braunstein	Microbiology & Immunology	Microbial genetics; pathogenesis of <i>Mycobacterium tuberculosis</i> ; protein export
Jay Brenman	Cell and Developmental Biology	Neuronal dendrite development using <i>Drosophila</i> genetics
Christina Burch	Biology	Experimental Evolution in Microorganisms
Janne G. Cannon	Microbiology & Immunology	Molecular biology of bacterial pathogens; pathogenesis of <i>Neisseria</i> and <i>Francisella</i> ; antigenic variation mechanisms
Kathleen Caron	Cell & Molecular Physiology	Genetically Engineered Animal Models in Study of Human Disease
Stephen H. Clarke	Microbiology & Immunology	Molecular immunology; B-cell differentiation and tolerance, autoimmunity
Frank L. Conlon	Genetics/Biology	Heart development, Mesodermal patterning, T box genes
Gregory P. Copenhaver	Biology	Regulation of meiotic recombination in higher eukaryotes
Adrienne D. Cox	Radiation Oncology and Pharmacology	Ras family oncogenes and signaling, cellular radiation response; lipid modification and drug development
Stephen T. Crews	Biochemistry & Biophysics/ Biology-Adjunct	Developmental Neurobiology
Blossom Damania	Biology	Viral oncogenes and transcription factors encoded by Kaposi's sarcoma-associated herpesvirus and its simian relative, rhesus monkey rhadinovirus
Jeffery L. Dangl	Biology	Plant disease resistance using <i>Arabidopsis</i> , innate immunity and cell-death control. Plant genomics. Bacterial pathogenesis and genomics, type III secretion systems
Channing J. Der	Lineberger Comprehensive Cancer Center	Oncogenes; ras superfamily protein; signal transduction
Bob Duronio	Biology	Genetics of cell-cycle control during

## Appendix 4.1

		Drosophila development
Cora-Jean S. Edgell	Pathology & Laboratory Medicine	Testican, a dual protease inhibiting proteoglycan, and differentiated gene expression in human endothelial cells
Beverly J. Errede	Biochemistry & Biophysics	Yeast molecular genetics; MAP-Kinase activation pathways; regulation of cell differentiation
Rosann A. Farber	Pathology & Laboratory Medicine	Cancer genetics; human molecular genetics; somatic-cell genetics; microsatellite instability
Jeffrey A. Frelinger	Microbiology & Immunology	Molecular immunogenetics; function of the major histocompatibility complex in virus infection
Bob Goldstein	Biology	Generation of cell diversity in early development of <i>C. elegans</i>
Sarah R. Grant	Biology	Plant-pathogen interactions with a focus on bacterial virulence
Jack D. Griffith	Lineberger Comprehensive Cancer Center	HIV, Transcription; electron microscopy
Clyde A. Hutchison	Microbiology & Immunology	Molecular genetics; genomics; transposable elements; directed mutagenesis
Alan Jones	Biology	Arabidopsis, hormone perception; growth and development; programmed cell death
Tal Kafri	Gene Therapy Center and the Department of Microbiology & Immunology	HIV-I vectors for gene therapy and functional genomic applications, and as a means to study basic HIV-1 biology
Joseph Kieber	Biology	Molecular genetic analysis of hormone signaling in Arabidopsis
Ryszard Kole	Lineberger Comprehensive Cancer Center	Antisense oligonucleotides as chemotherapeutic agents; RNA processing; RNA-protein interactions
Beverly H. Koller	Genetics	Generating animal models of human diseases
Anthony LaMantia	Cell & Molecular Physiology	Control of gene expression in the developing and adult central nervous system
Jason Lieb	Biology	Exploring Specificity and Function in Protein-Genome Interactions using DNA Microarrays
Susan T. Lord	Pathology & Laboratory Medicine	Fibrinogen structure-function analysis; fibrinogen in vascular disease; modeling cardiovascular disease in mice
Nobuyo Maeda	Pathology & Laboratory Medicine	Genetics modeling of atherosclerosis in mice
Terry Magnuson	Genetics	Mammalian genetics; epigenetics; genomics
William F. Marzluff	PMBB:132 Glaxo/MBBRL, CB#710	Regulation of RNA metabolism in animal cells
Steven W. Matson	Biology	Biochemistry and genetics of DNA helicases from <i>E. coli</i> and yeast

## Appendix 4.1

Ann G. Matthysse	Biology	Genetics of bacterial adhesion to plant surfaces; genetics and biochemistry of cellulose synthesis
Beverly S. Mitchell	Hematology/Oncology	Gene expression; purine pyrimidine metabolism; leukemogenesis
Karen L. Mohlke	Genetics	Human genetics and genomics; diabetes; complex diseases
Deborah O'Brien	Cell & Developmental Biology	Molecular regulation of mammalian spermatogenesis and fertilization
John P O'Bryan	Laboratory of Signal Transduction National Institute of Environmental Health Science National Institutes of Health	Receptor tyrosine kinases (RTKs), adaptor proteins, endocytosis, ubiquitylation
Joseph S. Pagano	Lineberger Comprehensive Cancer Center	Infectious diseases and cancer; regulation of latency and replication genes of the Epstein-Barr virus; mechanisms of antiviral agents
Fernando Pardo-Manuel de Villena	Genetics	Meiotic drive, chromosome segregation, non-Mendelian genetics
Leslie V. Parise	Pharmacology	Adhesion receptors and signaling in platelets, sickle cells and cancer
Mark Peifer	Biology	Cell adhesion; signal transduction and cancer
Charles Perou	Genetics	Genomic and molecular classification of human tumors to guide therapy
Thomas D. Petes	Biology	Analysis of recombination, chromosome structure, and genome stability in yeast
Larysa Pevny	Genetics	Transcriptional Mechanisms that Maintain Neural Stem/Progenitor Cell Fate
John R. Pringle	Biology	Yeast genetics and cell biology; cytoskeletal function and cytokinesis; cellular morphogenesis
Patricia J. Pukkila	Biology	Molecular mechanisms of chromosome pairing and meiosis in <i>Coprinus</i> sp
Dale Ramsden	Lineberger Comprehensive Cancer Center	V(D)J recombination; DNA double strand break repair
Kathleen W. Rao	Cytogenetics, Dept. of Pediatrics	Human cytogenetics; somatic-cell genetics
W. Kimryn Rathmell	Lineberger Cancer Center	Genetics of Renal Cell Carcinoma
Jason W. Reed	Biology	Plant development; auxin signaling; light responses
Michael A. Resnick	Head, Chromosome Stability Group	Adjunct Faculty
R. Jude Samulski	Biochemistry & Biophysics	Development of virus-based delivery systems for use in human gene therapy
Aziz Sancar	Biochemistry & Biophysics	Structure and function of DNA repair enzymes; biological clock
Gwendolyn B. Sancar	Biochemistry & Biophysics	Regulation of DNA damage-and stress-inducible genes in eukaryotes
Lillie L. Searles	Biology	RNA processing control in

## Appendix 4.1

		Drosophila; developmental genetics
Jeff J. Sekelsky	Biology	Genetics of genome instability in Drosophila
Norman E. Sharpless	Lineberger Comprehensive Cancer Center	Tumor Suppressor Genes, Genetics of Cancer and Aging
Oliver Smithies	Pathology & Laboratory Medicine	Targeted modification of genes for use in gene therapy
Brian Strahl	Biochemistry and Biophysics	Histone modifications and gene regulation
Lishan Su	Lineberger Comprehensive Cancer Center	T cells during normal and pathogenic hematolymphopoiesis
Patrick Sullivan	Genetics	Complex traits in humans; psychiatric genetics, pharmacogenetics, twin studies, schizophrenia, major depression, nicotine dependence
Ronald I. Swanstrom	Lineberger Comprehensive Cancer Center	Retroviruses; molecular biology of AIDS virus
Joan Taylor	Pathology and Laboratory Medicine	
David Threadgill	Genetics	Disease susceptibility; mutagenesis; colon cancer; genetic engineering; microarrays; gut flora
Jenny P. Ting	Lineberger Comprehensive Cancer Center	Transcriptional regulation of eukaryotic genes; discovery of new genes in inflammation and apoptosis; functional genomics and application to immunologic and neurologic diseases; chemotherapy; signal transduction and cell death
Terry A. Van Dyke	Lineberger Comprehensive Cancer Center	Regulation of cell-growth control
Todd Vision	Biology	Genome evolution and the architecture of complex traits
Ellen R. Weiss	Cell & Developmental Biology	Regulation of G-protein-coupled receptor signal transduction pathways
Bernard E. Weissman	Lineberger Comprehensive Cancer Center	Tumor suppressor genes; cancer genetics
Brent W. Weston	Hematology/Oncology	Molecular genetics of glycosyltransferases; tumor cell and leukocyte adhesion
Kirk Wilhelmsen	Genetics	Genetic mapping, neurodegenerative diseases
Yue Xiong	Lineberger Comprehensive Cancer Center	Cancer biology; mammalian cell cycle; tumor suppressor genes
Yi Zhang	Lineberger Comprehensive Cancer Center	Chromatin dynamics, gene expression, and cancer

## Genetics Curriculum Students

Name	Department	Lab
Coy Allen	Genetics	Koller
Sabrina Andersen	First Year Student	
Maria Barbera	Biology	Petes
Ryan Bash	Lineberger Comprehensive Cancer Center	Van Dyke
Matthew Bayer	Cystic Fibrosis	Kafri Lab
Brandon Burch	PMBB	Marzluff
Dan Bergstralh	Lineberger Comprehensive Cancer Center	Ting
Anastacia Berzat	Radiation Oncology	Cox
Hunter Blanton	Biology	Sekelsky
Ru Cao	Lineberger Comprehensive Cancer Center	Yi Zhang
Tony Cesare	Lineberger Comprehensive Cancer Center	Griffith
Andrea Chaput	First Year Student	
Jennifer Clore	Lineberger Comprehensive Cancer Center	Threadgill
Jaime Cyphert	First year student	
Ryan Dackor	Cell & Molecular Physiology	Caron
Chad Deisenroth	First Year Student	
Jan DeNofrio	Lineberger Comprehensive Cancer Center	Parise
Scott DeWire	Lineberger Comprehensive Cancer Center	Damania
Heather Doherty	Genetics	Pardo-Manuel
Will Dunworth	First Year Student	
Tim Eitas	First Year Student	
Chevonne Eversley	Genetics	Threadgill
Kyle Gaulton	First Year Student	
Devon Gregory	Microbiology & Immunology	Bachenheimer
Joshua Grieger	Gene Therapy Center	Samulski
Artiom Gruzdev		Koller
Maureen Hansen-Newman	Biology	Kieber
John Hartney	Genetics	Koller
Jason Herschkowitz	Lineberger Comprehensive Cancer Center	Perou
Reginald Hill	Lineberger Comprehensive Cancer Center	Van Dyke
Katherine Hoadley	Lineberger Comprehensive Cancer Center	Perou
Folami Ideraabdullah	Genetics	Pardo-Manuel Lab
Will Ince	First Year Student	
Stuart Jefferys	First Year Student	
Jennifer Jordan	NIEHS	Resnick
Eric Kallin	Lineberger Comprehensive Cancer Center	Zhang
David Kashatus	Lineberger Comprehensive Cancer Center	Baldwin
Nevzat Kazgan	First Year Student	
Alysia Kern Lovgren	Genetics	Koller

