CURRICULUM VITAE

NAME: Marit Nilsen-Hamilton
TITLE: University Professor of Biochemistry, Biophysics and Molecular Biology

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Iowa State University
Ames, Iowa 50011-3206 U.S.A.

EDUCATION:

Cornell University, Ithaca, New York, 1969, B.S. Degree, Biochemistry
Cornell University, Ithaca, New York, 1973, Ph.D., Biochemistry
The Salk Institute, San Diego, CA, 1973-1975, Postdoctoral Fellow

AWARDS: New York State Regent's scholarship (1965-1969), Dupont Award for Teaching (1972), Iowa Regents Faculty Citation Award (2000), Inventor Incentive Award, Ames Laboratory (2002), Regents Award for Faculty Excellence (2003), AAAS Fellow (2007), Good citizenship award, MCDB (2017), University professor (2023).

RESEARCH & PROFESSIONAL EXPERIENCE:

1973-1975 NIH Postdoctoral Fellowship
1987-1992 Director, Annual ISU Life Sciences Symposium
1989-2010 Chair, Annual Growth Factor and Signal Transduction Conferences
1994-2015 CEO, Molecular Express Inc.
1998-2007 Organizer, PSI Institute Symposia
2015-pres CSO, Aptalogic Inc.

EMPLOYMENT EXPERIENCE:

1969-1972 Research assistant, Cornell University, Department of Biochemistry and Molecular Biology, Ithaca, New York. Ph.D. Thesis with Dr. S. J. Edelstein
1973-1975 Postdoctoral Fellow, Laboratory of Dr. Robert W. Holley, The Salk Institute
1975-1976 Senior Research Associate, Molecular Biology Laboratory, The Salk Institute
1976-1982 Assistant Professor, Cell Biology Lab., The Salk Institute, San Diego, CA
1982-1989 Associate Professor, Dept. of Biochemistry and Biophysics, ISU
1986-1991 Chair, Molecular, Cellular and Developmental Biology program, ISU
1988-1990 Professor-in-charge, Cell Facility, Iowa State University, Ames, IA
1989-2023 Professor, Department of Biochemistry, Biophysics and Molecular Biology, ISU
1995-2000 Chair, Department of Biochemistry, Biophysics and Molecular Biology, Iowa State University, Ames, IA
2000-pres Faculty Scientist, US DOE Ames Laboratory
2023-pres University Professor, Department of BBMB, ISU

Graduate Students

Received M.Sc.:

1. *Virginia Reints Fienup* (1985, Biochemistry) Pharmacist
2. *Eva Alvarez-Azaustre* (1986, Biochemistry) Head Quality Assurance, Sandoz Corporation, Barcelona, Spain, now retired
3. *Yng-Ju Jang* (1987, Zoology) Postdoc, Sanford Burnham Preby Medical Discovery Institute (SBP)
4. *Meei-Huey Jeng* (1987, Zoology) Associate research professor, Indiana University School of Medicine, Department of Medicine, Division of Hematology/Oncology
5. *Pei Shu* (1991, Biochemistry) technician, NYU
6. *Joel Ryon* (1998, Biochemistry) Pediatrician, Iowa
7. *Jamillah Zamoon* (1999, Biochemistry) Professor, Kuwait University
8. *Becky Stodola* (2003, Biochemistry) Team Lead at Epic Technical Services at Epic, Madison WI
9. *Marjan Mokhtarian* (2003, Genetics) Returned for Ph.D. after child-rearing.
10. *Gulshan Singh* (2004, MCDB) Research Associate, St. Louis Psychoanalytic Institute
11. *Ying Liu* (2007, Biochemistry) Research technician, University of Chicago
12. *Yinghua Liu* (2007, Genetics) Research technician, Stanford University
13. *Samir Mehanovic* (2008, Biochemistry) Lab supervisor, ISU
14. *Hans Eirik Haarberg* (2009, Neurobiology) research technician, H. Lee Moffitt Cancer Center & Research Institute
15. *Lijun Wang* (Ph.D. 2010), Research faculty, Shanghai Institute of Biochemistry and Cellular Biologies;
16. *Supipi Auwardt* (Ph.D., 2014, Chemistry) Laboratory technician, University of Miami

Received Ph.D.:

1. *Chia-Ping Chiang Yang* (1986, Zoology) Senior Vice President, Vyaire Medical
2. *Adnan Mubaidin* (1988, Biochemistry) Pharmacist, Jordan, now retired.
3. *Frederic Thalacker* (1990, Biochemistry) Director, Drug Metabolism Department, Covance Laboratories
4. *Tom Davis* (1990, Biochemistry) Scientist, Pioneer Hybrid, Johnston, Iowa
5. *Joseph Nelson* (1991, Biochemistry) Armed Forces Radiobiology Research Institute
6. *Scott Miller* (1992, Biochemistry) Chief Scientist, Mitokor
7. *Tsung-Hsien Chuang* (1992, MCDB) Investigator, Immunology Research Center, National Health Research Institutes, Taiwan
8. *Manzoor Mohideen* (1994, MCDB), Director of Biomedical Technologies, Molecular Med Tri-Con
9. *Quansheng Liu* (1996, Biochemistry) Private partnership investor, China
10. *Melissa Phillips Allen* (1997, Biochemistry), Child-rearing.
11. *Alesia Hruska-Hageman* (1998, Biochemistry), Assistant Professor, Mount Mercy College, Cedar Rapids, IA
12. *John Fassett* (2000, MCDB), Assistant Professor, Karl Franzen University, Austria
13. *Mark Mowry* (2001, Chemical Engineering), Senior Director, Regeneron Pharmaceuticals
14. *Pierig LePont* (2002, Biochemistry) Assistant Laboratory Director, DNA Diagnostics Center, UK
15. *Xiangyu Cong* (2006, Biochemistry) Biostatistician, AstraZeneca Rare Disease
16. *Tianjiao Wang* (2008, MCDB) Scientist, Admira
17. *Wei Zhao* (2009, MCDB) Physician, Private residency group, VA
18. *Allison Pappas* (2009, Genetics) Biotechnology Grant Coordinator, Madison college

19. *Xiao Ling Song* (2010, Genetics) Research faculty, Shanghai Tech
20. *Lijun Wang* (2010, Biochemistry), Research faculty, Shanghai Institute of Biochemistry and Cellular Biology, Chinese Academy of Sciences.
21. Ilchung Shin (2011, Biochemistry), Scientific officer, Narcotic Analysis Division, National Forensic Science, Seoul, Korea
22. *Lijie Zhai* (2012, Biochemistry) Research Assistant Professor, Northwestern University
23. *Ashish Sachan* (2012, Toxicology) Associate Director of Toxicology, Leeds Lifesciences Ltd.
24. *Judhajeet Ray* (2012, Biochemistry) Research Scientist, Broad Institute, Boston
25. *Lijie Zhai* (2012, Immunobiology), Research Specialist, Dept of Pediatrics, U. Chicago
26. *Muslum Ilgu* (2012, Biochemistry), Research Scientist II, Ames Laboratory
27. *Shuren Feng* (2015, Molecular, Cellular and Developmental Biology), Clinical Scientist, Prenatal & Neonatal Screening Center of Tianjin
28. *Shambhavi Shubham* (Ph.D., 2017, MCDB) Scientist, Genscript

Current graduate students

Sharif Anisuzzaman (Biochemistry), Michael Murphy (Genetics), Mahsa Askary-Hemmat (Genetics), Samuel Coder (Biochemistry), Samuel Shobade (Biochemistry)

Postdoctoral Fellows

W. Ross Allen (1978-82) Research Scientist, Salk Institute
Chia-Ping Chiang (1986-1988) VP of Quality and Regulatory Affairs, Microbiology Reference Lab Diagnostics, Los Angeles, CA
Malayanan Subramaniam (1989) Research Associate, Mayo Clinic, Current position unknown
Kerry Bruns (1989-1991; co-sponsored with R.T. Hamilton) Professor, Southwestern U., TX
Michael Delgado (1988-1989; co-sponsored with R.T. Hamilton) Co-Owner at MnL Solutions; Provider Relations Manager at SoutheastHEALTH
Yu Fang (1988-1992) last known as President, Coron Biomedics
Nitsa Rosenzweig (1992-1994) Scientific Review Officer, NIH, Center for Scientific Review
Yunfei Chen (1995-1996) Current position unknown
Aimin Yan (2001 - 2002) Graduate student in BCB, BBMB, Current position unknown
Ahmed Awad (2004 - 2006) Assistant Professor in Chemistry, UC Channel Islands
Xiangyu Cong (2006 - 2007), Biostatistician, Astrazenica
Tianjiao Wang (2009) Scientist, Admira
Allison Pappas (2009 - 2010) Biotechnology Grant Coordinator, Madison college
Wei Zhao (2009-2011), Physician, Private residency group, VA
Ilchung Shin (2012), Scientific officer, Narcotic Analysis Division, National Forensic Science, Seoul, Korea
Lijun Wang (2011-2012), Research faculty, Shanghai Institute of Biochemistry and Cellular Biology, Chinese Academy of Sciences.
Muslum Ilgu (2012-2013), Research Scientist II, Ames Laboratory
Soma Banerjee (2015-2016; 2019-present)
Gennady Pogorelko (2019-present)
Dilini Singappuli Arachchige (2020-present)

Scientists (through the Ames Laboratories or Aptalogic Inc.)

