CURRICULUM VITAE

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http://curca.buffalo.edu/students/research-opps.php?rid=42&title=Issues+in+Metal+Homeostasis
http://medicine.buffalo.edu/content/medicine/faculty/profile.html?ubit=mgarrick

Place of Birth: Newport News, Virginia

Marital Status: Married

Education:

Johns Hopkins University
Biology B.A. - 1959
Johns Hopkins University
Biology Ph.D. - 1963

Professional Experience:

Postdoctoral Research fellow, Division of Medical Genetics, Johns Hopkins Hospital, 1963-64.

Assistant Professor of Biology, McCoy College, Johns Hopkins University, 1963-64.

Assistant Professor of Biology, University of Virginia, 1964-70.

Research Associate, Biochemical Genetics Division, Department of Pediatrics, State University of New York at Buffalo, 1970-77.

Research Assistant Professor of Pediatrics, State University of New York at Buffalo, 1970-76.

Research Associate Professor of Pediatrics, State University of New York at Buffalo, 1976-2007.

Professor of Pediatrics (Health Sciences Volunteer), State University of New York at Buffalo, 2007-.

Research Assistant Professor of Biochemistry, State University of New York at Buffalo, 1970-72.

Assistant Professor of Biochemistry, State University of New York at Buffalo, 1972-74.

Associate Professor of Biochemistry, State University of New York at Buffalo, 1974-82.

Visiting Scientist, Massachusetts Institute of Technology, 1977-78. (Sabbatical Host—Dr. David Housman)

Professor of Biochemistry, State University of New York at Buffalo, 1982-.

Sabbatical visitor at Harvard University School of Medicine (Hosts—Drs. Nancy Andrews and Mark Fleming) and at LSUMC (Hosts—Drs. Jon Glass and Abra Watkins), 1997.

Visiting Scientist, EPA-HSC, 2005. (Sabbatical Host—Dr. Andy Ghio)

Scientific Organizations:

Genetics Society of America, 1965-
American Association for the Advancement of Science, 1965-
American Institute of Biological Sciences, 1963-

Virginia Academy of Science, 1965-1972
American Society of Hematology, 1971-
Ad Hoc Subcommittee on Iron and Heme, 1995-1999
Scientific Subcommittee on Iron and Heme, 1999-2000
Grassroots Network, 1991-
New York Academy of Science, 1965-1985
International Society of Hematology, 1972-
American Society for Biochemistry and Molecular Biology (formerly the American Society of Biological Chemists), 1974-
The Johns Hopkins Medical and Surgical Society, 1966-
Buffalo Biochemical Society, 1970-1989
East Coast Iron Club, 1982-, Cochair (with P. Ponka) 1996-1999; now East-West Iron Club
International BioIron Society, 2001-

Honors:

B.A. with General and Departmental Honors
NSF and NIH Predoctoral Fellow
Phi Beta Kappa
Sigma Xi
Omicron Delta Kappa
Phi Sigma
Delta Phi Alpha
American Men and Women of Science
Who's Who in the East
Who's Who in Science and Technology
Who's Who in America
Who's Who in the World
Who's Who in American Education
International Who's Who of Professionals
Dean's letter of commendation for excellence in teaching first year dental students - 1996-97
Visionary Innovator award for licensing of your technology Two cell lines, both in HEK-293-F cells and engineered to produce the transporter DMT1 aka SLC11A2, DCT1 or Nramp2 from a doxycycline (tetracycline) regulated promoter - 2010

Activities and Services:

Department of Biochemistry (University at Buffalo)