Kui Kwon Kim	First Year Student	
Jennifer Knies	Biology	Burch
Kelly Krock Parsons	Genetics	Koller
Julie Gunnells Ledford	Genetics	Koller
Tang-Cheng Lee	Genetics	Threadgill
Michelle Leslie	First Year Student	
Keren Leviel	Genetics	Sullivan
Rebecca Loomis	Lineberger Comprehensive Cancer Center	Lishan Su
Robyn Loureiro	Schepens Eye Res. Inst	D'Amore lab
James Madigan	Cox	Radiation Oncology
Michael L. Mears	Microbiology & Immunology	Hutchison
Evan Merkhofer	First Year Student	
Nathan Montgomery	Genetics	Magnuson
Amanda Nave	First Year Student	
Daniel Oh (MD/PhD)	Genetics/Lineberger Comprehensive Cancer Center	Perou
Bradford Powell	Microbiology & Immunology	Hutchison
Sarah Radford	Biology	Sekelsky
Bhargavi Rao	Biology	Lieb/Strahl
Amanda Riffel-Shay	Pathology & Laboratory Medicine	Lord Lab
Erica Rinella	Genetics	Threadgill
Kimberly Ritola	Lineberger Comprehensive Cancer Center	Swanstrom
David Roberts	Biology	Bautch
Harmony Salzler	First Year Student	
Mark Schliekelman	Lineberger Comprehensive Cancer Center	Van Dyke
Samantha Segall	First Year Student	
Gwynedd Smith	Microbiology & Immunology	Hutchison
Jana Stone	Biology	Petes
Aaron Thorner	Genetics	Perou
Kirsten Trowbridge	Biology	Sekelsky
Joshua Uronis	Genetics	Threadgill
Michael Washburn	First Year Student	
Stephen Willingham	Lineberger Comprehensive Cancer Center	Ting
Willie Wilson	Lineberger Comprehensive Cancer Center	Baldwin
Gabrielle White Wolf	Lineberger Comprehensive Cancer Center	Xiong
Christina Whittle	Biology	Lieb
Tiffany Williams	Lineberger Comprehensive Cancer Center	Kole
Sima Zacharek	Lineberger Comprehensive Cancer Center	Xiong

## The Curriculum in Genetics and Molecular Biology

Genetics Curriculum Faculty Committees: The Curriculum Director receives advice about program content and activities from the CCGS Director and also from the Curriculum's Executive Advisory Committee, which is composed of senior faculty from the various Departments represented in the Genetics Curriculum. This group meets 2-3 times per year and the current members are:

- Dr. Terry Van Dyke, Professor of Genetics
- Dr. Vicki Bautch, Associate Professor of Biology
- Dr. Adrienne Cox, Associate Professor of Pharmacology
- Dr. Nobuyo Maeda, Professor of Pathology and Laboratory Medicine
- Dr. Lishan Su, Associate Professor of Microbiology and Immunology

The Director also meets with Genetics Curriculum faculty as a whole at least once each year to discuss administrative and programmatic changes and other issues such as review of current faculty and appointment of new faculty as trainers.

In addition to the Executive Advisory Committee, faculty committees direct many Curriculum activities. These include the *Admissions Committee*, the *First Year Advisory Committee*, the *Seminar Committee* and the *Preliminary Exam Committee*. The members of these committees are chosen by the Director, and serve for two years. The 2-year appointments are overlapping, such that there are always experienced members of each committee.

**Level and number of trainees:** The Genetics Curriculum provides support for students in their first and second year of predoctoral training. This support extends for the firsts three semesters plus the summer in between year 1 and 2. The Genetics Curriculum also supports students who choose to perform a summer research rotation prior to the first semester of school. Thesis preceptors are required to begin support for Genetics Curriculum students beginning Jan 1 of year 2. Therefore, all Genetics Curriculum students are supported for their first 16.5-18 months depending on whether they begin a summer rotation on July 1.

We have averaged 10 students the past 5 years. These students are supported by the 8 current NRSA positions and the institutional funds described above. Any student that joins the Curriculum in year 2 is supported by their preceptors and not by Genetics Curriculum funds. Because of the increase in the size of the Genetics Curriculum to 87 faculty due to the recent expansion in the Genetics Department, we need to matriculate more than 8 students per year and a target has been set for 10-12 with 17 being recruited last year.

**Required Course Work:** There are 4 didactic courses required in the first year: two that emphasize genetic analyses and two that emphasize molecular biology. Each course involves classroom lectures and extensive reading of the primary literature. Course coordinators are indicated in bold.

- **ADVANCED MOLECULAR BIOLOGY I** (GNET 110): Structure and function of DNA and chromosomes, including recombination, replication, transposition, mutagenesis, repair, as well as the cellular response to DNA damage. Griffith, Ramsden, **Sancar**



- **ADVANCED MOLECULAR BIOLOGY II** (GNET111): RNA structure and processing, and mechanisms of gene expression including transcription, gene regulation, chromatin structure, translation, protein and RNA transport. Baldwin, Marzluff, Strahl.
- **PRINCIPLES OF GENETIC ANALYSIS I** (GNET 112): Basic principles of genetics and molecular genetics, including recombinant DNA analysis, mutations and mutagenesis, complementation, linkage analysis, and the principles and technologies of forward and reverse genetics in bacteria, yeast, and *Drosophila*. Pringle, Kawula, Petes, Duronio
- **PRINCIPLES OF GENETIC ANALYSIS II** (GNET 113): This is a direct companion course to GNET 112, and covers genetic analyses in *Arabidopsis*, *C. elegans*, and mouse, as well as genomics, evolutionary genetics and population genetics. Copenhaver, Ahmed, Koller, Perou, Wright, Pardo-Manuel de Villena

Typically, GNET 110 and 112 are taken in the first semester, and GNET 111 and 113 in the second. In addition to this core curriculum, one elective course is required where at least one-third of the final grade is based upon class participation. These can vary widely, but examples include Advanced Human Genetics taught by Dr. Rosann Farber (GNET 174), Seminar in Genetics and Developmental taught by Dr. Vicki Bautch (GNET 270), and Historical Overview of Key Advances in Genetics Utilizing *Drosophila* and Mouse Model Systems taught by Drs. Scott Bultman and Jeff Sekelsky (Biology 264).

**Laboratory Rotations:** First year students perform three laboratory rotations (1 in the first semester and 2 in the second semester) with faculty who are members of the Genetics Curriculum. A fourth rotation is performed when necessary. The student arranges rotations, with help from the Director and the first year advisory committee. A thesis lab is selected from the rotations by mutual consent between the student and the principle investigator, and with guidance from the Director. Preceptors must be able to support the student's stipend, tuition, fees, and health insurance.

**Weekly Student Research Seminar:** During each semester there is a weekly seminar series in which 3<sup>rd</sup> year and older students present their research. The goals are to provide a forum for students to present their data and to foster scientific interchange among the students. Third year students present a 25 min talk, and 4<sup>th</sup> year and older students present a 50 min seminar. Attendance is required for 1<sup>st</sup> and 2<sup>nd</sup> year students, and they receive course credit and a grade based on attendance and participation. The Director attends all seminars to evaluate participation and to provide feedback to the presenter.

**Weekly Faculty Research Seminars:** Seminars are on Friday at noon and speakers include faculty from other institutions as well as Genetics Curriculum faculty applicants. One week each month the seminar is hosted by the CCGS. A wide variety of research topics in genomics, genetics, and molecular biology are presented. Attendance is required for 1<sup>st</sup> and 2<sup>nd</sup> year students, but is strongly urged of all students. Beginning in 2004, one speaker per year will be selected, invited and hosted entirely by a committee of student volunteers commissioned by the Director. Dr. Neil Copeland was the first speaker and he visited the campus in the Fall 2004.

**Teaching Assistantships:** During the second year all Genetics Curriculum students act as a teaching assistant, typically either for one of our own core courses or for an undergraduate course in the Department of Biology. These are real “hands-on” teaching experiences including managing a weekly section meeting.

**Additional Curriculum Activities:** In the past the Curriculum sponsored an Annual Symposium Day at a nearby conference center. It consisted of lunch, a student poster presentation, and three short (20 minute) talks by Curriculum faculty. This event was held at the beginning of each school year, and provided an introduction to the program for the new students as well as an opportunity for all of the Curriculum faculty and students to interact both socially and scientifically. Poster presentations were required of all 3<sup>rd</sup> year and above students. Poster presentation was optional, but encouraged, for 2<sup>nd</sup> year students, and the decision of whether or not to present a poster is made at the discretion of the thesis advisor. Beginning in Fall 2005, the Genetics curriculum will combine with the Genetics Department for the off site 2.5 day retreat at Wrightsville Beach (described above in the Genetics Department section). Interaction among Curriculum students and faculty is also provided by frequent potluck and happy hour events that are organized by the student “Events” committee.

**Student Oversight:** Dr. Duronio feels that addressing the individual needs of students through frequent interactions is an important part of the Directorship of this program. He has appointed a first year group of faculty, including himself, to perform first year advising duties. This includes providing advice on the expectations of graduate school, information about program requirements, consultation on the selection of rotation and thesis laboratories, and evaluating whether there are any deficiencies in the students’ academic background that could be addressed with additional course work at UNC-Chapel Hill. The Director meets with the incoming class as a group at the beginning of the first semester. The Director also meets with the entire student body in an open forum once each year to discuss issues pertinent to training and to permit the students a chance to air concerns or problems and to suggest new educational initiatives and programs. There are also many opportunities through the various program activities for the Director to interact with the students in an informal setting.