Pierre Palo (2001 - current)
Kirthi Narayanaswamy (2010 - 2014)
Tianjiao Wang (2011- 2012)

Samir Mehanovic (2004 - 2013)
Muslum Ilgu (2014-2019)
Soma Banerjee (2016 to 2019)
Gennady Pogorelko (2019 to present)

Visiting Scientists

Qing Chang, 2001; Khalid Boushaba, 2016; Soma Banerjee, 2016 -

Society Memberships:

American Society of Biological Chemists and Molecular Biologists (1972-present)
American Society of Cell Biologists (1982-present)
The Endocrine Society (2000-2004; 2010-2012)
The RNA Society (2005-present)
The Microbiology Society (2009-2016)

Journal Editorships:

Editor, Proceedings for Growth Factor and Signal Transduction Symposia published in the journal, Molecular Reproduction and Development (1989-1995)
Associate Editor, J. Cellular Biochemistry (1990-2020)
Editorial board, Aptamers (2016-present)
Editorial board, Scientific Reports (2019-present)

National Committees:

Special NIH Site Visit Team (1985)
NIH study Section, Cell Physiology II (1987-1990)
Western Regional Review Committee for the American Heart Association (1990-1993)
American Heart Association, Iowa Chapter, Scientific Committee (1990-1996)
Site Visit Review Team for the Canadian Medical Research Council (1995)
NIH Special Study Section (1995)
NIH study section on Postdoc awards in Molecular and Cellular Biology, Ad hoc reviewer (1994)
American Heart Association Peer Review Study Group, Basic Cell & Mol Biol 1 (2001-2004)
NIH Program Project Site Visit Team (2003)
NIH Special Review committee (2004)
NSF FIBR Review Panel (2004)
NIH NIBIB R29 Roadmap Study Section (2005)
NIH MDCN-K(54) Neurotech/engineering review meeting (2005) teleconference
NIH Special R21 review group, (2005 & 2006).
NIH Modeling and Analysis of Biological Systems, Ad hoc (2006)
NIH R13 Conference Grants Special Emphasis Panel (SEP) (2007, 2008)
NSF Workshop on Biosensing and Bioactuation (2007)
NSF Committee of Visitors to review the Molecular and Cellular Biosciences Division (2008)
NIH MABs (Modeling and Analysis of Biological Systems) study section, member (2008-2012)
DOE Workshop on Radiochemistry and Instrumentation Imaging (November, 2008)
Site visit team for MIT Cancer Center (October, 2009)
NIH administrative review committee for Cancer Centers (December, 2009),
DOE Radiochemistry and Radionuclide Imaging Instrumentation Research Review Panel (2010)
1st Sino-US Advanced Sensors & Bio-Inspired Technologies Workshop, NSF, Shanghai, (2010)
NCI Scientific Eureka Review Group (2011)
NIH Special Emphasis Panel/Scientific Review Group 2014/05 ZRG1 SBIB-Z(59) R VAM (2014)

DOE Integrated Nuclear Medicine Res. & Training Projects of Excellence Panel (2012, 2014)
NIH ZCA1 TCRB-5 (M1) R Innovative Molecular Analysis Technologies (2015)
NCI's Innovative Molecular Analysis Technologies (IMAT) Program (SS'16; F'16) Chair (6/2017, 2/2018, 9/2019, 5/2020)
NCI Special Emphasis Panel/Scientific Review Group 2017/05 ZCA1 SRB-K (2/2017)
ZRG1 MDCN-C56 Synthetic Psychoactive Drugs and Strategic Approaches to Counteract Their Deleterious Effects SEP (10/2018)

University and College Committees:

Member, College of Agriculture Pioneer Chair Search Committee (1985-1986)
Member, Graduate Faculty Selection Committee (1985-1987)
Member, Biotechnology Faculty Development Committee (1985-1987)
Chair, MCDB program (1986-1991)
Chair, Life Sciences Symposium Committee (1987-1992)
Coordinator, Growth Factor and Signal Transduction Symposium Series (1987-2010)
Coordinator, Plant Sciences Institute Symposium Series (1998-2007)
Member, College of Agriculture Deans Advisory Committee (1988)
Member, Provost Search Committee (1988)
Member, Vice Provost Search Committee (1989)
Member, College of Agriculture tenure and Promotion Committee (1993-1994; 2001-2003)
Member, LAS Strategic Planning Committee (1995)
Member, Department of Plant Pathology Tenure and Promotion Committee (1995)
Chair, Review Committee for the Biomedical Engineering Program (1996)
Member, Search Committee for Dean of Agriculture (1999-2000)
Member, Agronomy Advisory Committee (2001 - 2002)
Member, Bailey Committee (2001-2003, 2005)
Member, College of Agriculture Microscopy Facility (2003-2005)
Member, Departmental Search Committee to fill two faculty positions (2003-2004)
Member, Chemical Engineering Department Advisory Committee (2004-2005)
Member, CDFIN grant review committee (2006)
Faculty Review Board (Chair, 2004-2005, 2009), (Member: 2006-2009)
IG curriculum and catalog committee (2007-present)
PSI Centers Reviewer (2010)
MCDB graduate student selection committee (2014-present)
Member, University Awards Committee (2015)
Pew Biomedical Scholar selection committee (2016, 2018)

Scientific Conferences Organized:

Epidermal Growth Factor and Related Proteins in Development , August 25-28, 1989
Transforming Growth Factor-ß and Related Proteins in Development, September 20-23, 1991
The Role of Insulin-like Growth Factors and Their Receptors in Development, September 1992
Fibroblast Growth Factors and their Receptors in Development and Disease, September 1993
Intracellular Signaling from Ras to Genes, September 1994
Colony Stimulating Factor-1: Molecular Mechanisms In Development And Disease, Sept. 1995
Interferon Signaling, June 1996
Modes of EGF Receptor Signaling, September 1997
Endocytosis and Intracellular Trafficking, September 1998
Metabolic Networking in Plants, April 1999
Biosynthesis of Glucose Polysaccharides, June 2000
Mechanisms of Cellular Regulation, September 2000

Post-transcriptional Control of Gene Expression in Plants, May 2001
Functions and Actions of Retinoids and Carotenoids: Building on the Visions of James Allen Olson, June 2001
Proteomes: Structures, Changes, Interactions and Functions, PSI symposium, June, 2002
Tissue Remodeling, August 2002
Molecular Targets for Dietary Intervention in Disease, September 2002
Transposition, Recombination and Application to Plant Genomics, June 2003
Third International Congress on Plant Metabolomics, June 2004
Stem Cells, September 2004
Meristems, June 2005
Integration of Structural and Functional Genomics, Sept 2005
Plant Receptor Signaling, June 2006
Lipocalins in Health and Disease, September 2006
Epistasis and Gene Interaction, June 2007
Senescence, Aging and Cancer, July 2007
Extracellular and Membrane Proteins in Cell Signalling, September 2008
Systems Biology: Integrative, Comparative, and Multi-Scale Modeling, June 2009
RNA in Motion, September 2010

TEACHING

Biochemistry:
BBMB301: "A survey of biochemistry" (2000, 2002, 2011)
BBMB405: "Biochemistry II" (1983-1988)
BBMB411: "Laboratory Techniques in Biohemical Research" (2017, 2019, 2020, 2021)
BBMB502: "Advanced Biochemistry II" (1986-1994)
BBMB593: "Workshops in selected topics in biochemistry and biophysics." (2005, 2007, 2010)
BBMB645: "Molecular Signaling" (1985, 1987, 1989, 1991, 1993, 1995, 1997, 1999, 2001, 2003, 2005, 2007, 2009, 2013, 2015, 2019)
BBMB676: "Biochemistry of Gene Expression" (2002, 2004, 2006, 2008, 2012, 2014, 2016)

Genetics:
Biol314: "Principles of Molecular Cell Biology" (2016, 2018)
Biol 313: "Principles of Genetics" 1998, 2000, 2001, 2002)
GEN340: "Human Genetics" (Spring and Fall semesters: 2020, 2021, 2022)

Grant writing:
Pl.Path565: "Grant writing" (2011)
GrSt569: "Grant writing" (2013)

Ethics:
GENET569: "Ethics and Biological Sciences" "Scientific ethics workshop: (2009)

Student Seminars:
BBMB581: "Graduate Seminars in Biochemistry" (1998, 2000, 2004)
BBMB681: "Advanced Seminars in Biochemistry" (2001)
GEN691: "Seminars in Genetics", (Annually: 2005 through 2017)
Neuro696: "Neuroscience Seminar", (Annually: 2015-2020)

Single lectures:
Neuro556: "Cellular Molecular and Developmental Neuroscience", one lecture (2013)
TOX501: "Principles of Toxicology" (Annually: 2009-2013)

GRANTS AWARDED

Research Grants

a. Local Sources

1. National Institutes of Health General Research Support, (MNH, PI), "Purchase of a Microbalance", $3,350 (total direct costs). Period covered: 1/1/78 - 12/30/78
2. Iowa State Biotechnology Council, (MNH, PI), "Gene regulation during animal growth and development", $40,000 (total direct costs), Period covered: 6/30/86-7/1/88
3. Iowa State Biotechnology Council, (MNH, PI), "Development of the capability of making Transgenic Animals at ISU", $37,510 (total direct costs). Period covered: 6/30/88-7/1/90
4. ISU Biotechnology Council, (MNH, PI), "Regulation of Muscle Differentiation", $30,000 (total direct costs). Period covered: 10/1/90 - 9/30/90
5. Carver Foundation (MNH, PI), "Searching for a Plant Growth Factor", $15,000 (total direct costs), Period covered: 6/1/91-5/31/92
6. National Institutes of Health 1-R01-HD29087-01, (MNH, PI), "A mitogen- regulated protein receptor in development", $388,937 (Total direct cost); Period covered: 09/1/92-08/31/95. Extended through 08/31/96.
7. ISU Biotechnology Council, (MNH, PI) "Conditional Knockout Mutation of the Murine Uterocalin Gene; Development of a New Technology". $20,000 (total direct costs), Period Covered: 7/1/97 - 6/30/98.
8. ISU Biotechnology Council (Carole Heath, PI ; MNH, coPI), "Studies of Metabolism in Mammalian Cell and Tissue Culture". $20,000 (total direct costs), Period Covered: 7/1/97 - 6/30/98.
9. Special Research Initiation Grant (SPRIG), ISU (coPI; Chris Tuggle, PI), "Developing the RITE system to dissect the function of genes with multiple biological roles". $20,000 (total direct costs), Period Covered: 1/1/98 - 12/31/98.
10. Carver Foundation (MNH, PI), "Control of Adipose Differentiation by the MRP/PLF proteins", $22,662 (total direct costs), Period covered: 6/1/98-5/31/99
11. Department of Energy through IPRT (MNH, PI), “Cis Linked Aptamer Microanalytical Probes (CLAMPs)” $67,768 (direct costs) period covered: 10/1/00 - 9/30/01, 10% Effort
12. Nanotechnology Seed Funds, ISU (George Kraus, PI; V. Lin and MNH, co-PIs) “Nanostructures from aptamers”, $49,995 (Total costs), Period covered: 1/1/01 - 12/31/01.
13. Carver Foundation (Balaji Narasimhan, PI; MNH, co-PI), “Engineering Bioerodible Polymers with Tailored Microstructure: Strategies for Protein Stabilization” #216 Total Direct costs: $25,000, Period Covered: April 16, 2001 - July 31, 2002
14. Healthy Livestock, ISU College of Veterinary Medicine. (Thoen, PI; MNH, co-PI) “Developing a new assay for detecting early signs of Johne's Disease”, Total direct costs: $20,000, Period Covered: 7/1/01-6/30/03.
15. CDFIN, (J. Bassaganya-Riera, PI; Wahnemueller and MNH, coPIs) “Regulation of Thymocyte Development by Conjugated Linoleic Acid” Total Direct costs: $20,000, Period covered: 2001-2002
16. ISU Plant Sciences Institute (co-PI with P. Becraft) “Development of A High-Throughput Screen For Plant Receptor Kinase Ligands”. $36,000 (total direct costs), Period Covered: 7/1/02 - 6/30/04