Preliminary Examination Committee - 1972-73; Chairman - 1976-77; Member - 1978-80
Standings Committee - 1973-74; 1983-84
Coordinator for Outside Seminar Speakers - 1974-75; 1994-1995; 1998-1999
Undergraduate Committee - 1974-76; 1991- (acting director, 1992-1993, 1995-96)
Steering Committee - 1976-77; 1981-84; 1995-99
Director of Admissions - 1978-80
Member Admissions Committee - 1980-82; 1983-84
Support Committee - 1980-83
Proposal Committee - 1981-83; 1988-89
Director, Graduate Studies - 1981-84
Graduate Program Committee - 1985-1988
Search Committee - 1979-1981, 1983-1984, 1992-1993, 1996, 1998, 2007-2008
IFR Committee - 1995-1997, 2001-2006
Endowment Committee - 1995-1996
Ad hoc committee for selecting a copier - 1996
Appointments, Promotions, Tenure and Privileges Committee - 1985-1989, 1997-1999
Chair, *Ad hoc* committee to improve teaching effectiveness - 1998-1999

Department of Pediatrics

Biochemical Genetics Division - 1970-
Medical Genetics Journal Club - 1970-83
Mentor, Department of Pediatrics Minority Training Program - 1992-
Research Committee - 1979-82

Department of Biology (University of Virginia)

Founding Director, Undergraduate Research Participation - 1964-69
Graduate Curriculum Committee - 1965-69
Graduate Admissions Committee - 1966-69
Graduate Standings Committee - 1967-70
Undergraduate Curriculum Committee - 1968-69

University at Buffalo

Faculty Council - 1972-74; 1978-80; 1994-96; alternate 1998-2001, 2012-2018
Human Subjects Committee - 1977-87
Co-supervisor of protein sequencing facility - 1978-86
Ad Hoc Promotions Committee Clinical Ranks - 1978-81; Chairman - 1980-81
Ad Hoc Promotions Committee Unqualified Ranks - 2004-2007
Ad Hoc Committee on Promotions to Research Ranks - 2020-2023
Faculty Council Standing Committee on Elections & By-Laws- 1977-79, 2008-2010
Health Sciences Divisional Committee (Biochemistry Representative) - 1981
Institutional Animal Care and Use Committee - 1987-91
Mentor, Minority High School Science - Research Apprenticeship Program - 1987-1994 - 4 students
Mentor, Children's Hospital NHLBI MARC Program - 1995-2007 - 6 students
Medical Student Research Committee - 1988-1994
Ad Hoc Committee to Evaluate Dreyfus Scholar Applications - 1988-1992
Member, Search Committee for Director of Campus Child Care Center - 1989
Advisor, Vertical Resource Group 3, medical students - 1991-1996
Health Sciences Library Reviewer for Potential New Books - 1991-
Member, Faculty Council Committee on Graduate Programs, 1994-1996
Member, Faculty Council Committee on Undergraduate Programs, 1995-
Member, Faculty Council Committee on Appointments, Promotions, Tenure and Privileges, 1995-1997, 1999-2004
Member, Executive Council of the School of Dental Medicine, 2005-18
Member, Western New York Integrated Advanced Information Management Systems, Research Information Resources Planning Team, 1998-2004
Faculty advisor to Biologue, a student produced, peer-reviewed journal in the Biomedial Sciences, 2006-8
Faculty mentor, CSTEP students, 2008-2009, 2 students
Faculty mentor, McNair scholar, 2009
Member, Faculty Council Committee on Elections and Bylaws, 2008-2010
Member, Faculty Council Committee on Appeals, 2010-3
Visionary Innovator Award, STOR, UB, 2009
Jacobs School *Ad Hoc* Committee on Promotions to Research Ranks - 2020-2023

Community

Executive Board, Niagara Frontier Association for Sickle Cell Disease, 1972-77
Distinguished Service Award - 1973-74
Zoological Society of Buffalo - 1972-
Technical Advisory Committee, Western New York Technology Development Center -1980-88
Taught section on DNA fingerprinting for NY State Bar Association program on "Forensic Evidence in Criminal Cases", October 14, 1988.
Consultant and Expert Witness on forensic applications of DNA fingerprinting, 1989- 122 cases to date.
Buffalo Museum of Science, 1990-