Preceptors and thesis committees provide oversight for senior students. In addition, Dr. Duronio holds a weekly office hour from 2-3pm every Friday afternoon in which any student is welcome to come and talk with the Director one on one. Timely advancement through the program, which includes forming a thesis committee during year 2, holding a thesis committee meeting every 8 months (on average), and scheduling the oral thesis feasibility examination by the end of year 3, are monitored by the Director and the Student Service Manager. Most students complete their training and obtain their Ph.D. in less than 6 years (ave = 5.5) a time similar to other biomedical graduate programs at UNC-Chapel Hill.

**Proposed Changes in Genetics Curriculum**  
**The Track-Based Curriculum in Genetics and Molecular Biology**

**The proposed tracks are:**

- Track 1: Genetics
- Track 2: Molecular Biology
- Track 3: Developmental Biology
- Track 4: Bioinformatics/Computational Genetics

**The training program will require all students to:**

- Take a core curriculum composed of a course in advanced molecular biology (GNET110), a course in advanced genetic analysis (GNET112), and a course in genome bioinformatics (under development: see below).
- Take 1 additional required course in their chosen track.
- Take 1 journal club/discussion course within the chosen track.
- Attend sessions on responsible conduct of research.
- Attend weekly Curriculum seminars.
- Act as teaching assistants for one semester.
- Participate in a student seminar series.
- Present a poster or talk each year at the Curriculum Retreat.
- Pass a written qualifying examination and an oral preliminary examination for the dissertation project.
- ***Publish at least one first author paper.***
- Write a dissertation and pass a final oral examination.

**Track Specific Required Courses:**

Track 1: Genetics	Track 2: Mol Biol	Track 3: Dev Biol	Track 4: Bioinformatics
GNET 113	GNET111	Biol160	BCB course; e.g. PBCB206

All students take GNET110, 112, and the new genome bioinformatics course

**Proposed Timing:**

The 5-course requirement is the same as the current load, but in the track scheme we propose to have the course work spread over the first two years rather than being confined to year 1.

The track specific required course would ideally be taken in year two, after the student has decided on a research lab, and thus a research area. In such a scenario the 3 required

courses would be taken in the first year, or two in the first year and one in the second along with the track course. This would relieve some of the first year course burden (where all students take GNET110-113).

This set up would also necessitate moving the written preliminary examination to the end of year two.

The TA requirement would still be fulfilled in year two, or perhaps in year three.

The oral exam must be completed by the end of year 3.

## **Proposal for a course in genome databases and bioinformatics to be required of incoming GMB students**

### Objectives

From information retrieval, to data-mining, to testing specific hypotheses *in silico*, genome informatics provides a diverse set of tools that are indispensable for the modern molecular biologist. Without these tools, the massive amounts of information on molecular structure and function that have been collected in recent years would be wholly inaccessible. This course provides an introduction to basic genome informatics, including: genome databases, sequence analysis, gene expression analysis, protein structural analysis, genetic mapping, and managing the scientific literature. In addition, the Perl programming and R statistical package will be introduced; these tools are powerful yet easy to learn and free the user from the constraints of standard software packages.

### Structure

Guided computer laboratory sessions with take-home assignments.

### Texts

- Gibas and Jambeck, Developing Bioinformatics Computer Skills, O'Reilly
- Gibson and Muse, Principles of Genome Analysis, Sinaeur

### Possible Instructors

- Mayetri Gupta (Functional annotation)
- Hemant Kelkar (Sequence analysis, functional annotation)
- Jason Lieb (Expression analysis)
- Chuck Perou (Expression analysis)
- Brenda Temple (Protein informatics)
- KT Vaughan (Genome databases, Managing scientific literature)
- Todd Vision (Sequence analysis, functional annotation)
- Kirk Wilhemsen (Genetic mapping)
- CS or Bioinfo grad student TBD (Perl/R)
- Others: Morgan Giddings, David Siderovski, Jeff Dangl, Brian Kuhlman, Nikolay Dokholyan

### Content

- Genome databases (using GCG)
  - NCBI and other genomic databases
  - Sequence alignment
  - BLAST
  - Phylogenetics
  - Perl and R for sequence analysis
- Functional annotation
  - Modelling of genes and other genomic features
  - Interpro and protein domain analysis
  - Protein interaction data

- Gene Ontology
- Expression analysis (using Genespring?)
  - Differential expression
  - Clustering
  - Discrimination
  - Finding transcription factor binding sites
  - Perl and R for expression analysis
- Protein structure (using ?)
  - Homology modeling
  - Molecular dynamics?
- Genetic mapping (using Genehunter?)
  - Linkage mapping
  - Association mapping
- Scientific literature
  - Literature searches
  - Keeping current
  - Managing literature databases and bibliographies

### Bioinformatics and Computational Biology Training Faculty

Name/ Degree	Rank	Primary (& Secondary) Appointment (s)	Research Interests
Berkowitz, Max, PhD	Prof.	Chemistry	Theoretical and Computational Chemistry
Borchers, Christoph, PhD	Asst. Prof.	Biochemistry & Biophysics	Proteomics: studies of protein structure/function, dynamics and interactions by mass spectrometry and protein chemistry
Cannon, Janne, PhD	Prof.	Microbiology & Immunology	Molecular genetics of pathogenicity; bacterial cell surfaces; pathogenesis of <i>Neisseria</i> <i>gonorrhoeae</i> and <i>Neisseria meningitidis</i> ; antigenic variation
Carter Jr., Charles W., PhD	Prof.	Biochemistry & Biophysics	Protein crystallography, structural polymorphism and function
Dangl, Jeffrey	Prof.	Biology	Plant disease resistance using <i>Arabidopsis</i> , innate immunity and cell-death control. Plant genomics. Bacterial pathogenesis and genomics, type III secretion systems.
Dohlman, Henrik G., PhD	Assoc. Prof.	Biochemistry & Biophysics (Pharmacology)	Regulators of G protein signaling
Dokholyan, Nikolay V., PhD	Asst. Prof.	Biochemistry & Biophysics	Biophysics (Protein evolution, protein design, protein folding and aggregation)
Edgell, Marshall, PhD	Prof.	Microbiology & Immunology	Molecular biology, high throughput technology, and modern biophysics to create a unique approach to search for the determinants of protein structure
Elston, Timothy C., PhD	Assoc. Prof.	Department of Mathematics	Noise in regulatory networks. Modeling motor protein function
Forest, M. Greg, PhD		Mathematics	Nonlinear Waves, Solitons, Fiber Flows of Complex Liquids
Frelinger, Jeffrey, PhD	Prof./Chair	Microbiology & Immunology	Immunobiology of the mouse and human major histocompatibility complex; role of MHC in regulation of the immune Response Mentor: 2%ponse; vaccines.
Giddings, Michael, PhD	Asst. Prof.	Microbiology & Immunology (Biomedical Engineering)	Experimental and computational proteomics
Hemminger, Bradley, PhD	Asst. Prof.	School of Information & Library Science	Medical and bioinformatics, computer human interfaces
Hermans, Jan, PhD	Prof.	Biochemistry & Biophysics	Studies of molecular structure dynamics and interactions of protein molecules with computer models
Name/ Degree	Rank	Primary (& Secondary) Appointment (s)	Research Interests
Hutchison III, Clyde PH.D.	Prof.	Microbiology & Immunology	Molecular Genetics/Genomics/ mycoplasmas and the minimal genome; mutational analysis of HIV reverse transcriptase; mammalian retrotransposons.

Kingsolver, Joel	Kenan Prof.	Biology	Evolutionary biology, population ecology and functional biology of insects
Kuhlman, Brian, PhD	Asst. Prof.	Biochemistry & Biophysics	Molecular Modeling/ Protein Design / Protein-Protein Interactions
Lieb, Jason D., PhD	Asst. Prof.	Biology	Understanding Specificity and Function in Protein-Genome Interactions.
Magnuson, Terry, PhD	Sarah Graham Kennan Prof/Chr	Genetics	Mammalian genetics/genomics/development
Marzluff, William, PhD	Prof./Exec. Assoc. Dean	Biochemistry & Biophysics	Regulation of Gene Activity
Milgram, Sharon L., PhD	Assoc. Prof.	Cell & Developmental Biology	Formation of signaling complexes in epithelial cells and neurons and study the expResource Mentor: 2%ision, localization, targeting and function of scaffolding and adaptor proteins in these ccells
Nobel, Andrew, PhD	Prof.	Statistics (Computer Science)	Statiscal analysis of microarrays
Pedersen, Lee G., PhD	Dist. Prof.	Chemistry	Theoretical and Computational Chemistry
Peet, Robert K., PhD	Prof.	Biology	Plant Ecology, Plant Geography
Perou, Charles, PhD	Asst. Prof.	Genetics	Breast cancer, genomics, microarrays, tumor classification, drug resistance
Prins, Jan, PhD	Prof.	Computer Science	High-performance computing: algorithms, programming languages, compilers and architectures. High-level programming languages; formal techniques in program devleopment Scientific computing
Provan, Scott	Prof.	Operations Research	Network Designad Reliability; Linear & Combinatorial Optimization
Redinbo, Matthew	Asst. Prof.	Chemistry	Structural Characterization of Proteins.
Servedio, Maria, Ph.D.	Asst. Prof.	Biology	Us of mathematical models to intergrate rigorous evolutionary theory with hypotheses explaining behavioral and ecological patterns and phenomena.
Snoeyink, Jack, PhD	Prof.	Computer Science	Computational Geometry
Sondek, John	Asst. Prof.	Pharmacology (Biochemistry & Biophysics)	Structural Biology of Sygnal Transduction
Stafford, Darrel W., PhD	Prof.	Biology	Blood coagulation proteins n coagulation and in the control fo the pathways of coagulation
Temple, Brenda, PhD	Res. Asst. Prof.	Biochemistry & Biophysics	Protein modeling and structural bioinformatics
Threadgill, David, PhD	Assoc. Prof.	Genetics	Disease susceptibility, complex traits/QTLs, gastrointestinal biology microarrays
Tropsha, Alexander, PhD	Assoc. Prof.	School of Pharmacy (Biomedical Engineering)	Structual bioinformatics, computer aided drug design
Vision, Todd,	Asst. Prof.	Biology	Computational genetis, genome



PhD			evolution and the architecture of complex traits
Wang, Wei, PhD	Asst. Prof.	Computer Science	Data mining, databases, clustering and classification of gene expression profiles, modeling and clustering of protein structures.
Wright, Fred, PhD	Assoc. Prof.	Biostatistics	Statistical genetics, bioinformatics, likelihood-based inference
Zou, Fei, PhD	Asst. Prof.	Biostatistics	Statistical genetics and empirical likelihood