17. Center for Integrative Genomics, (Rothschild, PI; MNH, co-PI) 3/1/2003
18. Midwest Forensics Resource Center, “Developing Aptamers to Methamphetamine as Nucleic Acid Sensors” (co-PI with Kraus) $55,000 Period: 10/01/2003-9/30/2004
19. USDA, Spurlock (PI), MNH coPI with D. Birt, “Role of Adiponectin in the Regulation of Colon Tumorigenesis and the Anti-Carcinogenic Effects of Resveratrol” $30,000 subaward of grant #2008-34115-19372 (PI, Birt)
20. Center for Integrated Animal Genomics (Tuggle, PI; MNH co-PI) “Integration of Structural and Functional Genomics” $5,000, 07/01/05-06/30/06
21. Iowa State University-University of Iowa Cooperative Seed Grant from the Office of the Vice President for Research at ISU and the Office of the Vice President for Research and Economic Development at University of Iowa “Novel selection of aptamers against Lassa virus glycoprotein” $50,000 (~$32,000 to MNH), 7/1/2018-6/30/2020
22. ISU (Shrotriya, PI; MNH, co-I) “Point-of-care Sensors for Rapid and Low-cost Detection of COVID-19 Infections” $18,000 (2021)
23. ISU PIRS (Co-PIs: Shrotriya, Kingston, Lamm and Nilsen-Hamilton) Capture and Collection of Aerosolized Viruses and Nanoparticles,Total $50,000 (1/01/2022 - 12/31/2023)
24. ISU PIRS (PI: Muslum Ilgu, Co-PIs: Zhang, Nilsen-Hamilton) ATAC (Aptamers for Theranostic Applications against Campylobacter), Total $50,000 (4/01/2023 - 3/31/2023)

b. National Sources, University

25. National Institutes of Health CA19523, (RT Hamilton., PI; MNH coPI), "Comparison of Transport in Normal and Transformed Cells", $190,470 (total direct costs). Period covered: 7/1/76 - 6/30/79.
26. American Cancer Society, (RT Hamilton., PI; MNH coPI), "Comparison of Transport in Normal and Transformed Cells", Awarded but not activated because an overlapping grant was also funded by the NIH, $127,000 (Total costs)
27. Rockefeller Foundation, (MNH, PI), "Regulation of Nutrient Transport and Protein Secretion by Granulosa Cells", $80,000 (total direct costs). Period covered: 3/1/77 - 12/31/78
28. National Institutes of Health CA 24395, (MNH, PI), "Fibroblast Growth Factor and Phosphorylation in Growth Control", $194,106 (total direct costs). Period covered: 9/1/78 - 8/31/81
29. American Cancer Society, (MNH, PI), "Mitogen-dependent Release of a Glycoprotein by 3T3 Cells", $80,000 (total direct costs). Period covered: 7/1/79 - 6/30/81
30. Office of Naval Research, (R.T. Hamilton, PI; MNH coPI), "Purification of the sodium-dependent and sodium-independent phosphate transporters of fibroblasts", $112,500 (this was part of a larger grant with an award amount of over $1,000,000 for which Maurice Montal was PI). Period covered: 9/1/79 - 8/31/82
31. National Institutes of Health General Research Support, (PI), "Growth Factor Regulated Phosphorylation in Permeabilized Cells", $6,000 (total direct costs). Period covered: 7/1/81 - 6/30/82
32. Cystic Fibrosis Foundation GO62, (MNH, PI), "A Mitogen-Induced Protein in Cystic Fibrosis", $29,443 (total direct costs). Period covered: 5/1/83-4/30/84
33. National Institutes of Health R01-GM33528, (MNH, PI), "Induction of a secreted protein by a growth inhibitor", $178,002 (total direct costs). Period Covered by Award: 4/01/84 - 3/31/90.
34. American Cancer Society, CD242, (MNH, PI), "Cloning a Mitogen-induced Protein", $160,000 (Total costs). Period covered: 1/1/85 - 9/14/85

35. National Institutes of Health, R01-CA39256-01, (MNH, PI), "Cloning a Mitogen-Regulated Protein", $240,535 (total direct costs). Period Covered by Award: 9/15/85 - 10/31/88
36. National Institutes of Health S10 RR02818, (C.M. Warner, PI; MNH coPI), "Flow Cytometer" $256,000 (total direct costs). Period covered: 4/1/86 - 3/30/87
37. National Institutes of Health 1 S10 RR03258, (D.J. Graves, PI; co-PI), "Peptide synthesis facility" $119,000 (total direct costs). Period covered: 12/1/86 - 11/30/87
38. National Institutes of Health R01-HD24990, (RT Hamilton, PI; coPI), "Growth Factors and Cathepsin L and Placental Development", $328,088 (total direct costs), Period Covered: 12/1/88 - 11/31/91
39. Ministry of Agriculture, Fisheries, and Forestry of Japan, (C. Youngs, PI; Ford, Hamilton and MNH co-PIs), "Production of useful transgenic farm animals", $300,000 (total direct costs). Period covered: 4/1/90-3/31/93
40. Department of Energy through IPRT (Surya Mallapragada, PI; MNH, co-PI), “Breast Tissue Engineering Using Biodegradable Polymer Scaffolds” $55,978 (direct costs) period covered: 1/1/00 - 6/30/00.
41. United States Department of Agriculture (National Needs Program) (faculty participant; Chris Tuggle and Susan Carpenter, co-PIs) #00384208824 "Animal Biotechnology" $276,000 total cost, Period Covered: 1/1/00 - 12/31/05, 2% effort.
42. Department of Energy (PI) W-7405-Eng-82 (MNH, PI) “Gene expression evaluated by revealed aptamer-based imaging technology”, $1,223,500 (Total Costs), Period Covered: 9/1/00-9/30/05, 20% effort.
43. Department of Defense (MNH, PI) BC9964884 “Control of Breast Cancer by Protein-Mediated Removal of Inflammatory Mediators”, $50,000 (Total Direct costs), Period covered: 10/01/01 - 9/30/02, 10% Effort
44. United States Department of Agriculture IFAFS Program, Multidisciplinary Graduate Education Traineeship (MGET) Program for Food and Agricultural Sciences, (Co-Project Directors: Carpenter and Tuggle; Co-PIs Marit Nilsen-Hamilton and Stern), #2001-04178 “Graduate Training in Computational Biology for Animal Agriculture” Total Direct costs: $1,756,000, Period covered: 2001-2007
45. National Institutes of Health 1R03 AI54984-01 (MNH, PI), “Aptamers to LPS for Microbial Detection”, Total: $146,000/ $100,000 direct, Period: 6/1/03-5/31/04
46. National Institutes of Health R01 GM072005 (MNH,PI; Levine, Smiley, Mallapragada, Sakaguchi, co-PIs) “Coupled Biological and Mathematical Models of Neuronal Pattern Formation”. Total: $1,204,529, Period: 5/1/04-4/30/09
47. National Institutes of Health R01EB005075, (MNH, PI) “Tracking Stem cells with IMAGEtags”, Total: $981,851, Period: 10/01/04-9/30/09
48. Department of Energy (Mallapragrada, PI, MNH & others co-PIs) "Bioinspired Materials: Aptamer-Mediated Templates for Hybrid Elastic Nanomagnets" 10/1/04-9/30/15, ~$160,000/year
49. National Institutes of Health R21CA128696 (MNH, PI) “Drugcarts to Combat Drug Resistance” Total: $316,952, Period: 9/1/07-8/31/09
50. National Institutes of Health R21 AI073330 (Maury, PI, Nilsen-Hamilton, co-PI) “Selection of small inhibitory molecules against filoviruses”. Total direct: $175,000 split equally between PI and coPI, Period: 9/1/08-8/31/10, no cost extension to 8/31/2011.
51. Department of Energy/ Ames Laboratory (PI) (Kraus, co-PI) “Nuclear Imaging of Gene Expression”, $500,000 annual (Total Costs), Period Covered: 10/1/08-9/30/11
52. National Institutes of Justice IAA #2008-DN-R-038 (Shrotriya, Nilsen-Hamilton and Kraus, coPIs) "MicroCantilever based Robust Sensing Approach for Controlled Substances", Total: $685,000, 11/1/08-10/30/11 1

53. Department of Energy/ Ames Laboratory (PI) Developing metamaterials by using a bottom-up approach based on biological templates, $200,000, 9/1/2010-8/31/2011
54. Department of Energy/ Ames Laboratory (PI) (Kraus, co-PI) “Real time imaging of gene expression in living organisms”, $500,000 annual, a component of SFA: “Radiotracer Imaging Technologies for Plant, Microbial, and Environmental Systems” (PI: W. Moses), Period Covered: 10/1/11-9/30/14.
55. National Institutes of Health 1R21-AI114283 (joint PI with VanBrocklin) (Kraus, co-PI) “In vivo reporters of gene expression”, Total: $275,000 $275,000 ($137,500 to MNH and GK), 7/1/2014 - 6/30/2017.
56. National Institutes of Health, 1R21AI106329, (PI), Maury (co-PI), “Isolating aptamers to viral surface epitopes”, $415,209 total ($342,575 direct), Period Covered: 6/15/15-5/31/17.
57. Department of Energy W-7405-Eng-82, (Mallapragrada, PI, MNH & co-I with 5 others) "Bioinspired Synthesis and Meso-scale Assembly of Metamaterials" ~$150,000/year; Period covered: 10/1/15-9/30/21
58. Department of Energy, W-7405-Eng-82, FWP# AL-18-380-055 (MNH, PI, co-Is: Halverson, Kraus, Shrotriya, Zabotina) “Detecting Chemical Signals in the Soil with 4DMAPS, an Integrated Aptasensor Assembly” $M1.25/year. Period covered: 10/1/18-9/30/21
59. Department of Homeland Security cooperative agreement 20CWDARI000330100 (MNH, PI. Co-Is: Kingston, Lamm, Maury, Shrotriya) “Detection of Biothreats in Near Real Time with a Multiplexed Aptasensor”, $2.5M (total) Directs: Phase I (9/1/20-8/31/21) $260,156; phase II-III: (9/1/20-8/31/24) $1,673,537; Indirects: Phase I, $73,177; Phase II-III, $493,130
60. DOE National Laboratory COVID-19 Testing Research & Development Priorities (MNH, PI; Shrotriya, co-I) “Next-Generation Lab Testing R&D”, $125,000 (total) Directs: $67,732, Indirects: 57,268 (9/1/20-8/31/21)