Smallwood Elementary School PTA, 1991-1993
Heim Elementary School PTA, 1993-1996
Heim Middle School PTA, 1996-1999
Williamsville North High School PTSA, 2000-2004
Williamsville North High School Shared Decision Making Team, Parents' Representative, 2000-2002

State

Member, *Ad Hoc* Advisory Group for Deputy Commissioner of Health of New York on screening newborns for inborn errors of metabolism - 1973-74
Consultant of New York Department of Health on screening for sickle cell disease - 1974-76
Consultant to California Department of Health on screening for sickle cell disease - 1975-76

Professional

Referee for Journal of Molecular Biology, Journal of Laboratory and Clinical Medicine, Johns Hopkins Medical Journal, Preparative Biochemistry, National Foundation - March of Dimes, Biochemistry, National Science Foundation, Burroughs Wellcome Foundation, Singapore Science Foundation, Hong Kong Science Foundation, Infection and Immunity, Hemoglobin, Analytical Biochemistry, Science, Journal of Pediatric Gastroenterology and Nutrition, Blood, Journal of Biological Chemistry, Immunological Investigations, Experimental Hematology, the National Institutes of Health, the Veterans Administration, the US Department of Agriculture, Biochimica et Biophysica Acta, Gastroenterology, Journal of Cellular Physiology, Neuroscience, American Journal of Physiology (- Gastrointestinal and Liver Physiology, Cell Physiology & - Renal Physiology), Journal Of Neurochemistry, Journal of Biological Inorganic Chemistry, Clinical Gastroenterology and Hepatology, Journal of Poultry Science, Chemico-Biological Interactions, Gastroenterology, Journal of Cellular and Molecular Medicine, Neurotoxicity Research, Molecular Biology Reports, Frontiers in Neuropharmacology, Biological Trace Element Research, PLoS ONE, Biofactors, FASEB J, Science Advances, Scientific Reports, Cell Discovery, Biochemistry and Biophysics Reports, Oxidative Medicine and Cellular Longevity, Hepatology, Journal of the Neurological Sciences, National Academy of Sciences Letters, Journal of Trace Elements in Medicine and Biology, Blood Advances.
Editorial Advisory Board, Preparative Biochemistry & Biotechnology, 1981-1998.
Solicited for Promotion Evaluation of Faculty Members at this University - 18
Outside Member, *Ad Hoc* Committee to Evaluate Dr. Peter Bradford as a Candidate for Promotion to Associate Professor with Tenure for the Department of Pharmacology and Therapeutics, 1996-1997
Solicited for Promotion Evaluation of Faculty Members of other Universities - 12
Consultant - Genex Corporation, 1978-1982.
Advocate, Promotion of J. Bruenn to Associate Professor of Biology, SUNY at Buffalo.
Sabbatical Host for Dr. N.S. Agar, Senior Lecturer, Physiology, University of New England, Armidale, NSW Australia, 1980.
Host for N. Fatima, Fulbright Scholar from Pakistan, 1982.
Scientific Advisory Board, Genex, 1981 - 1991.
Scientific Advisory Board, Dovetail Technologies, 1996 - 2005
Scientific Advisory Board, Intragene International, 1999 - 2005
Host for M. Fogel, Yugoslavian Government Scholar in Genetic Engineering, 1986-1989.
Site Visitor for NIH, 1987.
Veterans Administration Merit Review Board for Basic Sciences, 1988.
Pediatric Medical Advisory Board, American Hemochromatosis Society, 1998-.
Ad hoc committee to develop a constitution for the International BioIron Society, a nascent international society, 1999-2001.
Member, Special Study Section for NIH to review a program-project proposal, BioIron, Molecular Properties for Absorption in Health and Disease, ZDK1 GRB7 (J2) (P), December 2005
Member, Special Study Section for NIH to review the responses to an RFA on Anemia and Aging, ZAG1 ZIJ-8 (O1), July 2006
Ad hoc Member, Kidney, Urologic and Hematologic Diseases D Subcommittee, (2009/05 DDK-D 1), March 2009
Member International Advisory Board for Jordan Journal of Biological Sciences, 2013-
Member of the World Journal of Biological Chemistry Editorial Board, 2013-2018
Sigma Xi Climate Change Team. 2015-6; then StableClimate.org, 2016-