**Bioinformatics and Computational Biology Students**

Name	Department	PI	Current Project
Nancy Cole Baker	SILS	Hemminger / Tropsha	Location of disease-causing single nucleotide polymorphisms in proteins
Mariel Conlon	Mathematics	Rotations	Protein evolution
Xin He	Biology	Jingfang Huang	Mathematical modeling of calcium signaling in plants
Karl Strohmaier	Computer Science	Wei Wang, Jan Prins	Examining the use of various subspace clustering algorithms with regard to microarray data.
Victor Weigman	Biology	Todd Vision, Jeff Dangl, Chuck Perou	Pathway Bioinformatics and the combination of the clinico-genomic approach to hazard prediction, defining best suited prediction methods of patient outcome,
Kristen K. Dang	Biomedical Engineering	Michael Giddings, Ph.D	Protein identification software tfor gene-finding in an unannotated microbial genomes.
Jun Huan	Computer Science	Wei Wang	Develop subgraph mining models/algorithms for large graph databases; develop efficient index structures supporting similarity search in high dimensional trajectory databases
Barry Kesner	Cell & Dev Biology	Sharon Milgram	Developing software to analyze mass spectrometry fingerprint spectra.
Andrew Leaver-Fay	Computer Science	Jack Snoeyink	Applying a dynamic programming algorithm to solve the hydrogen atom placement problem
Dihui Lu	Information and Library Sciences		Develop web resources for plant comparative genomics: data storage and user interface design
Deanne Sammond	Biochemistry and Biophysics	Brian Kuhlman	Develop a method to computationally redesign protein-protein interfaces in an effort to create functionally orthogonal protein partners.
Xiao Wang	Statistics & Operations Research	Timothy C. Elston	Construction of mathematical model to integrate all available genome and experimental data to represent the dynamic biological system.
Crystal Wright	Biomedical Engineering	North Carolina A&T State University	Signal processing techniques to analyze protein sequences; Analyzing different methods for protein classification; Predicting subcellular localization using Support Vector Machines

## Bioinformatics and Computational Biology (BCB) Graduate Training Program

Program Administration: Dr. Alexander Tropsha, Professor of Medicinal Chemistry and Associate Director of the Carolina Center, directs the BCB program for the CCGS. Dr. Tropsha's main expertise is in the area of biological and chemical database analysis (chemoinformatics and structural bioinformatics). Dr. Tropsha commits 15% of his effort to directing the BCB training Program. He meets with the entire program faculty annually, typically at the end of the Spring semester, to discuss administrative changes and new educational initiatives in the program. Dr. Tropsha also meets with individual training faculty serving either as rotation advisors or PhD advisors in the beginning of each semester to assess student progress and to discuss goals for the coming semester. Most importantly Dr. Tropsha meets with the BCB students both formally once per year to discuss their progress and informally at the BCB Colloquium meetings. This provides students with opportunities to discuss issues related to training, to air concerns or problems, and to suggest new educational initiatives and programs.

Like the Genetics Curriculum, administration of the BCB Program is through the CCGS education office. Dr. Tropsha administratively reports to Dr. Magnuson, Director of the CCGS, and to the Senior Advisory and Executive Committee on current development and possible problems and challenges faced by the Program.

Four committees have been established to assist Dr. Tropsha in the operation of the program. The *Senior Advisory and Executive Committee* counsels the Director on strategic planning issues related to the general direction and progress of the program. For instance, this committee recently made the recommendation to the Program Director to start developing plans for transitioning into a PhD granting curriculum. This includes oversight of curriculum development, admissions standards, participation of the affiliated departments, inclusion of new faculty, and making appointments to the working committees (below). The members of this committee ensure that the training program, which in its current form complements existing degree-granting programs and integrates smoothly with them. The committee will oversee the planned transition of this program to a PhD granting curriculum. This committee includes senior UNC faculty who have great enthusiasm for the program and great deal of experience with interdisciplinary training. The current members of the committee are Drs. Jeff Dangl (Biology and CCGS), who will chair the committee, Pat Sullivan (Genetics), Greg Forest (Applied Mathematics), and Jan Prins (Computer Science). All four current members of this committee are members of the BCB faculty. They each serve on the committee for the period of three years.

The *Admissions Committee* is involved in reviewing all incoming applications and in making decisions concerning students' funding by the BCB Program. The *Curriculum and Student Progression Committee* is charged with student progress monitoring and curriculum development. This Committee is responsible for developing and maintaining the rigorous program of education for each BCB student, taking into account both individual student's background and experience and the uniform goals of the BCB program. The *Dissertation Committee* is composed of five faculty members, of which at least three members are from the department of the home department of the trainee. The composition of this committee is unique for each student. They monitor and report back to the Director information concerning the student's progress once they join a lab.

**Program faculty:** Bioinformatics and computational biology are extremely interdisciplinary in nature having their roots both in computational, mathematical, and statistical sciences as well as in all basic biochemical and biomedical areas. The majority if not all UNC scientists who are heavily involved in computational biomedical research have strong ongoing collaborations with experimental scientists. Correspondingly, it was natural for us to recognize two highly related groups of BCB members, i.e. core faculty (who mostly conduct computational research aimed at hypothesis generation) and resource faculty (who mostly conduct experimental biomedical research and generate experimental data used for developing and testing computational and mathematical/statistical models or pose important biological problems that can be addressed by computational means). These two groups complement each other by providing an outstanding research environment for collaborative training of young specialists in BCB areas. The BCB training program currently includes 21 core and 18 resource members. Members of the BCB faculty have appointments in departmental-based graduate programs at UNC; many also have appointments in the interdepartmental curricula that grant PhD degrees. In addition, the majority of BCB faculty are active members of the CCGS, which helps promote collaboration between experimental and computational scientists.

**Student Recruitment:** Students are recruited to the program both directly and by referrals from participating departments. They learn about the BCB Program from the program web site and Program flyers that are mailed to undergraduate institutions. Applicants indicate their interest in the BCB program by filling out a brief form on the BCB website. The website contains links to participating graduate programs and departmental affiliations and homepages of affiliated faculty, application instructions, and requirements for the BCB certification as well as general and specific information on the Program. All participating departments and programs have agreed to integrate the BCB requirements into their curricula. The Admission Committee reviews applications concurrently with the admissions processes in the participating departments. The participating departments and the Admissions Committee coordinate campus visits and interviews with prospective students. One member of the Admission Committee is appointed as a liaison to each of the participating departments to coordinate the recruitment process, and so both committees are aware of the level of interest in an applicant during the decision-making process. The program also considers rising first-year graduate students for admission, particularly those from the Departments of Biostatistics, Computer Science, Mathematics, Operations Research and Statistics. These students must complete the prerequisites for the core courses prior to the beginning of the following fall semester. First-year students apply for admission on the same timeline as incoming students, and provide their fall course work and spring registration as supporting materials.

**Training:** The BCB program is designed to combine formal coursework with hands-on practical experience and research leading to a PhD degree in one of the associated disciplines. The program consists of four key components: colloquia, research rotations, formal coursework, and PhD research. The coursework is designed to include three tiers of formal training: prerequisite, core, and advanced courses.

The key components of students' training include laboratory rotations, the BCB colloquium, formal coursework, and teaching.

- 1) **Laboratory rotations.** At least one of their Rotation Advisors must be a Core faculty member. Semester-long rotations are required unless specified otherwise by the student's home program. A summer rotation after the first year is optional (industrial rotations are encouraged). At the end of each rotation, including industrial internships, all trainees must submit a two-page Rotation Report to the Program Director.
- 2) **The BCB colloquium.** This colloquium meets weekly both Fall and Spring semester. All students are expected to attend during their first and second years of the program.
- 3) **Coursework.** There are three tiers of coursework for students in the program: prerequisites, the BCB modular course series (PBCB 200 series), and electives. The program is structured so that, regardless of training background, students will take the prerequisites during the first year concurrently with departmental courses, then will take the modular course series in the second year, and electives in the second/third year.
- 4) **Teaching:** One semester of TA responsibility is required by the BCB Program for certification and this is usually done in the students home department.

The specialized BCB courses are intended for second-year students, providing time in the first year for students to gain the necessary prerequisites not already covered by their undergraduate curriculum. There are three general categories of prerequisites: Math/Statistics, Biology & Biochemistry, and Computer Science, to assure that the students have a basic skill set with which to pursue bioinformatics research.

The prerequisite classes include:

**Math/Statistics:** *Discrete Math (Math 81), Statistics (Biostats 150)*

**Biology/Biochemistry:** *Molecular Genetics/Mol Bio (Biomedical Engineering 151) Biochemistry (Biology 130)*

**Computer Science:** *Data Structures and Algorithms (CS 121)*

Students admitted to the program will be expected to come from an undergraduate training that has already covered either of the math/CS or the biology aspects, so that one area of prerequisites is completed before beginning graduate studies. Students lacking both will not be considered for admission because it will not be possible for them to make up for their deficiencies in the first year. Such students would be encouraged by the Admissions Committee to take an additional year of classes at an undergraduate/technical/community college before applying. Therefore, it is planned that students will take one of two prerequisite routes. Those with an undergraduate biology focus will need to take BIOS 150, MATH 81, and COMP 121 in the first year. Those with an undergraduate focus on Computer Science or Mathematics will be expected to take BME 151 and BIOL 130 in the first year.

**Core Modules:** PBCB 200 is a series of modular courses specially designed for trainees in the BCB program. It is tailored to their needs, and the entire sequence (including prerequisites, core modules, and advance courses as outlined below) is

required in order to obtain the Certificate of Training. The goal of this methods-oriented course is to provide students with a comprehensive view of bioinformatics and computational biology from the underlying mathematical and statistical principles to the real-world biological applications. As presently structured, this 7-module course will cover all major underlying methodological approaches to biological data analysis, from machine learning techniques to statistical and probabilistic modeling to data-mining. It will also concurrently address most important applications of mathematical, computational, and statistical tools to important biological problems such as gene discovery, QTL mapping, evolutionary and statistical genetics, metabolic modeling and function prediction using both sequence-based (e.g., multiple alignment, annotation, etc) and structure based (protein folding, molecular simulations, structure based drug design) methods.

The course is organized as a year-long sequence of 7 core modules, one credit-hour each, taught by faculty specializing in relevant areas. Modules consist of two weekly lectures of 75 minutes each, and in some cases additional laboratories. The typical module will therefore consist of eight to nine lectures. The sequence is designed to provide students with a cohesive flow of interrelated topics pertinent to the key methodologies and applications of Bioinformatics and Computational Biology. The development of this specialized sequence has become possible because of the broad base of core BCB faculty. The modules and instructors are summarized below.