Grants to Support Symposia

a. Local Sources

61. ISU Biotechnology Council, Symposium on (MNH, PI), "Epidermal Growth Factor and Related Proteins in Development" $5,000 (total direct costs), Period Covered: 7/1/89 - 6/30/90.
62. ISU Biotechnology Council, (MNH, PI), "Symposium on Transforming Growth Factors and Related Proteins in Development" $5,000 (total direct costs), Period Covered: 7/1/91 - 6/30/92.
63. ISU Biotechnology Council, (MNH, PI), "Symposium on The Role of Insulin-like Growth Factors and their Receptors in Development" $1,348 (total direct costs), Period Covered: 7/1/92 - 6/30/93.
64. ISU Biotechnology Council, (MNH, PI), "Symposium on Fibroblast Growth factors and their Receptors in Development and Disease" $3,400 (total direct costs), Period Covered: 7/1/93 - 6/30/94.
65. ISU Biotechnology Council, (MNH, PI), "Symposium on Intracellular Signaling by Ras". $3,000 (total direct costs), Period Covered: 7/1/94 - 6/30/95.ISU
66. ISU Biotechnology Council, (MNH, PI), "Symposium on Colony Stimulating Factor-1: Molecular Mechanisms in Development and Disease". $3,000 (total direct costs), Period Covered: 7/1/94 - 6/30/95.
67. ISU Biotechnology Council, (MNH, PI), "Symposium on Interferon Signaling". $3,000 (total direct costs), Period Covered: 7/1/96 - 6/30/97.

68. ISU Biotechnology Council, (MNH, PI), "Symposium on Modes of EGF Receptor Signaling". $5,000 (total direct costs), Period Covered: 7/1/97 - 6/30/98.
69. ISU Biotechnology Council, (MNH, PI), "Symposium on Endocytosis and Intracellular Trafficking". $5,000 (total direct costs), Period Covered: 7/1/98 - 6/30/99.
70. ISU Biotechnology Council, (MNH, PI), "Symposium on Tissue Remodeling". $5,000 (total direct costs), Period Covered: 7/1/00 - 6/30/02.
71. ISU Biotechnology Council, (MNH, PI), "Symposium on Molecular Targets for Dietary Intervention in Disease". $5,000 (total direct costs), Period Covered: 7/1/01 - 6/30/02.
72. ISU Biotechnology Council, “Symposium on Stem Cell Plasticity”. $3,500, 11/1/02 - 10/30/04
73. ISU Biotechnology Council, (MNH, PI), “Conference on Plant Proteomes, Structure, Changes, Interactions and Functions” (June 20-23, 2002\)” $3,500, 11/1/02 - 10/30/03
74. ISU Biotechnology Council (Nikolau, PI, MNH & Oliver co-PIs) “PSI symposium on Metabolomics” $5,000, 11/1/03 - 10/30/04
75. ISU Biotechnology Council, (Becraft, PI), “Symposium on Plant Receptor Signaling” June 22-25, 2006)” $5,000, 11/1/05 - 10/30/06
76. ISU Biotechnology Council (MNH, PI) “Symposium on Lipocalins in Health and Disease”. September 14-17, 2006, $5,000, 11/1/05 - 10/30/06
77. ISU Biotechnology Council (Jannink, PI) Epistatis, Predicting Phenotypes and Evolutionary Trajectories May 31-June 3, 2007, $3,000, 11/1/06 - 10/30/07
78. ISU Biotechnology Council (MNH, PI) “Symposium on Senescence, Aging and Cancer”. July 26-29, 2007, $5,000, 11/1/06 - 10/30/07
79. ISU Biotechnology Council (MNH, PI) “Symposium on Extracellular and Membrane Proteases in Cell Signaling, Sept 18-21, 2008, $5,000, 11/1/07-10/30/08

b. National Sources

80. National Institutes of Health R13 CA55093, (MNH, PI), "Symposium on Transforming growth factor and related proteins in development", $4,000 (total direct costs). Period covered: 9/1/91-8/31/92
81. National Institutes of Health R13 HD30771, (MNH, PI), "Symposium on Fibroblast Growth factors and their Receptors in Development and Disease", $11,640 (total direct costs). Period covered: 9/1/93-8/31/94
82. National Institutes of Health R13 HD33409, (MNH, PI), "Symposium on the Biology and Action of CSF-1", $9,000 (total direct costs). Period covered: 9/1/95-8/31/96
83. National Institutes of Health, R13 AI/CA39510, (MNH, PI), "Symposium on Interferon Signaling", $3,000 (total direct costs). Period covered: 6/1/96-5/30/97
84. National Institutes of Health, R13 DK 53151, (MNH, PI), "Symposium on Modes of EGF Receptor Signaling", $12,000 (total direct costs). Period covered: 6/1/97-5/30/98
85. National Institutes of Health, (MNH, PI) 1R13-CA91998-01 “A Symposium Series in Growth Factors and Signal Transduction” 7/01/00 - 6/30/04
86. National Science Foundation IOS 022075 “Conference on Plant Proteomes: Structures, Changes, Interactions and Functions (June 20-23, 2002)”. (MNH, PI) Total: $16,000, Period: 5/1/02-4/30/03
87. United States Department of Agriculture, Plant Biochemistry (MNH, PI) “Conference on Plant Proteomes: Structures, Changes, Interactions and Functions (June 20-23, 2002)”. Total: $4,000, Period: 5/1/02-4/30/03

88. United States Department of Agriculture 2003-00936 (T Peterson, PI) Symposium on "Transposition, Recombination and Applications to Plant Genomics" $5,000, 06/01/03-5/30/04
89. National Science Foundation IOS 0333492 (T Peterson, PI; MNH and Voytas, co-PIs) Plant Sciences Institute Symposium on "Transposition, Recombination and Applications to Plant Genomics", $12,000, 06/01/03-5/30/04
90. Department of Energy (Nikolau, PI, MNH & Oliver co-PIs) "PSI symposium on Metabolomics" Total: $8,000, Period: 5/01/2004-4/30/2005
91. National Science Foundation MCB 0425267 (Nikolau, PI, MNH & Oliver co-PIs) "PSI symposium on Metabolomics" Total: $27,225, Period: 5/01/2004-4/30/2005
92. United States Department of Agriculture (Nikolau, PI, MNH & Oliver co-PIs) "PSI symposium on Metabolomics" $7,200, Period: 5/01/2004-4/30/2005
93. National Science Foundation IOS 0518902 (D. Hannapel, PI; MNH, Schnable and Howell, co-PIs) Plant Sciences Institute Symposium on "Meristems", $10,000, 06/01/05-05/31/06
94. United States Department of Agriculture, Plant Biochemistry (D. Hannapel, PI; MNH, Schnable and Howell, co-PIs) Plant Sciences Institute Symposium on "Meristems", $9,000, 7/15/2005-7/14/2006
95. National Science Foundation IOS 0540044 (C. Tuggle, PI; MNH, Dekker, co-PIs) symposium on "Integration of Structural and Functional Genomics", $10,900, 09/01/05-08/31/06
96. National Science Foundation IOS 0614938 (P. Becraft, PI; MNH, co-PI) "Symposium on Plant Receptor Signaling", $15,000, 09/02/06-08/31/07
97. National Institutes of Health R13-CA91998 , (MNH, PI) symposium on "Senescence, Aging and Cancer", Period: 7/1/2007-6/30/2008, $3,500
98. The Ellison Medical Foundation, (PI, M Nilsen-Hamilton), "Symposium on Senescence, Aging and Cancer", Period: 7/1/2007-6/30/2008, Total: $10,000, 5% effort.
99. National Institutes of Health R13 CA135997, (MNH, PI) "Symposium on Extracellular and Membrane Proteases in Cell Signaling", Period: 9/1/2008-8/31/2009, $15,000
100. National Science Foundation IOS 0919135 (C. Tuggle, PI; MNH, co-PI) "Symposium on Systems Biology: Integrative, Comparative, and Multi-Scale Modeling", $15,000, 06/01/09-05/31/10
101. USDA 2009-35205-05215 (D. Dobbs, PI; C. Tuggle and MNH, co-PIs) "Symposium on Systems Biology: Integrative, Comparative, and Multi-Scale Modeling", $10,000, 1/1/09 to 12/31/2009
102. National Science Foundation MCB-111243 (Allen Miller, PI; MNH, co-PI) "Symposium on RNA in Motion", $7,000, 9/1/2010-8/31/2011

Small Business Grants written by MNH

103. National Institutes of Health, (RT Hamilton, PI; MNH, co-PI) STTR lR41AI49689 "Targeted revealed aptamer probes for nucleic acid detection". Total direct costs: $99,650, Period covered 9/15/01-8/31/02
104. Department of Energy (RT Hamilton, PI; MNH coPI with George Kraus, University subcontract) SBIR DE-FG02-02ER83510 "Aptamer-based analysis and extraction of sitosterol and related compounds" $100,000, Period 7/22/02-4/21/03
105. National Institutes of Health, SBIR, 1R43CA100977, (RT Hamilton, PI; MNH co-PI), "Smart probes for imaging cancer", $214,000, 5/1/03-4/30/05
106. National Institutes of Health, SBIR, 1R43 CA102816, (RT Hamilton, PI; MNH co-PI), "Anti-PSCA allosteric CLAMPs", $396,774, 8/1/03 to 7/31/05

107. National Institutes of Health, SBIR contract, N43CM37018, (RT Hamilton, PI; MNH co-PI), "Allosteric aptamers to the Myc oncogene", $100,000, 9/1/03-2/29/04
108. National Institutes of Health, STTR, 1R41CA110222, (RT Hamilton, PI; MNH co-PI), "Aptamers for Imaging and Therapy", phase I, $100,000, 9/1/04-8/31/05
109. National Institutes of Health, STTR, 4R42CA110222, (RT Hamilton, PI; MNH co-PI), "Aptamers for Imaging and Therapy", phase II, $1,482,758, 9/1/05-8/31/10
110. National Institutes of Health, SBIR, 1R43DK098031 (M Ilgu, PI, MNH, co-PI). “Early diagnosis of acute kidney injury by aptasensors”, phase I, $150,000, 9/1/13-8/31/15
111. National Institutes of Health, SBIR, 1R43AI118139 (R Hamilton, PI, MNH, co-PI, P Shrotriya, W. Maury, University subcontractors). “Detecting Ebola Virus Infections”, phase I, $682,757 total ($387,970 direct) 4/1/15 - 3/31/17.
112. National Institutes of Health, SBIR, 2R44DK098031 (M. Ilgu, PI, MNH, co-PI, P Shrotriya, University subcontractor). “Early diagnosis of acute kidney injury by aptasensors”, phase II, $989,954 total ($745,232 direct) 9/14/15 - 8/31/18.
113. United States Department of Agriculture, SBIR, 2019-00454 (S. Banerjee, PI, MNH, co-PI, P Shrotriya, University subcontractor). “Aptasensors for rapid on-site Listeria monitoring” phase I, $100,000 total ($75,701 direct) 9/1/19 - 8/31/20.
114. National Institutes of Health, STTR, 1R41AI147853, (S. Banerjee, PI; MNH co-PI, P Shrotriya, University subcontractor), "An aptasensor to distinguish Dengue virus from Zika virus", phase I, $150,000 (direct), 1/1/20-12/31/21

PUBLICATIONS

Peer-reviewed publications:

1. Hamilton, M., and Edelstein, S. J. (1972) Cat hemoglobin: pH dependent cooperativity of oxygen binding. Science, **8**:1104-1106 [PMID: 5086838]
2. Hamilton, M., and Edelstein, S.J. (1974) Cat hemoglobin: pH dependence of cooperativity of ligand binding. J. Biol. Chem., **249**:1323-1329 [PMID: 4817749]
3. Hamilton RT, and Nilsen-Hamilton M (1976) Sodium-stimulated α-aminoisobutyric acid transport by membrane vesicles from Simian virus-transformed mouse cells. Proc. Natl. Acad. Sci. USA, **73**:1907-1911 [PMID: 180527]
4. Nilsen-Hamilton M, and Hamilton RT (1976) Uptake of α-aminoisobutyric acid and phosphate by membrane vesicles derived from growing and quiescent fibroblasts. J. Cell. Physiol., **89**:795-800 [PMID:188850]
5. Watson J, Nilsen-Hamilton M, and Hamilton RT (1976) The subcellular distribution of adenylate and guanylate cyclases in murine lymphoid cells. Biochemistry, **15**:1527-1534 [PMID: 4090]
6. Shier WT, Baldwin JH, Nilsen-Hamilton M, Hamilton RT, and Thanassi NM (1976) Regulation of guanylate and adenylate cyclase activities by lysolecithin. Proc. Natl. Acad. Sci. USA, **73**:1586-1590 [PMID: 5726]
7. Trowbridge IS, Nilsen-Hamilton M, Hamilton RT and Bevan MJ (1977) Preliminary characterization of two thymus-dependent xenoantigens from mouse lymphocytes. Biochem. J., **163**:211-217 [PMID: 68776]
8. Hamilton RT and Nilsen-Hamilton M (1978) Transport of phosphate in membrane vesicles from mouse fibroblasts transformed by Simian virus 40. J. Biol. Chem., **253**:8247-8256 [PMID: 213430]
9. Allen WR, Nilsen-Hamilton M, Hamilton RT and Gospodarowicz D (1979) Serum-dependent regulation of α-aminoisobutyric acid uptake in bovine granulosa cells. J. Cell. Physiol., **98**:491-502 [PMID: 438295]

10. Nilsen-Hamilton M and Hamilton RT (1979) Fibroblast growth factor causes an early increase in phosphorylation of a membrane protein in quiescent 3T3 cells. Nature, **279**:444-446 [PMID: 16068189]
11. Nilsen-Hamilton M and Hamilton RT (1979) Inhibition of α-aminoisobutyric acid transport in membrane vesicles from mouse fibroblasts after phosphorylation by cAMP-dependent protein kinase. Biochim. Biophys. Acta, **588**:322-331 [PMID: 228760]
12. Nilsen-Hamilton M, Shapiro JM, Massoglia SL and Hamilton RT (1980) Selective stimulation by mitogens of incorporation of ^{35}S-methionine into a family of proteins released into the medium by 3T3 cells. Cell, **20**:19-28 [PMID: 6966975]
13. Hamilton RT and Nilsen-Hamilton M (1980) Conversion of monensin from an ionophore to an inhibitor of Na^+ uptake by SV3T3 membrane vesicles as a function of Na^+ concentration. Biochem. Biophys. Res. Commun., **95**:140-147 [PMID: 6251800]
14. Allen WR, Nilsen-Hamilton M and Hamilton RT (1981) Insulin and growth factors stimulate rapid post-translational changes in glucose transport in ovarian granulosa cells. J. Cell. Physiol., **108**:15-24 [PMID: 6455440]
15. Nilsen-Hamilton M, Hamilton RT, Allen WR and Massoglia SL (1981) Stimulation of the release of two glycoproteins from mouse 3T3 cells by growth factors and by agents that increase intralysosomal pH. Biochem. Biophys. Res. Commun., **101**:411-417 [PMID: 7053088]
16. Nilsen-Hamilton M, Allen WR and Hamilton RT (1981) Rapid and efficient method for analyzing phosphorylation of the S6 ribosomal protein in ^{32}P-labeled, tissue culture cells. Analytical Biochem., **115**:438-449 [PMID: 6272607]
17. Otto A, Nilsen-Hamilton M, Boss BD, Ulrich M-O and Jimenez de Asua L (1982) Prostaglandins E1 and E2 interact with prostaglandin F2 to regulate the initiation of DNA replication and cell division in Swiss 3T3 cells. Proc. Natl. Acad. Sci. USA, **79**:4992-4996 [PMID: 6289327]
18. Nilsen-Hamilton M, Hamilton RT and Adams GA (1982) Rapid selective stimulation by growth factors of the incorporation of [^{35}S]methionine into a glycoprotein and five superinducible proteins by Balb/c 3T3 cells. Biochem. Biophys. Res. Commun., **108**:158-166 [PMID: 6216885]
19. Nilsen-Hamilton M, Hamilton RT, Allen WR and Potter-Perigo S (1982) Synergistic stimulation of S6 ribosomal protein phosphorylation and DNA synthesis by epidermal growth factor and insulin in quiescent 3T3 cells. Cell, **31**:237-242 [PMID: 6760986]
20. Nilsen-Hamilton M and Hamilton RT (1983) Secreted proteins induced by growth factors and inhibitors. Cell Biol. Int'l. Reports, **7**:527-528 [PMID: 6751570]
21. Nilsen-Hamilton M and Holley RW (1983) Rapid, selective effects by a growth inhibitor and epidermal growth factor on the incorporation of [^{32}S]methionine into proteins secreted by African green monkey (BSC-1) cells. Proc. Nat'l. Acad. Sci., **80**:5636-5640 [PMID: 6604275]
22. Hamilton RT, Nilsen-Hamilton M and Adams G (1985) Superinduction by cycloheximide of mitogen-induced secreted proteins produced by Balb/c 3T3 cells. J. Cell Physiol., **123**:201-208 [PMID: 2579961]
23. Parfett CLJ, Hamilton RT, Howell BW, Edwards DR, Nilsen-Hamilton M and Denhardt DT (1985) Characterization of a cDNA clone encoding murine Mitogen-Regulated Protein: Regulation of mRNA levels in mortal and immortal cell lines. Mol. Cell Biol., **5**:3289-3292 [PMID: 3841805]
24. Denhardt DT, Hamilton RT, Parfett CLJ, Edwards DR, St. Pierre R, Waterhouse P and Nilsen-Hamilton M (1986) The major excreted protein (MEP) of transformed murine fibroblasts is closely related to thiol-dependent cathepsins. Cancer Research, **46**:4590-4593 [PMID: 3755373]

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26. Fienup VK, Jeng M-H, Hamilton RT, and Nilsen-Hamilton M (1986) The relationship between DNA synthesis and the induction of two secreted glycoproteins by 12-O-tetra -decanoylphorbol-13-acetate in 3T3 cells and in phorbol ester nonresponsive 3T3 variants. J. Cell Physiol., **129:**151-158 [PMID: 3095338]
27. Nilsen-Hamilton M, and Hamilton RT (1987) Detection of proteins induced by growth regulators. Methods in Enzymology, **147:**427-444 [PMID: 3312945]
28. Nilsen-Hamilton M, Hamilton RT, and Alvarez-Azaustre E (1987) A relationship between mitogen regulated protein (MRP) and proliferin, a member of the prolactin/growth hormone family. Gene, **51**:161-168 [PMID: 3596242]
29. Thalacker FW, and Nilsen-Hamilton M (1987) Specific induction of secreted proteins by transforming growth factor-ß and 12-O-tetradecanoylphorbol-13-acetate. Relationship with an inhibitor of plasminogen activator. J. Biol. Chem., **262**:2283- 2290 [PMID: 2434480]
30. Nilsen-Hamilton M, Jang Y-J, Alvarez-Azaustre E, and Hamilton RT (1988) Regulation of the production of a prolactin-like protein (MRP/PLF) in 3T3 cells and in the mouse placenta. Molecular and Cellular Endocrinology, **56:**179-190 [PMID: 3259519]
31. Trabandt A, Aicher WK, Gay RE, Sukhatme VP, Nilsen-Hamilton M, Hamilton RT, McGhee JR, Fassbender HG and Gay S (1990) Expression of the collagenolytic and ras-induced cysteine protease cathepsin L and proliferation-associated oncogenes in synovial cells of MRL/1 mice and patients with rheumatoid arthritis. Matrix **10:**349-361 [PMID: 2084514]
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34. Davis TR, Tabatabai L, Bruns K, Hamilton RT and Nilsen-Hamilton M (1991) Growth Factors Induce 3T3 Fibroblasts to Synthesize and Secrete a Cyclophilin-related protein and ß$_2$microglobulin. Biochimica Biophysica Acta **1095**:145-152 [PMID: 1932134]
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36. Becker B, Nilsen-Hamilton M, Harkins K and Olson JA (1994) Use of Magnesium Ions to Increase the Stability and Decrease the Aggregation of Nuclear Preparations of HL-60 Cells. Biotechniques, **17**:630-632 [PMID: 7833012]
37. Nelson JT, Rosenzweig N and Nilsen-Hamilton M (1995) Characterization of the Mitogen-Regulated Protein (MRP; Proliferin) Receptor. Endocrinology, **136:**283-288 [PMID: 7828542]
38. Chuang T-H, Hamilton RT and Nilsen-Hamilton M (1995) Cloning of mink plasminogen activator inhibitor type 1 messenger RNA; an mRNA with a short half life. Gene **162**:303-308 [PMID: 7557448]
39. Liu Q and Nilsen-Hamilton M (1995) Identification of a new acute phase protein. J. Biol. Chem. **270**:22565-22570 [PMID: 7545679]