PBCB 201. Information theory, artificial intelligence, and software engineering in bioinformatics and computational biology (**Giddings**)

PBCB 202. Sequence comparison, alignment and assembly (**Vision**)

PBCB 203. Structural bioinformatics: protein folding, design and simulations; structure-based drug discovery (**Tropsha**).

PBCB 204. Databases, metadata, ontologies, and digital libraries for biological sciences (**Hemminger**).

PBCB 205. Association, clustering, and classification methods for biological information (**Wang**)

PBCB 206. Regression, likelihood, expectation-maximization for gene mapping and expression analysis (**Wright**).

PBCB 207. Stochastic and deterministic cell and metabolic modeling approaches (**Elston**)

PBCB 290. (COMP 290). Applied optimization in computational biology (Optional; **Snoeyink**).

**Industrial Training and Support:** The development of this training program has generated substantial interest among industrial organizations throughout the Research Triangle Park. Two major local pharmaceutical companies, GlaxoSmithKline (GSK) and Becton Dickinson, have agreed to provide support for the BCB training program. We anticipate that many of our students will undertake summer rotations within these and other industrial organizations. We will continue to seek additional resources from local for-profit and non-profit organizations to increase the number of trainees and to attract the most outstanding foreign applicants (who cannot be supported by the proposed funds from NIH).

## Developmental Biology Faculty

Faculty	Department	Research Area
<b>Ahmed, Shawn, PhD</b> Assistant Professor	Genetics (Biology)	Telomere replication, DNA damage and germline immortality in the nematode <i>Caenorhabditis elegans</i> .
<b>Anton, Eva, PhD</b> Assistant Professor	Cell & Molecular Physiology (Neuroscience)	Molecular analysis of neuronal migration and layer formation in the cerebral cortex.
<b>Bautch, Victoria, PhD</b> Associate Professor	Biology (Program in Molecular Biology and Biotechnology)	Blood vessel formation using mouse models of vascular development and function; stem cell-derived blood vessels
<b>Brenman, Jay, PhD</b> Assistant Professor	Cell & Developmental Biology (Neuroscience)	How the nervous system becomes wired
<b>Burridge, Keith, PhD</b> Professor	Cell & Developmental Biology	Cell-matrix interactions; cell signaling and the cytoskeleton.
<b>Caron, Kathleen, PhD</b> Assistant Professor	Cell & Molecular Physiology (Genetics)	Adrenomedullin in reproductive biology; G-protein coupled receptor/RAMP
<b>Conlon, Frank, PhD</b> Assistant Professor	Genetics (Biology)	Cellular and molecular pathways that establish the early vertebrate body plan
<b>Crews, Stephen, PhD</b> Professor	Biochemistry & Biophysics (Biology)	Molecular genetics of central nervous system development.
<b>Duronio, Robert, PhD</b> Associate Professor	Biology (Program in Molecular Biology and Biotechnology)	How the molecular processes that control pattern formation and cell fate decisions during <i>Drosophila</i>
<b>Goldstein, Robert, PhD</b> Assistant Professor	Biology	Generation of cell diversity in development.
<b>Kirby, Suzanne, MD PhD</b> Assistant Professor	Pathology & Laboratory Medicine	General hematology/oncology and bone marrow transplantation; hematopoiesis.
<b>LaMantia, Anthony, PhD</b> Associate Professor	Cell & Molecular Physiology (Neuroscience)	Retinoic acid-mediated signaling in the induction and brain patterning
<b>Lauder, Jean, PhD</b> Professor	Cell & Developmental Biology	Developmental biology; neurobiology; molecular biology.
<b>Lee, David, PhD</b> Professor and Chair	Biochemistry & Biophysics	Growth factor/receptor signaling systems in development
<b>Lieb, Jason, PhD</b> Assistant Professor	Biology (Carolina Center for Genome Sciences)	How and where proteins interact with the genome on a global scale <i>in vivo</i> , and how these interactions affect the biology
<b>Liljegren, Sarah, PhD</b> Assistant Professor	Biology	Genetic and molecular analysis of abscission in <i>Arabidopsis</i> .
<b>Mack, Christopher, PhD</b> Assistant Professor	Pathology & Laboratory Medicine	Molecular mechanisms of cardiovascular disease; transcription and cell-signaling
<b>Magnuson, Terry, PhD</b> Professor and Chair	Genetics	Mammalian polycomb-group complexes; mammalian Swi/Snf chromatin

## Appendix 4.8

<b>Majesky, Mark, PhD</b> Professor	Genetics (Carolina Cardiovascular Biology Center)	Development of coronary vessels and vascular stem cells in mice.
<b>Marzluff, William, PhD</b> Professor	Biochemistry & Biophysics (Biology)	Molecular biology and control of gene expression in animal cells; regulation of gene expression during the cell cycle by post-transcriptional mechanisms.
<b>Milgram, Sharon, PhD</b> Associate Professor	Cell & Developmental Biology	Protein trafficking in endocrine cells, neurons and epithelial cells; regulation of apical ion transport; protein-protein interactions that modulate cell signaling.
<b>O'Brien, Deborah, PhD</b> Associate Professor	Cell & Developmental Biology	Regulation of mammalian spermatogenesis and fertilization.
Pardo-Manuel, Fernando, PhD Assistant Professor	Genetics	Regulation of female meiosis, chromosome segregation and asymmetrical cell division and polarity.
<b>Patterson, Cam, MD</b> Professor	Pharmacology Cell and Dev. Biology	Endothelial cell differentiation and cell type-specific gene expression; mechanisms of protein folding and protein degradation.
Peifer, Mark, PhD Professor	Biology	Cell adhesion, signal transduction, and cancer: the Armadillo connection.
<b>Pevny, Larysa, PhD</b> Assistant Professor	Genetics (Neuroscience)	Neural induction; neurogenesis; SOX proteins
<b>Polleux, Franck, PhD</b> Assistant Professor	Pharmacology (Neuroscience)	Neuronal patterning in development.
<b>Reed, Jason, PhD</b> Associate Professor	Biology	Plant signal transduction and development.
<b>Snider, William, MD</b> Professor	Cell & Molecular Physiology	Neuronal differentiation, axon growth and regeneration.
<b>Taylor, Joan, PhD</b> Assistant Professor	Pathology & Laboratory Medicine	Cellular signaling pathways that regulate normal and aberrant growth in the cardiovascular system.
<b>Threadgill, David, PhD</b> Assistant Professor	Genetics	Disease susceptibility; mutagenesis; colon cancer; genetic engineering; microarrays
<b>Van Dyke, Terry, PhD</b> Professor	Genetics (Biochemistry & Biophysics)	Regulatory mechanisms of cell-specific gene expression and cell growth control.
<b>Wang, Da-Zhi, PhD</b> Assistant Professor	Cell & Developmental Biology	Molecular mechanisms of mammalian cardiac specification using myocardin.
<b>Xiong, Yue, PhD</b> Associate Professor	Biochemistry & Biophysics	Mammalian cell-cycle control, tumor suppression and tumorigenesis.



**Developmental Biology Trainees**

name	training level	year	mentor
Anderson, Amanda	predoc	2	Bautch
Barrick, Cordelia	predoc	2	Threadgill
Blaker, Alicia	predoc	2	Mack
Callis, Tom	predoc	2	Wang
Dackor, Ryan	predoc	2	Caron
Doherty, Jason	predoc	2	Taylor
Hinson, Jeremiah	predoc	2	Mack
Jiang, Lan	postdoc	4	Crews
Kearney, Joe	postdoc	2	Crews
Kelley, Russell	postdoc	1	Patterson
Lewis, Michael	predoc	1	(rotations)
Wheeler, Scott	postdoc	1	Crews
Yokota, Yukako	predoc	3	Anton

### Developmental Biology Training Program

The CCGS administers the program. The primary program director of the Developmental Biology Training Program is Dr. Victoria Bautch, who is currently a Professor in the Department of Biology. Dr. Bautch has a distinguished record of achievement in developmental biology and has significant experience in mentoring graduate students and post-doctoral fellows.

The Executive Committee oversees the program and is made up of five faculty members. The program director serve as permanent chair, T. Magnuson is co-chair and three other faculty members rotate in three-year terms. The current members of the Executive Committee are: Victoria Bautch (Chair), Professor, Biology; Terry Magnuson (co-chair), Professor and Chair, Genetics; Mark Peifer, Professor, Biology; Stephen Crews, Professor, Biochemistry and Biophysics; Anthony LaMantia, Associate Professor, Cell and Molecular Physiology.

The Executive Committee is responsible for (1) selecting trainees from candidates that have been nominated by their lab mentors, (2) selecting a subset of DB trainees for funding, and (3) once selected, all trainees are reviewed annually by the Executive Committee. This committee also periodically evaluates faculty participation within the training grant. New faculty members whose research is relevant to developmental biology will be added and current faculty members are monitored to ensure their active participation and continued relevance to the program. The Executive Committee is also directly involved in setting up and evaluating the curriculum for the trainees, both in terms of coursework and other activities such as journal clubs and research presentations to their peers and faculty.

**DB Training Faculty:** There are 34 faculty included in the initial group of UNC-CH scientists designated as training faculty. The DB faculty represents an outstanding and well-balanced group by both scientific and demographic criteria. As discussed above, the group includes scientists who use a variety of plant, invertebrate, and vertebrate developmental model systems.

**Program:** Pre-doctoral candidates are nominated by their mentors for the DB Training Program after their first year, when most students have established themselves in a mentor's lab. A subset of those accepted into the program will be supported for up to three years, provided they meet all the program requirements and demonstrate progress in achieving their training goals. Post-doctoral candidates are nominated by their mentors prior to or during their first year and are eligible for up to two years of funding, provided they meet all the requirements and goals of the training program. The postdoctoral training program will be advertised twice per year with all faculty having open slots being listed.

Students are informed of the DB Training Program through several formal and informal mechanisms. First, DB faculty encourage prospective students to rotate in their labs by presenting their work during recruiting weekends and at orientation seminars held

early in September by each department and curriculum. The Training Program has also organized a Developmental Biology Journal Club, where trainees and other students/post-docs interested in developmental biology gather to discuss current literature as well as their own research. The Training Program is also organizing a “Developmental Biology Symposium”. The first is scheduled for April 8, 2005 with Dr. Gail Martin (UCSF) as the keynote speaker. Trainees will present their work to their peers and faculty. All these events provide excellent opportunities for first-year students to interact directly with more senior graduate students, postdoctoral fellows and faculty who work in the field of developmental biology. Since postdoctoral fellows apply directly to faculty members, they are informed of funding available through the DB Training Program prior to joining the preceptor’s lab. Thus, the DB faculty can use the training program to attract qualified post-docs to their laboratories. Periodically, notices will be placed in scientific journals to recruit postdoctoral fellows interested in developmental biology.

During the summer of 2004, the inaugural group of Developmental Biology trainees was officially enrolled into the program. This group is made up of 9 predocs and 4 postdocs representing a variety of areas in developmental biology.

All trainees interested in developmental biology, regardless of whether they are funded by the training program, are encouraged to participate in DB training activities. Our aim is to create an inclusive and comprehensive developmental biology forum that will bring scientists together and stimulate collaborations and interactions among them. In the summer of 2003, we applied to and received approval from the UNC Graduate School to grant certificates in Developmental Biology to students who complete all the requirements of the DB Training Program. Certificates provide formal recognition by the Graduate School for successful completion of the training program and a notation will be placed on their UNC diplomas and transcripts to indicate this. Note that certification is not required by the Graduate School to establish a training program.

**Predoctoral Trainee Requirements.** All pre-doctoral trainees are required to fulfill the degree requirements for their respective departments/curricula. Although these requirements differ slightly depending on the department/curriculum, students are generally expected to take courses and rotate through potential mentor laboratories during their first year. Once mentors have been chosen, those students that are selected for the DB training program will be required to take an additional course called Developmental Genetics (BIOL160), taught by Victoria Bautch (organizer), Larysa Pevny and Frank Conlon. This course provides a basic understanding of developmental processes in animal models, the molecular and genetic underpinnings of these processes, and exposure to relevant recent papers in the field of developmental genetics. The course covers the processes of early development from gametogenesis through neurulation, developmental neurobiology, and selected advanced topics that include heart development, sex determination, and stem-cell biology. The main objective is to understand and compare developmental mechanisms in various model systems, as well as the logic of methods used to study development. Exemplary related literature is covered in class discussions. This class is designed to ensure a significant amount of individual participation.

In addition to this required course, trainees are strongly encouraged to take one or more relevant courses. The required and recommended courses are listed below (note that many students will have already taken some of these courses during their first year):

BIOL160 Developmental Genetics (required)

See above for course description

BIOL104 Vertebrate Embryology

Principles of development including gametogenesis, fertilization, cleavage, germ layer formation, organogenesis, and techniques of experimental analysis of developmental processes.

BIOL133 Evolution and Development

Examines the mechanisms by which organisms are built and evolve. In particular, it examines how novel and complex traits and organisms arise from interactions among genes and cells.

BIOL144 Developmental Biology

An experimental approach to an understanding of developmental processes and the molecular mechanisms that control cell growth and differentiation.

CBIO109 Human Development

Overview of normal human embryological development from fertilization to parturition with an emphasis on the origin and causes of congenital malformations.

CBIO117 Cell Structure, Function and Growth Control I:

Comprehensive introduction to cell structure, function and transformation.

CBIO118 Cell Structure, Function and Growth Control II:

Comprehensive introduction to cell structure, function and transformation.

CBIO121 Developmental Biology

A comprehensive course covering basic principles and current topics in developmental biology, including patterning, cell signaling, cell differentiation, and growth regulation.

CBIO123 Developmental Toxicology and Teratology

Emphasis on current research relevant to the genesis of environmentally caused and genetically based birth defects.

GNET110 Advanced Molecular Biology I:

DNA structure, function and interactions in prokaryotic and eukaryotic systems, including chromosome structure, replication, recombination, repair and genome fluidity.

GNET111 Advanced Molecular Biology II:

RNA structure, function and processing in biological systems including transcription, gene regulation, translation and oncogenes.

GNET112 Principles of Genetic Analysis I:

Genetic analysis in prokaryotes and lower eukaryotes.

GNET113 Principles of Genetic Analysis II:

Genetic analysis in higher eukaryotes; genomics.

GNET270 Seminar in Genetics

Seminal papers in developmental genetics are presented and critical discussion is emphasized.

NBIO122 Developmental Neurobiology

A survey of nervous system development emphasizing detailed analysis of selected research topics such as neural induction, neural crest development, neuronal differentiation, synapse formation, neurotrophic factors, glial development, and the effects of experience.

In addition to coursework, students take qualifying examinations as designed by their department/curriculum. Students typically assemble a five- or six-member thesis

committee during their second year. This is composed of at least three members of the department/curriculum and at least one outside member, which could also include faculty from other local institutions such as Duke University, Wake Forest University or NIEHS. DB Trainees are required to have at least one member of the DB Training Faculty other than their preceptors on their thesis committees. Trainees are required to write a progress report and meet with their thesis committees at least once a year to evaluate their progress. The Chair of the thesis committee will file a committee report together with a copy of the trainee's progress report with the Developmental Biology Executive Committee. The Executive Committee will review the reports to evaluate progress and make yearly decisions about continued funding. If problems arise, the Executive Committee will meet with the Chair of the thesis committee, the thesis mentor and the student to resolve the issues.

All trainees are required to participate in the Developmental Biology Journal Club where students and post-docs from developmental biology labs present current literature or their own work. This journal club meets twice per month. Trainees are required to present their work at least once per year in this forum. This provides trainees with an excellent opportunity to give and receive scientific input from their peers. It also provides trainees with public-speaking opportunities, which is a critical aspect of the training experience.

The DB training program also sponsors the Developmental Biology Seminar Series to give trainees an opportunity to invite prominent developmental biologists from other institutions. Speakers are invited once per semester to present their research in a formal seminar open to the public. One slot in the established Genetics and Carolina Center for Genome Sciences has been set-aside specifically for invited DB seminar speakers. Trainees are directly involved in soliciting and hosting speakers of their choice. In addition to organizing the seminar, trainees set up individual meetings with interested trainees and faculty to discuss their research. A small group of trainees also host lunch and dinner with the speaker so they have an opportunity to interact with the speaker in a more casual setting. One of these meals is dedicated specifically to postdoctoral trainees, as this is a valuable opportunity to discuss career goals and other issues that are particularly relevant to postdoctoral fellows. The seminar series provides an important venue for all trainees to gain exposure to renowned scientists outside of UNC-CH. The first speaker invited by the trainees is Mark Krasnow from Stanford University.

**Postdoctoral Trainee Requirements.** Postdoctoral trainees in the DB training program are required to conduct novel research relevant to developmental biology. They will not have any course requirements or examinations. However, they will be required to participate in all the other training activities that are required of pre-doctoral trainees described above. These include two presentations per year at the Developmental Biology Journal Club (once to present a paper, and once to present their own work), and either an oral or poster presentation of their work at the annual DB Symposium. There will also be an independent postdoctoral mentoring group consisting of two rotating DB faculty and the other postdoctoral trainees. This group will meet 2-3 times per year, and each fellow will present a synopsis of his/her research progress to the group. This will provide more frequent feedback on their work, opportunities to hone their speaking skills, and a venue

for discussing issues pertinent to postdocs such as career options, job-hunting strategies, etc. Postdoctoral trainees are also responsible for hosting two seminar speakers per year, together with students. One meal with each speaker will be hosted exclusively by postdocs so that they have an opportunity to discuss career goals and other pertinent issues in an informal setting. In addition, postdoctoral trainees that are funded by the training grant are required to present their work (poster or oral presentation) at a relevant scientific meeting using travel funds allotted in the grant. These activities provide valuable opportunities for postdocs to keep abreast of developmental biology research and to discuss their own work with other DB researchers, which will contribute to their overall success as scientists. Postdoctoral trainees are also encouraged to take advantage of the wealth of career development services available here at UNC-CH through the Office of Postdoctoral Studies (<http://www.unc.edu/ops/ops.htm>) and the Postdoctoral Association (<http://www.unc.edu/pda/>). Teaching opportunities are also available for interested postdoctoral trainees. During the summer, three core courses are offered by the Biology Department that postdoctoral fellows can teach: Fundamentals of Human Anatomy and Physiology (BIOL45), Molecular Biology and Genetics (BIOL50) and Cell and Developmental Biology (BIOL52). Postdoctoral fellows often teach these courses and find this to be a valuable experience. It should be emphasized that postdoctoral DB trainees who wish to acquire teaching experience will be closely monitored so that their teaching does not compromise their research mission.

**Evaluation and Mentoring of Trainees.** Each trainee is required to submit a progress report at the end of each year (in the spring) to the Program Directors. This report describes his/her recent research achievements as well as goals for the following year. If research goals are not met, he/she explains why and formulates a specific plan for achieving those goals or changing them to account for unexpected problems or issues. The progress report also describes any other related training activities that occurred that year. For example, each trainee reports how he/she participated in the DB journal club, seminar series, and the annual symposium. Participation in other relevant activities, such as mentoring an undergraduate, writing/editing a manuscript, attending scientific meetings, etc. is also discussed. The preceptors for all trainees and the thesis committee chairs for predoctoral trainees are also expected to submit a progress report to inform the Program Directors of (1) whether the trainee is making satisfactory progress in his/her research project (2) how they, as mentors, have supported their trainees' scientific and career development and (3) how the trainee has participated in program activities outside his/her laboratory. The Program Directors will present this information to the Executive Committee. The Executive Committee will then meet to evaluate the status of all the trainees, and will make a formal recommendation as to whether each trainee will remain in the program. They will also address any issues or problems that have arisen. The Program Directors will then meet with each trainee individually to discuss his/her evaluation.

**Postgraduate Medical Genetics Residency Training**

The program consists of 18 months of broad-based, clinically-oriented medical genetics activities including Pediatric Genetics and Metabolism Clinics, the Pediatric Genetics and Metabolism Division Consult Service, the Department of Internal Medicine Genetics Consult Service and breast cancer and GI/general cancer clinics, and the Obstetrics Prenatal Diagnosis clinics. Included also are three months of laboratory rotations in the Cytogenetics Laboratory, the Molecular Diagnosis Laboratory and the Biochemical Genetics and Metabolism Laboratories. Three months of elective time are available for research, manuscript preparation, or rotation on another service to obtain more in-depth training or expertise in a particular organ system or subspecialty area of medicine.

During the two-year residency, residents attend teaching conferences including weekly pre- and post-clinic conference, clinical genetics conference and genetics journal club, and the monthly cytogenetics and molecular genetics seminars. There is also opportunity to attend the perinatal care conference and cancer conference. A third year, primarily devoted to research, is strongly recommended for all Medical Genetics Residents who will receive assistance in identifying potential funding during the first year of their residency experience.