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42. Mohideen M-A PC, Hruska-Hageman A, and Nilsen-Hamilton M (1999) A Unique bFGF-Responsive Transcriptional Element. Gene, **237:**81-90 [PMID: 10524239]
43. Fang Y, Lepont PM, Fassett J, Ford SP, Adnan Mubaidin, Hamilton RT, and Nilsen-Hamilton M (1999) Signaling Between the Placenta and the Uterus Involving the Mitogen-Regulated Protein/Proliferins. Endocrinology, **140**:5239-5249 [PMID: 10537154]
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45. Levine HA, Sleeman BD, and Nilsen-Hamilton M (2000) A Mathematical Model for the Roles of Pericytes and Macrophages in the Onset of Angiogenesis: I. The Role of Protease Inhibitors in Preventing Angiogenesis. Mathematical Biosciences, **168:**77-115 [PMID: 11121821]
46. Levine HA, Sleeman BD, and Nilsen-Hamilton M (2001) Mathematical Modeling of the Onset of Capillary Formation Initiating Angiogenesis. J Mathematical Biology, **42:**195-238 [PMID: 11315313]
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48. Levine HA, Pamuk S, Sleeman BD, Nilsen-Hamilton M (2001) Mathematical modeling of capillary formation and development in tumor angiogenesis: Penetration into the stroma. Bulletin of Mathematical Biology, **63:**801-863 [PMID: 11565406] [By 2004 this paper was listed as one of the top 10 papers cited from this journal since 1999; http://www.smb.org/publications/top_ten.shtml].
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52. Levine HA, Tucker A and Nilsen-Hamilton M (2002) A Mathematical Model for the Role of Cell Signal Transduction in the Initiation and Inhibition of Angiogenesis, Growth Factors **20**:155-176 [PMID:12708793]
53. Liu QS, Nilsen-Hamilton M, Xiong SD (2003) Synergistic regulation of the acute phase protein SIP24/24p3 by glucocorticoid and pro-inflammatory cytokines, Sheng Li Xue Bao. **55**:525-9 [PMID: 4566398]
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56. Peters J, Boushaba K and Nilsen-Hamilton M (2005) A Mathematical Model for Fibroblast Growth Factor Competition Based on Enzyme Kinetics. Mathematical Biosciences and

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62. Levine HA and Nilsen-Hamilton M (2007) A Mathematical Analysis of SELEX. Computational Biology and Chemistry **31:**11–35 [PMID: 17218151]
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57. Awad AM, Cong X, Qu L, Song X, and Nilsen-Hamilton M (2006) The effectiveness of tiled microarrays for identifying antisense nucleic acids to target an mRNA molecule. RNA Society meeting
58. Wang T, Patrin L, Banerjee J, Bendickson L, Nilsen-Hamilton M (2006) Developing malachite green aptamer multimers as RNA tags. RNA Society meeting
59. Song X, Chuang T-H, Bendickson L, Nilsen-Hamilton M (2006) Synergistic regulation of plasminogen activator inhibitor type 1 gene expression by transforming growth factorβ and epidermal growth factor through regulation of transcription and RNA degradation. RNA Society meeting
60. Cong X, Banerjee J and Nilsen-Hamilton M (2006) Development of a malachite green RNA trap. RNA Society meeting
61. Zhao W and Nilsen-Hamilton M (2006) Lcn2 expression in the mouse mammary gland. GFST conference on “Lipocalins in Health and Disease”
62. Liu Y, Zhai L, and Nilsen-Hamilton M (2006) “Lcn2; Potential Anti-inflammatory Role in the Lung” GFST conference on “Lipocalins in Health and Disease”
63. Prozorov T, Prozorov R, Mallapragada SK, Narasimhan B, and Nilsen-Hamilton M. (2007) Protein-Templated Synthesis of Uniform Magnetite Nanocrystals. ACS National Meeting.
64. Wang T, Banerjee J, Bendickson L, Hargrove M, and Nilsen-Hamilton M. (2007) A Kinetic And Structural Study Of Multiple Tandem Malachite Green Aptamers. RNA 2007, 12th annual meeting of the RNA society
65. Sachan A, Cong X, Yan , and Nilsen-Hamilton M (2007) Targeted reversibly attenuated probes: In-vivo imaging with intracellular RNA probes. Annual meeting of the Toxicology Society. *This poster won first prize in its division*.
66. Wang T, Nilsen-Hamilton M (2008) Controlling a Chemical Reaction with an Aptamer. Annual ASBMB meeting
67. Song X, Chuang T-H , Bendickson L, Nilsen-Hamilton M (2008) Synergistic regulation of

plasminogen activator inhibitor type 1 gene expression by transforming growth factorβ and epidermal growth factor through regulation of transcription and RNA degradation. Keystone symposia

68. Shin I, Ilgu M, Haarberg HE, and Nilsen-Hamilton M (2008) IMAGEtags (Intracellular Multiaptamer Genetic tags) for real-time imaging of gene expression. 13th annual meeting of the RNA society, Abstract #12590
69. Pappas AL, Culver GM, and Nilsen-Hamilton M (2008) Aptamers against the ribosomal protein S7: The development and characterization of a potentially novel class of antibiotics. RNA 2007, 13th annual meeting of the RNA society, Abstract #13021
70. Song X, Chuang T-H , Bendickson L, Nilsen-Hamilton M (2008) Synergistic regulation of plasminogen activator inhibitor type 1 gene expression by transforming growth factorβ and epidermal growth factor. GFST symposium, September
71. Lamm MH, Sknepnek R, Wang L, and Nilsen-Hamilton M (2009) Molecular dynamics study of multimerization of the Mms6 protein from Magnetospirillum magneticum strain AMB-1. American Physical Society annual meeting, March
72. Petersen L, Bendickson L, Determan A, Westgate A, Nilsen-Hamilton M, Narasimhan B (2009) Lipocalin 2 Loaded Polyanhydride Microspheres Accelerate Cell Migration. Society of Biomaterials Conference, April
73. Ilgu M, Shin I, Haarberg HE, Gupta V, Kraus G and Nilsen-Hamilton M (2009) IMAGEtags for imaging gene expression in living cells in real-time, Abstract #7117, ASBMB symposium, April, *Platform presentation. This material was also presented as a poster and won first prize for posters in its division*
74. Kang K, Nilsen-Hamilton M and Shrotriya P, (2009) Novel Differential Surface Stress Sensor for Detection of DNA Hybridization, Proceedings of the ASME 2009 Summer Bioengineering Conference (SBC2009) June 17-21 Abstract #206838
75. Petersen LK, Determan AS, Westgate C, Bendickson L, Nilsen-Hamilton M, and Narasimhan B (2009) "Polyanhydride Microspheres Encapsulating Lipocalin 2 Expedite Cell Migration" AICHE Annual Meeting, Food, Pharmaceutical & Bioengineering Division, November, ID#: 165054
76. Shin IC, Ilgu M, Haarberg HE, Gupta V, Kraus G, and Nilsen-Hamilton M (2009) IMAGEtags (Intracellular Multiaptamer Genetic tags): New method for real-time imaging promoter activity, RNA Society Meeting, Madison WI, May 26-31
77. Pappas AL, Culver GM, and Nilsen-Hamilton M (2009) RNA aptamers that exhibit a high degree of primary sequence flexibility and cooperativity in binding to rpS7, RNA Society Meeting, Madison WI, May 26-31
78. Ilgu M and Nilsen-Hamilton M (2009) Towards the development of more effective aminoglycoside-based antibiotics and anti-viral agents, RNA Society Meeting, Madison WI, May 26-31
79. Wang T, Lamm MH, Hoy JA and Nilsen-Hamilton M (2009) Global conformational changes in the malachite green aptamer suggest structural rearrangements accompany target binding; MD simulations validated experimentally, RNA Society Meeting, Madison WI, May 26-31
80. Zhai L, Marchbank T, Berger T, Playford RJ, Nilsen-Hamilton M (2009) DSS Induced Colitis and Lipocalin-2, Autumn Immunology Conference, Chicago, Nov 20-23
81. Cong X, Shin I, Sachan A, Haarberg E, Gupta V, Ilgu M, Bendickson L, Kraus G and Nilsen-Hamilton M (2009) Aptamers for real-time imaging of gene expression, Central States Chapter of the Society of Toxicology meeting, Ames, October 1-2, *This poster won first prize in its division*.