**YEAR I MEDICAL SCHOOL COURSE SCHEDULE  
MOLECULAR BIOLOGY and GENETICS**

<b>Molecular Biology</b>	<b>Genetics</b>
Introduction to Molecular Biology	Introduction to Genetics
DNA Structure and Metabolism	Meiosis & Mitosis
Genes and Chromosomes	Chromosomes & Disease
Genome Replication	Gene Regulation & Genetics
DNA Damage and Repair	Pattern of Inheritance: Dominant & Recessive
Recombination	Case Conference (recessive disease)
Transcription	Patterns of Inheritance X-linked & non-Mendelian
RNA processing	Case Conference (Dominant Disease)
Translation	Clinical Genetics of Common Disease
Gene Regulation I	Case Conference (X-linked Disease)
Gene Regulation II	Complex/multifactorial Genetic Disease
Gene Cloning	Population Genetics & Disease
Gene Identification and Characterization	Mutations & Polymorphism
Molecular Methods, Genomics & Proteomics	Genetics, Medicine & Society
Animal Models	
Case Conference	



## 2004/2005 Friday Noon Seminars

Date	Name	Title
September 3	Maurice Swanson <i>Professor, Department of Molecular Genetics and Microbiology, University of Florida</i>	"RNA-Mediated Pathogenesis in Myotonic Dystrophy"
September 10	Laura Ranum <i>Professor, Genetics, Cell Biology and Development, Institute for Human Genetics</i>	"Unusual repeat expansion disorders: parallels and distinctions between SCA8 and DM2"
September 24	Karen Mohlke <i>Assistant Professor, Genetics, University of North Carolina at Chapel Hill</i>	"The role of chromosome 20q variants in genetic susceptibility to type 2 diabetes"
October 1	Tom Kornberg <i>Professor &amp; Vice Chair, Biochemistry and Biophysics, University of California, San Francisco</i>	"Long distance cell-cell signaling in Drosophila imaginal discs"
October 8	Richard McIntosh <i>Professor Cell and Molecular Biology, University of Colorado</i>	"Insertional mutagenesis: A key for understanding the origins of human cancer"
October 22	Neil Copeland <i>Professor, NCI</i>	"Insertional mutagenesis: A key for understanding the origins of human cancer".
October 29	Alan Stintzi <i>Veterinary Pathobiology, Oklahoma State University</i>	"Colonization and virulence factors of Campylobacter jejuni"
November 5	William G. Kelly <i>Biology, Emory University</i>	"Chromatin and Genomic Regulation in the C. elegans Germline"
November 12	Brad Therrell <i>National Newborn Screening and Genetics Resource Center</i>	"The World of Newborn Screening"
November 19	Min-Hao Kou <i>Biochemistry &amp; Molecular Biology, Michigan State University</i>	"Post-translational modification and protein-protein interactions: lessons from acetylated histones and tumor suppressor p53".
December 3	Mary Lilly <i>National Institute of Child Health and Human Development</i>	"The regulation of variant cell cycles in Drosophila: A role for the p27-like Cdk inhibitor Dacapo in the licensing of DNA replication origins during the endocycle."
December 10	Michael Watson <i>American College of Medical Genetics</i>	"Newborn screening: Towards a uniform screening panel and system in the United States"
January 7	Kim Rathmell <i>Assistant Professor of Hematology and Oncology, Lineberger Cancer Center UNC-CH</i>	"VHL: Oxygen sensing and cancer."
January 14	Harold "Skip" Garner <i>Professor, University of Texas Southwestern Medical Center at Dallas</i>	"Applied Computational Biology: Adding Leverage to Modern Biomedical Research"
January 21	Dirk P. Dittmer <i>Assistant Professor, Dept of Microbiology and Immunology, UNC-CH</i>	"A Genomic approach to herpesvirus latency"
January 28	Brenda Andrews <i>Professor and Chair, Dept. of Medical</i>	"Mapping genetic networks and exploring cell cycle regulation using yeast functional

## Appendix 5.1

	<i>Research, University of Toronto</i>	genomics."
February 4	Sarah Liljegren <i>Biology Dept, UNC-CH</i>	"Cell Separation in Arabidopsis flowers and fruit"
February 11	Andrew Clark <i>Professor, Dept of Molecular Biology and Genetics, Cornell University</i>	"Inferring Adaptive Changes from Human and Chimpanzee Coding Sequences"
February 18	Mark Magnuson <i>Director, Vanderbilt Center for Stem Cell Biology, Professor and Asst Vice Chancellor for Research, Vanderbilt University School of Medicine</i>	"Strategies and applications for efficient Recombinase-mediated cassette exchange in mouse ES cells"
February 25	Nevan Krogan	"Correlating Protein-Protein Interactions with High-Throughput Genetic and Gene Expression Profiles in <i>Saccharomyces cerevisiae</i> ."
March 4	Corbin Jones <i>Assitant Professor, Biology Dept, UNC-CH</i>	"Patterns and processes affecting the genetics of adaptation in <i>Drosophila</i> ."
March 11	Eddy Rubin <i>Director, Lawrence Berkeley National Laboratory</i>	"Comparative Genomics at the Extremes"
March 18	M.C. Giddings <i>Assistant Professor, Microbiology</i>	"Genomes And Their Proteomes: Sequencing Was the Easy Part."
March 25	Trudy MacKay <i>Professor, Princeton University</i>	TBA
April 1	Guy Sauvageau <i>Montreal</i>	TBA
April 8	Jim Carrington <i>Professor, Oregon State University</i>	"Small RNA Pathways in Plants"
April 15	Jeanette Gowen Cook <i>UNC-CH</i>	"Prereplicaton complex control in mammalian cells."
April 22	Lin Chao <i>UC San Diego</i>	"Evolution of Compensatory Mutations"
April 29	Jeff Settleman <i>Harvard University</i>	TBA
May 6	Mark Heise <i>Assistant Professor, Genetics UNC-Chapel Hill</i>	"Alphavirus interactions with the host immune response: Genetic and non-genetics factors"
May 13	Eugene Shakhnovich <i>Professor, Harvard University</i>	"Natural Selection of Protein Folds"
May 20	Pat O'Farrell <i>Dept Biochemistry and Biophysics and UCFS</i>	"Suspended animation, its induction by hypoxia and its interfaces with innate immunity and cancer therapy."
May 27	Mark Krasnow <i>Stanford University</i>	TBA

**GENETICS DEPARTMENT RESEARCH COLLOQUIUM**

Date	Speaker	Position/Lab
September 29	Tim Morrison	Graduate Student, Heise Lab
October 6	Nathan Montgomery	Graduate Student, Magnuson Lab
October 13	Matthew Ramsey	Graduate Student, Sharpless Lab
October 20	Penelope Lind	Postdoc, Wilhelmsen Lab
October 27	Ian Carroll	Postdoc, Debbie Threadgill Lab
November 3	Delia Barrick	Graduate Student: David Threadgill Lab
November 10	Kelly Parsons	Graduate Student, Koller Lab
November 17	Heather Doherty	Graduate Student, Pardo-Manuel Lab
December 1	Bettina Meier	Postdoc, Ahmed Lab
December 8	Rebecca Cook	Invited Speaker-Magnuson Host
December 15	Jonathan Hodgkin	Invited Speaker-Ahmed Host
January 12	Ethan Lange	Genetics Faculty
January 19	Anne-Lise Børresen-Dale	Invited Speaker-Chuck Perou Host
January 26	Delia Barrick	Graduate Student-Threadgill Lab
February 2	Scott Bultman	Genetics Faculty
February 9	Jessica Nadler	Postdoc-Magnuson Lab
February 16	Jason Herschkowitz	Graduate Student- Perou Lab
February 23	Dale Cowley	Postdoc- Van Dyke Lab
March 2	Olena Taranova	Graduate Student- Pevny Lab
March 9	Bettina Meier	Postdoc- Ahmed Lab
March 16	Mark Schliekelman	Graduate Student- Van Dyke Lab
March 23	Karen Strunk	Postdoc- Koller Lab
March 30	Zhiyuan Hu	Graduate Student- Perou Lab
April 6	Mehul Suthar	Graduate Student- Heise Lab
April 13	Tang-Cheng Lee	Graduate Student- Threadgill Lab
April 20	Mia Lowden	Graduate Student- Ahmed Lab
April 27	Leslie Lange	Genetics Faculty
May 4	Alysia Kern	Graduate Student- Koller Lab
May 18	Folami Ideraabdullah	Graduate Student-Pardo-Manuel Lab

**2004/2005 Curriculum in Genetics & Molecular Biology Student Research Seminar**

Date	Name	Lab
August 31	Hunter Blanton	Sekelsky
September 7	Reginald Hill	Van Dyke
September 14	Kim Ritola	Swanstrom
September 21	Gabrielle White	Xiong
September 28	Ru Cao	Zhang
October 5	Tony Cesare	Griffith
October 12	Jennifer Jordan	Resnick
October 19	David Kashatus	Baldwin
October 26	Kelly Korck Parsons	Koller
November 2	Brad Powell	Hutchison
November 9	Tiffany Williams	Kole
November 16	Sima Zacharek	Xiong
November 23	Maria Barbera	Petes
November 30	Anastacia Berzat	Cox
December 7	Kirk Wilhelmsen	Curriculum Faculty Member
January 4	Jan DeNofrio	Parise
January 11	Josh Grieger	Samulski
January 18	Katherine Hoadley	Samulski
January 25	Jason Herschkowitz	Perou
February 1	Melissa Hayden	Peifer
February 8	Julie Ledford	Koller
February 15	Tang Cheng Lee	Threadgill
February 22	Nathan Montgomery	Magnuson
March 1	Jennifer Clore	Threadgill
March 8	Bhargavi Rao	Leib / Strahl
March 15	Coy Allen	Koller
March 22	Ryan Bash	Van Dyke
March 22	Heather Doherty	Pardo
March 29	Devon Gregory	Bachenheimer
March 29	Folami Ideraabdullah	Pardo
April 5	Eric Kallin	Zhang
April 5	Alysia Kern	Koller
April 12	Jennifer Knies	Burch
April 12	Maureen Newman	Keiber
April 19	Matt Ramsey	Sharpless
April 19	Amanda Riffel	Lord
April 26	Erica Rinella	Threadgill
April 26	Mark Schliekelman	Van Dyke
May 3	Kirsten Trowbridge	Sekelsky
May 3	Josh Uronis	Threadgill
May 10	Sarah Reford	Sekelsky