82. Wang L, Palo P, Prozorov T, Peters B, Lamm M, Vaknin D, Mallapragada SK and Nilsen-Hamilton m (2009) The Mms6 protein and its development for the formation of hybrid elastic nanomagnets. DOE Contractors Meeting Fall 2009
83. Shin I, Ilgu M, Haarberg HE, Gupta V, Kraus G, and Nilsen-Hamilton M (2010) IMAGEtag (Intracellular MultiAptamer Genetic tag) for Real-time Imaging of Gene Promoter Activity, ASBMB, Spring, Abstract # 5102, oral presentation. *[This material was also presented as a poster and won first prize for posters in its division*]
84. Zhai L, Wang T, Nilsen-Hamilton M (2010) Mouse Lipocalin-2 Aptamer: An RNA Probe for Molecular Discrimination Experimental Biology National Meeting Spring 2010, Abstract 4366
85. Song X and Nilsen-Hamilton M, EGF cooperates with TGF? to increase regulate PAI-1 expression through by a synergizing synergistic increase in transcription and stabilization of mRNA, Experimental Biology annual meeting in Anaheim CA, April 2010
86. Pappas AL, Culver GM, and Nilsen-Hamilton M (2010) Temperature-Dependent Conformational Rearrangement or Multimerization of Ribosomal Protein S7 Promote RNA binding. RNA Meetings, June 2010, Abstract #17630.
87. Ilgu M, Shin I, Nilsen-Hamilton M (2010) Small RNA-aminoglycoside interactions re-evaluated. RNA Meetings, June 2010, Abstract #17106.
88. Ilgu M, Shin I, Haarberg EH, Gupta V, Kraus GA, Marit Nilsen-Hamilton (2010) A Novel RNA-based Method for Real-time Imaging of Gene Activity via IMAGEtags (Intracellular Multiaptamer Genetic tags). RNA Meetings, June 2010, Abstract #17450.
89. Ilgu M, Boushaba K, Levine HA, Nilsen-Hamilton M (2010) Expressing RNA aptamers to increase drug efficacy. RNA Meetings, June 2010, Abstract #17551.
90. Shin I, Ilgu I, Ray J, Haarberg HE, Gupta V, Kraus GA and Nilsen-Hamilton M (2010) IMAGEtag (Intracellular MultiAptamer Genetic tag) for Real-time Imaging of Gene Promoter Activity, RNA in Motion meeting, September 2010
91. Ilgu I, Bisht N, Shin I, Lamm M and Nilsen-Hamilton M (2010) Dynamics of Aminoglycoside-small RNA Interactions, RNA in Motion meeting, September 2010
92. Wang L, Pierre Palo P, Wang W, Bu W, Feng S, Prozorov T, Liu X, Mallapragada SK, Vaknin D, Nilsen-Hamilton M (2010) Studies of the Quaternary Structure and Iron-binding Properties of a Magnetotactic Bacterial Protein that Promotes the Formation of Magnetic Nanoparticles, MTB2010, Shanghai, September 2010
93. Nilsen-Hamilton M (2010) Aptamers as cell sensors and actuators and bioinspired nanoparticle assembly, NSF ASBIT workshop, November 2010
94. Kirthi N, Shin I, Ray J, Ilgu M, Gupta V, Mengwasser J, Kraus G and Nilsen-Hamilton M (2011) Radiotracer Imaging Technologies for Plant, Microbial, and Environmental Systems; Real Time Imaging of Promoter Activity to Monitor Gene Expression, DOE investigators meeting, April 2011
95. Shin I, Ray J, Gupta V, Mengwasser J, Kraus GA and Nilsen-Hamilton M (2011) Real-time Imaging of Transcriptional Elongation, ASBMB annual meeting, April 2011. *Shin was awarded a travel grant and a poster award.*
96. Kang KH, Zhai L, Wang TJ, Nilsen-Hamilton M, Shrotriya M (2011) Microcantilever Based Aptameric Nanosensor for the Lipocalin 2 Inflammation Biomarker. NIH workhop: Cancer Detection & Diagnostics Technologies for Global Health Conference, August 21-22, 2011
97. Ray J, Shin I, Zhao M, Ilgu M, Gupta V, Beasley J, Peng L, Kraus G, Nilsen-Hamilton M (2011) Imaging gene promoter activity with intracellular multiaptamer genetic tags (IMAGEtags) in Saccharomyces cerevisiae, Cornbelt RNA meeting, September 2011
98. Zhao M, Shin I, Nilsen-Hamilton M and Peng L (2011) Multiplexed quantitative FRET

imaging with Fourier lifetime excitation-emission spectroscopy. 12th Conference on Methods and Applications of Fluorescence: Spectroscopy, Imaging and Probes, September 2011

99. Nilsen-Hamilton M, Hillier A, Bendickson L, Yeh W-H, Auwardt S, Mallapragada S, Koschny T, Soukoulis C (2011) Building Metamaterials Bottom-Up with Biological Nanotemplates. November 2011, DOE PI meeting
100. Ray J, Shin I, Zhao M, Ilgu M, Gupta V, Beasley J, Peng L, Kraus G, and Nilsen-Hamilton M (2011) Imaging promoter activity with intracellular multiaptamer genetic tags (IMAGEtags). ASBC Annual meeting, December 2011
101. Sachan A, Thompson MW, Lamm MH and Nilsen-Hamilton M (2012) 2-aminopurine modified cocaine aptamer with improved affinity for use in fluorescence based homogeneous assays to detect cocaine, 51st Annual Meeting of the Society of Toxicology, San Francisco, March 11-15 (Abstract published in the Toxicologist, Supplement to Toxicological Sciences, March 2012; Abstract # 975, page 208; www.toxicology.org/AI/Pub/Tox/2012Tox.pdf
102. Thompson MW, Sachan A, Nilsen-Hamilton M and Lamm MH (2012) Molecular simulation study of single-stranded DNA. 124th Annual Meeting of the Iowa Academy of Science, Mason City, Iowa, April 20-21. www.iacad.org/download/AnnualMeeting_Preview.pdf
103. Mallapragada S, Liu X, Wang L, Feng S, Prozorov T, Jia F, Ma X, Rawal A, Hu Y, Narasimhan B, Nilsen-Hamilton M, Schmidt-Rohr K, and Akinc M, Bioinspired Materials, (2012) Proceedings of the 7th chemical Engineering Conference for Collaborative Research in Middle Eastern Countries EMCC7, April 2012
104. Ilgu M, Yennamalli RM, Kleckler MM, Sen TZ, Lamm MH and Nilsen-Hamilton M (2012) A systematic approach to evolve aptamers with new specificities. RNA Society Annual Meeting. Abstract #22717, May 2012
105. Wang T, Lamm MH, Hoy JA, Fulton B, Mina M, and Nilsen-Hamilton M (2012) Aptamer Structure, Dynamics and Function as Investigated by Integrative Computational and Experimental Approaches. RNA Society Annual Meeting. Abstract #22532; May, 2012
106. Ilgu M, Auwardt S, Feldges R, Boushaba K, Levine HA and Nilsen-Hamilton M (2012) DRAGins: Drug Binding Aptamers for Growing Intracellular Numbers. RNA Society Annual Meeting. Abstract #23220, May, 2012 [*This poster received the Best Poster Award for outstanding research in the category (given to 1% of the category)*]
107. Shin I, Ray J, Ilgu M, Gupta V, Beasley J, Zhao M, Peng L, Kraus G, Nilsen-Hamilton M (2012) Imaging gene expression in real-time using RNA aptamers, Korean Society for Biochemistry and Molecular Biology, May 2012
108. Ray J, Shin I, Zhao M, Ilgu M, Gupta V, Beasley J, Agrawal A, Peng L, Kraus G, Nilsen-Hamilton M (2013) Imaging promoter activity to monitor gene expression using Intracellular Multiaptamer Genetic tags (IMAGEtags). ASBMB annual meeting, Boston, April 2013, Abstract Number: 5120. *(This poster received the Best Poster Award for outstanding research in the category Chemical and Systems Biology (given to 0.3% of the category).*
109. James S, Blecha J, Beasley J, Kraus G, Nilsen-Hamilton M, VanBrocklin H (2013) One pot fluorine-18 Horner Wadsworth Emmons reaction as a platform for labelling biomolecules. J Label. Comp. Radiopharm. Abstract #:S175
110. Mallapragada S, Akinc M, Bazylinski D, Vaknin D, Nilsen-Hamilton M, Travesset A, Lamm M, Prozorov R, Prozorov T, Klaus Schmidt-Rohr (2013) " Bioinspired Materials" Contractors meeting presentation, Washington DC, July 2013
111. Ilgu M, I Fulton BD, Yennamalli RM, Kleckler MM, Wang T, Lamm MH, Sen TZ and

Nilsen-Hamilton M (2013) "Ligand selectivity of the neomycin RNA aptamer is highly influenced by its Ionic surroundings", RNA Society annual meeting, June 10-15, Davos, Switzerland

112. Ray J, Shin I, Gupta V, Beasley J, Bendickson L, Kraus G and Nilsen-Hamilton M (2013) "IMAGEtags for imaging Pol II activity in real time with RNA reporters", RNA Society annual meeting, June 10-15, Davos, Switzerland
113. Ilgu M, Yennamalli RM, Fulton BD, Lamm MH, Sen TZ and Nilsen-Hamilton M (2014) An Adaptable Pentaloop Defines a Robust Neomycin-B RNA Aptamer with Conditional Ligand Bound Structures, RNA Society annual meeting, poster #0261 June 3-8, Quebec City, Canada
114. Shubham S, Lennemann N, Maury W, Przytycka T, Hoinka J, Nilsen-Hamilton M (2014) Selection of a functional RNA antiviral aptamer against Ebola virus glycoprotein, RNA Society annual meeting, poster #704 June 3-8, Quebec City, Canada
115. Khounlo R, Igu M, Raman S, Lamm M, and Nilsen-Hamilton M (2014) Cooperation of Internal Bulge and Hairpin Loop upon Ligand Binding to Neomycin-B RNA Aptamer, Stupka Symposium, ISU
116. Zeller M, Shin I, Bendickson L, Nilsen-Hamilton M (2014) Cell proliferation and migration promoted by mLcn2, an acute phase response protein, Stupka Symposium, ISU
117. Wang W, Zhang H, Feng S, San Emeterio J, Kuzmenko I, Nilsen-Hamilton M, Mallapragada S, and Vaknin D (2015) Observation of Iron Specific Interaction with a Charge Neutral Phospholipid. American Physical Society Annual meeting, Mar.2-6 in San Antonio, TX
118. Mitra D, Buchko R, Ray J, and Nilsen-Hamilton M (2015) Detecting Cells in Time Varying Intensity Images in Confocal Microscopy For Gene Expression Studies in Living Cells (2015) SPIE Medical Imaging Conference, Feb 21-26, Orlando, FL
119. Anisuzzaman S, Geraskin IM, Ilgu M, Bendickson L, Kraus GA, Nilsen-Hamilton M (2017) Investigations of the Interactions of Fluorinated Super-ligands with the Broccoli and Spinach2 Aptamers. Aptamer Society Annual Meeting, Oxford, England, April 11-12
120. Ilgu M, Khounlo M, Yan S, Lamm MH, Nilsen-Hamilton M (2017) Refinement of MC-SYM structural predictions for an RNA aptamer with additional base stacking calculations and fluorescence of 2-aminopurine-substituted aptamers. Aptamer Society Annual Meeting, Oxford, England, April 11-12
121. Auwardt SL, Seo Y-J, Ilgu M, Ray J, Feldges RR, Shubham S, Bendickson L, Levine HA, and Nilsen-Hamilton M (2018) DRAGINs: Aptamer-enabled uptake of small molecule ligands. Aptamer Society Meeting , Oxford, UK, April 11-12.
122. Ilgu M, Khounlo R, Yan S, Lamm MH, and Nilsen-Hamilton M (2018) Refinement of MC-SYM structural predictions for an RNA aptamer with additional base stacking calculations and fluorescence of 2-aminopurine-substituted aptamers. Aptamer Society Meeting, Oxford, UK, April 11-12.
123. Gosai A, Yeah BSH, Nilsen-Hamilton M and Shrotriya P, Impedance Change Measurement for an Aptamer Functionalized Nanoporous Membrane on Binding with Protein: Label Free Thrombin Detection, Biosensors 2018, Miami, FL June 12-15.
124. Londono-Calderon A, Bendickson L, Palo PE, Nilsen-Hamilton M, Mallapragada M and Prozorov T, In-Situ Nucleation, Growth and Evolution of Au nanoparticles during Metallization of DNA Origami visualized with HAADF-STEM, Microscopy & Microanalysis 2018, Baltimore, MD, Aug 5-9.
125. Anisuzzaman S, Geraskin I, Ilgu M, Bendickson L, Kraus G, and Nilsen-Hamilton M (2018) Ligand-driven Changes in Spinach2 and Broccoli Aptamer Affinities, Abstract