**Bioinformatics and Computational Biology Fall Research Colloquium (2004)**

Date	Speaker	Topic
August 31	Organizational Meeting	
September 6	LABOR DAY	Special topic: Applied optimization in computational biology
September 13	J. Snoeyink	Journal club discussion
September 20	K. Gaulton/J. Joyce	Senior student seminar
September 27	A. Leaver-Fay	Faculty Seminar
October 4	N. Dokholyan (Biochemistry&Biophysics)	Journal club discussion
October 11	V. Weigman/Karl Strohmaier	Special topic: Applied optimization in computational biology
October 18	J. Snoeyink	Seminar
October 25	A. Tropsha	Senior student seminar
November 1	M. Montague (Hutchison Lab)	Journal club discussion
November 8	X. He/J. Miller	Special topic: Applied optimization in computational biology
November 15	J. Snoeyink	Senior student seminar
November 22	J. Huan (Wang Lab)	Faculty Seminar
November 29	C. Blake (SILS)	Journal club discussion
Dec. 6	S. Vu/P. Giresi	

**Bioinformatics and Computational Biology Spring Research Colloquium (2005)**

Date	Subject	Main Presenter	Critique 1	Critique 2
Jan. 25	Profound peptide mass fingerprinting	Zhang	Giresi	Weigman
Feb. 1	Probability-based protein identification	Perkins	Mascot	Strohmaier
Feb. 8	Mining Genomics with MS	Yates	Baker	Jeffries
Feb. 15	Error-tolerant identification of peptides in sequence databases	Mann	Pan	Holmes
Feb. 22	Shotgun MS/MS	Bandeira	Khatun	Jeffries
March 1	Genome based peptide fingerprint scanning	Giddings	Miller	Gaulton
March 8	Proteogenomic mapping	Jaffe	Gaulton	Vu
March 22	Top-down proteomics	Meng	Strohmaier	Baker
March 29	Proclame	Holmes	Miller	Jeffries
April 5	PEDRo	Garwood	Vu	Strohmaier
April 12	PSI Molecular interaction standard	Hermjakob	Baker	Giresi
April 19	2D gel analysis	Chang	Joyce	Gaulton
April 26	Proteomics Reproducibility	Baggerly	Wegiman	Joyce

**Developmental Biology Research Colloquium**

Date	Name
Nov 4	Lan Jiang
Nov 18	Yukako Yokota
Dec 2	Cordelia Barrick
Dec 16	Joe Kearney
Dec 30	HOLIDAY
Jan 13	Amanda Anderson
Jan 27	Rusty Kelley
Feb 10	Jeremiah Hinson
Feb 24	Scott Wheeler
Mar 10	Tom Callis
Mar 24	Mike Lewis
Apr 7	Jason Doherty
Apr 21	Ryan Dackor
May 5	Alicia Blaker

## Molecular Genetic Epidemiology Journal Club and Discussion Group Schedule

<b><u>Date</u></b>	<b><u>Journal or Topic/Speaker/Location</u></b>
8/3/04	Linkage disequilibrium mapping via cladistic analysis of single-nucleotide polymorphism haplotypes. <i>by Durrant C, Zondervan KT, Cardon LR, Hunt S, Deloukas P, Morris AP</i> <b>Karen Mohlke, Department of Genetics</b> 4201 Medical Biomolecular Research Building
9/7/04	The Future of Association Studies: Gene-Based Analysis and Replication. <i>by Benjamin M. Neale and Pak C. Sham</i> <b>Patrick Sullivan, Department of Genetics</b> 2101G McGavran-Greenberg Hall
10/12/04	Algorithms for Inferring Haplotypes. <i>by Tianhua Niun</i> <b>Leslie Lange, Department of Genetics</b> 4201 Medical Biomolecular Research Building
11/2/04	Selecting a Maximally Informative Set of Single-Nucleotide Polymorphisms for Association Analyses Using Linkage Disequilibrium. <i>by Christopher S. Carlson, Michael A. Eberle, Mark J. Rieder, Qian Yi, Leonid Kruglyak, and Deborah A. Nickerson</i> and Tag SNP Selection for Association Studies. <i>by Daniel O. Stramn</i> <b>Jeannette Bensen, Department of Epidemiology</b> 2101G McGavran-Greenberg Hall
12/7/04	Data mining and multiparameter analysis of lung surfactant protein genes in bronchopulmonary dysplasia. <i>by Meri Rova, Ritva Haataja, Riitta Marttila, Vesa Ollikainen, Outi Tammela and Mikko Hallman</i> <b>Kirk Wilhelmsen, Department of Genetics and</b> <b>Jan Prins Department of Computer Science</b> 3118 Neuroscience Research Building
2/1/05	Common variation in BRCA2 and breast cancer risk: a haplotype-based analysis in the Multiethnic Cohort <i>by Freedman ML, Penney KL, Stram DO, Le Marchand L, Hirschhorn JN, Kolonel LN, Altshuler D, Henderson BE, Haiman CA</i> <b>Karen Mohlke, Department of Genetics</b> 3102 McGavran-Greenberg Hall
2/15/05	An Icelandic example of the impact of population structure on association studies. <i>by A. Helgason, B. Yngvadottir, B. Hrafnkelsson, J. Gulcher and K. Stefansson</i> <b>Ethan Lange, Department of Genetics</b> 4201 Medical Biomolecular Research Building
3/1/05	<b>Stephanie Engel, Department of Epidemiology</b> 3102 McGavran-Greenberg Hall
3/22/05	<b>Jeannette Bensen, Department of Epidemiology</b> 4201 Medical Biomolecular Research Building

- 4/5/05     **Luda Diatchenko, Department of Endodontics**  
3102 McGavran-Greenberg Hall
- 4/26/05    **Leslie Lange, Department of Genetics**  
4201 Medical Biomolecular Research Building
- 5/10/05    **Helena Furberg, Department of Genetics**  
3102 McGavran-Greenberg Hall
- 5/24/05    **Mike Knowles, Department of Medicine**  
4201 Medical Biomolecular Research Building



**2004 Genetics Symposium: Frontiers in Medicine and Genetics**

Speaker	Title
<i>Mary-Claire King</i> , Ph.D., American Cancer Society Professor in the Departments of Medicine (Medical Genetics) and Genome Sciences, University of Washington School of Medicine Seattle	Genetic Analysis of Breast and Ovarian Cancer [KEYNOTE ADDRESS]
<i>James Evans</i> , M.D., Ph.D., Associate Professor of Genetics and of Medicine, UNC-CH	The Changing Landscape of Genetic Testing in Medicine: From Gucci to Walmart
<i>Karen Mohlke</i> , Ph.D., Assistant Professor of Genetics, UNC-CH	DNA Variants on Chromosome 20 Increase Susceptibility to Type 2 Diabetes
<i>Michael R. Knowles</i> , M.D., Professor of Medicine, UNC-CH	Gene Modifiers of Lung Disease in Cystic Fibrosis
<i>Doug Marchuk</i> , Ph.D., Associate Professor of Molecular Genetics and Microbiology, Duke University	Molecular Genetics of Cerebral Cavernous Malformations: A Mendelian Stroke Disorder
<i>David Threadgill</i> , Ph.D., Assistant Professor of Genetics, UNC-CH	Cancer Susceptibility: From Single Genes to Genetic Networks
<i>Norman E. Sharpless</i> , M.D., Assistant Professor of Medicine and Genetics, UNC-CH	Senescence, Cancer and Aging
<i>Patrick Sullivan</i> , MD, FRANZCP, Professor of Genetics and of Psychiatry, UNC-CH	Molecular Genetic Approaches to Schizophrenia
<i>David A. Alcorn</i> , Ph.D., Assistant Professor of Medicine, UNC-CH	Leukocytes and Auto-Immunity - Gene Expression and Disease
<i>Oliver Smithies</i> , DPHIL, Professor of Pathology and Laboratory Medicine, UNC-CH	Computer Simulations of Complex Biological Systems [KEYNOTE ADDRESS]

# Carolina Center for Genome Sciences **Bioinformatics & Computational Biology**

## Program Retreat and Mini-Symposium

FRIDAY, AUGUST 27, 2004, 12-4 pm  
Rm. 215 Coker Hall (Department of Biology)

**New BCB Faculty:** Mayetri Gupta (Biostatistics); Yufeng Liu (Statistics/OR); Maria Servedio (Biology).

**New BCB Students:** Kyle Gaulton (Genetics), Paul Giresi (IBMS), Stuart Jeffreys (Genetics),  
Jennifer Joyce (Appl. Math), Jameson Miller (CS), Scott Vu (BME), Xueyi Wang (CS)

### ORAL PRESENTATIONS:

**12:00. Luncheon and Faculty Interviews by Entering Trainees (choose your rotation mentor(-s)!); poster setup.**

**1 pm. Dr. Alexander Tropsha, Program Director.** *Opening Remarks. BCB Program today and tomorrow*

**1:15. Dr. Mayetri Gupta.** *Interpreting biosequences through statistical methods- can we deduce gene regulation*

**1:30. Andrew Leaver-Fay (3<sup>rd</sup> year BCB trainee; Advisor: Jack Snoeyink).** *An Adaptive Dynamic Programming Algorithm For Protein Redesign.*

**1: 45. Dr. Maria Servedio (Biology).** *Mathematical models in evolutionary theory: an example from speciation*

**2:00. Deanne Sammond ((3rd year BCB trainee; Advisor: Brian Kuhlman).** *Designing Orthogonal Protein Partners.*

**2:15. Dr. Yufeng Liu (Operations Research and Statistics).** *Multicategory psi-learning and support vector machine, with applications to cancer genomics classification..*

**2:30. Xiao Wang (Applied Mathematics; Advisor: Tim Elston).** *Computational and Experimental Analysis of Protein Kinase Activation in the Pheromone Response Pathway of Yeast.*

**2:45-4 PM. SENIOR STUDENT POSTERS AND SNACKS/BEVERAGES.**

**Luke Huan (CS); Kristen Dang (BMME); Barry Kesner (C&DB).** *Analysis of Yes-Associated Protein 65 (YAP-65) Interactions using Mass Spectrometry Sliding Window (MSSW) Filtering.* **Andrew Leaver-Fay (CS).** *(Title above); Dihui Lu (SILS).* **Deanne Sammond (B&B).** **Xiao Wang (OR)** *(Title above),* **Crystal Wright (BME),** *Title.* **Nancy Baker (SILS):** *Specialized Repository for Protein Residue Characterization.* **Mariel Conlon (MATH); Xin He (Biology)** *Modeling of Calcium Dynamics in Plant Cells;* **Karl Strohmaier (CS); Victor Weigman (Biology)** *Creation of a biological-relevant simulation environment for incorporation of multi-dimensional data for prediction of patient outcomes.*