0585, RNA Society Annual Meeting, San Francisco, CA, May 29-Jun 3

126. Yan S, Ilgu M, Nilsen-Hamilton M and Lamm MH (2018) Computational Modeling of RNA Aptamers: Structure Prediction of the Ligand-free State.18th AIChE Annual Meeting, October 29.
127. Banerjee S, Gosai A, Devarakonda S, Shubham S, Lennemann N, Hoinka J, Dillard J, Ruggio N, Przytycka TM, Maury W, Shrotriya P and Nilsen-Hamilton M (2019) 10th annual All-Iowa Virology Symposium, March 8-9
128. Hossen MM, Bendickson L, E Palo P, Nilsen-Hamilton M, Hillier AC (2019) Fabrication of Metamaterial Building Blocks with Selective Photoreduction of Metal Ions Followed By Electroless Plating Onto DNA Origami Templates. ECS Meeting Abstracts, MA2019-01, 1895-1895, doi:10.1149/ma2019-01/38/1895.
129. Yan S, Ilgu M, Nilsen-Hamilton M and Lamm MH (2019) "Base Stacking in the Loop of an RNA Aptamer: Investigation of the Geometry and Energetics with Molecular Dynamics Simulation", Midwest Thermodynamics and Statistical Mechanics Conference, June 2-4
130. Anisuzzaman S, Geraskin IM, Ilgu M, Bendickson L, Kraus GA, and Nilsen-Hamilton M (2019) Poly-fluorophenyl moieties promote a local structural rearrangement in the Spinach and Broccoli aptamers that increases ligand affinities. RNA Cornbelt Conference, Oct 18-19, 2019
131. Nilsen-Hamilton M, Lamm MH, Kraus GA, Ilgu M, Yan S, Wang T, Anisuzzaman S and Geraskin IM (2020) Aptamer malleability: Understanding aptamer structure and how it changes with ligand binding, Aptamer Society Symposium, September 3-4, 2020
132. Jiang N, Banerjee S, Shrotriya P, Nilsen-Hamilton M, (2020) Aptasensor based on Specific Binding induced Impedance Changes in Nanoporous Anodized Alumina Membranes, SPIE (International Society for Optics and Photonics)
133. Jiang N, Banerjee S, Shrotriya S, Nilsen-Hamilton M (2021) Aptasensor for Homoserine Lactone Detection based on Selectively Binding Induced Impedance Changes Using Nano-Porous Anodized Alumina Membrane as Sensing Platform, Biosensors 2020/2021, The 31st Anniversary World Congress on Biosensors, Abstract #1634
134. Islam MM, Hossen MM, Palo PE, Bendickson L, Nilsen-Hamilton M, Koschny T and Hillier AC (2021) Direct Detection of Optical Resonance Modes in Meta-Atoms Fabricated By Metallization of DNA Origami Templates, AIChE Annual Meeting (Materials Engineering and Sciences Division) ID: 629815DNA aptamers for early detection of Ebola virus
135. Banerjee B, Hoinka J, Gosai A, Zhu Z, Devarakonda S, Geekiyanage C, Shubham S, Lennemann N, Dillard J, Ruggio N, Przytycka TM, Maury W, Shrotriya P and Nilsen Hamilton M, Experimental Biology 2021, April 27-30.
136. A Portable Microcontroller Based Aptasensor for in-Vitro Amodiaquine Sensing. Poster 160324, 241st ECS Annual Meeting (May 29 - June 2, 2022)
137. Anisuzzaman S, Banerjee S, Jiang N, Shrotriya P and Nilsen-Hamilton M (2022) Selection and development of aptamers for pyoverdine. ASBMB Annual Meeting/Experimental Biology April 2022. Abstract# L7887 DOI: https://doi.org/10.1096/fasebj.2022.36.S1.L7887
138. Jiang N, Roghair Stroud M, Banerjee S, Vang D, Anisuzzaman S, Ilgu M, Shrotriya P, Nilsen-Hamilton and Halverson L (2022) ASBMB Annual Meeting/Experimental Biology April 2022. Abstract#L8025
139. De Penning S, Murphy M, Nilsen-Hamilton M, Kingston T, and Shrotriya P (2023) Optimization of Aptamer Immobilization on Biosensor Surfaces" IBE 2023 Conference, April 2023

LEADERSHIP/ ADMINISTRATIVE ACTIVITIES

Chair, Molecular, Cellular, and Developmental Biology (MCDB) Program (1986-1991):

The 5.75 years as Chair of the MCDB interdepartmental graduate program were marked by the following achievements:

- Increased the base operating and seminar budget from $3,200 to $20,000 and the assistantship budget from $20,000 to $100,000 per year. As well, the original quarter-time secretarial position was increased to a full-time position and the program was assigned its own office complex.
- Initiated the first interdisciplinary 6-month rotation system for graduate students at ISU and also established a new organizational paradigm for interdepartmental programs at ISU. The new organization involved a cooperative arrangement between departments and programs in recruiting and admitting students and has since been adopted by all ISU interdisciplinary programs in the life sciences.
- A seminar series with 6-8 well-known outside speakers each semester.
- Initiated a symposium series in which each symposium included about 10-12 speakers and lasted 4 days. These symposia were initially called the MCDB/ISU Symposium series and later the GFST conferences. The symposium series which started in 1986 continued to 2005 as an annual event. The conferences were attended by an international audience and provided the ISU community with a variety of opportunities for interaction with a number of the world's best-known scientists. They also provide ISU with world-wide visibility. Funding for the series come from competitive grants from federal and local sources and from registration fees.
- Instituted an annual "Life Sciences Symposium which was a joint recruiting activity of 20-22 cooperating departments and graduate programs. The symposium had three plenary speakers invited from outside the university and 10-12 other speakers from ISU who gave 30 minute talks on their research subjects. There was a poster session (usually about 100 posters) and hands-on laboratory workshops. In the 1992 symposium there were 15 workshops taken by a total of 194 attendees. There was also a trade show which helped to support the symposium. Undergraduates came from all of the surrounding states and from as far as California. Faculty also came from colleges within driving distances of as much as 10h and brought groups of students with them. This provided a recruitment opportunity for all participating departments. About 50% of the students that entered the MCDB graduate program over the period that we had the Life Sciences Symposium had attended the symposium.
- Started a Methods Seminar series in which faculty presented a formal discussion of a technique that they were using regularly. A "manual" (SOP) that was prepared by the speaker was distributed at the seminar. These manuals were also available after the seminar through the MCDB office to anyone who wished to copy them. It helped people at the university contact the local experts who could help them develop a technology
- Developed new recruiting tools such as a calendar for the program that was circulated to universities across the county as a means of increasing the visibility of the ISU MCDB Program.

Chair, Department of Biochemistry and Biophysics (1995-2000)

My tenure as chair of the department lasted five years and 8 months. Over that period I accomplished the following goals with the considerable help and support of the BBMB faculty and staff:

- Hired six excellent young faculty members: Parag Chitnis, Amy Andreotti, Mark Hargrove, Andy Norris, Gloria Culver and Yeon-Kyun Shin
- Rebuilt the department's Biophysics Program starting with the negotiation of startup funds from the Deans to hire an NMR spectroscopist to manage the NMR facility followed by the hiring of three new biophysics program members, which expanded the group to a total of four members. Biophysics is now the strongest unit in our department.
- Prepared the documents for tenure of one faculty member and for promotion of four others. All nominations were successful.
- Started an Awards Committee to promote our faculty for awards. The committee nominations for awards resulted in two University professorships, one Distinguished professorship, two Research Excellence Awards, one Teaching Award, and two Advising Awards at the University and College levels.
- Instituted a monthly informal faculty seminar program.
- Instituted a Teaching Development Committee to provide faculty with an internal group of people who have the responsibility of helping individuals develop their teaching skills.
- Initiated a Professional Development Day for undergraduate and graduate students to meet and hear from individuals in specific professions about the preparation requirements and the daily activities in the profession.
- External grant awards to the faculty were increased by about 50%
- Instituted a rotation program for graduate students
- Instituted a yearly 1-day symposium to provide our graduate students with an opportunity to present to a broader audience and to provide a means of developing "pipeline" contacts with college faculty in the Midwest.
- Increased our competitiveness for graduate students by altering the policy on payment of tuition. Instituted a departmental policy to pay tuition of our graduate students, convinced the institution to change a long-standing policy that did not allow grants to pay tuition, and helped to change the institutional attitude towards payment of graduate student tuition.
- Successfully negotiated a change in name for the Department from Biochemistry and Biophysics to Biochemistry, Biophysics and Molecular Biology.
- Initiated a Graduate Student Recruiting Weekend that occurred each spring semester.
- Initiated a symposium series in Plant Biochemistry and Molecular Biology that was converted to the Plant Sciences Institute Symposia in its second year. The annual series, launched in 1999, was based on the earlier initiated GFST symposia and continues to the present time.