Computer-related

Consultant and ß tester for Beckman and SciSoft on various versions of MicroGenie™, a suite of programs for analyzing and presenting molecular data on DNA, RNA and protein sequences
Consultant and ß tester for Intelligenetics on various versions of PCGene™, a suite of programs for analyzing and presenting molecular data on DNA, RNA and protein sequences
Consultant and ß tester for Garrick-Lochhead on various programs and issues
Consultant and ß tester for Computing Resource Center (now STATA Corp.) on several versions of STATA™, a statistical analysis and data management program, and STAGE™, a statistical graph enhancement program
Consultant and ß tester for Advanced Graphics Software on several versions of SlideWriter™, a scientific graphics program
Consultant and ß tester for Dr. Joseph Felsenstein on versions and aspects of PHYLIP, a suite of programs for phylogenetic inference
ß tester for Exeter Software on several versions of VOSTORG™, a suite of programs for phylogenetic inference
ß tester for CheckFree Corporation on CheckFree™ Ver 3.03, a program for electronic payment of personal bills
ß tester for NIH EGAD project on versions of AGAS, an Automated Grant Application System that will allow paper-free submission and review of grant proposals
ß tester for MEGA, a program for Molecular Evolution and Genetic Analysis
ß tester for Research Information Systems on Reference Update™, a program and service for keeping up on the research literature
ß tester for Research Information Systems on Reference Update for Windows™, a program and service for keeping up on the research literature
Designed and implemented a menuing system for student LAN access to a series of PC and Macintosh programs for molecular evolution including those above, PAUP, CLUSTAL, NJ, MacClade, and a number of others
Representative for Biochemistry on Department Computer Consultants Committee for SUNY at Buffalo, 1994-1996
ß tester for SUNY at Buffalo Division of Computing and Information Technology on SLIP-PPP modem connections for World Wide Web, 1994
Member, Department Computer Consultants, SUNY at Buffalo, 1994-1999
Started and moderated an internet news group, ironet-l, for researchers on mutants in iron metabolism, 1995-
url: http://128.205.200.100/smbs/bch/faculty/mdg.html (note: this webpage is not my design but a standard form)
Designed and maintain website for BCH 413/513 Molecular Evolution (url = http://128.205.200.100/smbs/bch/announcements/513/), 1997-2001
Designed and maintain website for East Coast Iron Club (url = http://128.205.200.100/smbs/bch/announcements/513/ecic/), 1997-2005, design now maintained by Mitch Knutson at www.eastcoastironclub.org

Training Supervision

University of Virginia

One Ph.D. Student
Three M.A. Students
Two Matriculating Graduate Students
Ten Undergraduate Research Students
Outside Reader for Two Ph.D. Students

University at Buffalo

Two M.S. Students
Four Ph.D. Students
Seven Postdoctoral Trainees
Forty-eight Undergraduate Research Students
Mentor - University Undergraduate Honors Program: Six students
Seven matriculating undergraduate research students (Visiting from University of Michigan, Stanford University, Pennsylvania State University, George Mason University, Niagara University, Brandeis University and Amherst College)
Three nonmatriculating research students from UB.

Sixteen Medical Students for Summer Research (Six of these won multiple awards for their research as follows: Two won a $1000 prize for the best poster based on their summer research; another won 3rd prize. Three of them qualified for an M.D. with thesis honors with the thesis based on their summer research. One received the Robin Bannerman award in 1990 and another in 1997 for outstanding medical research by a student. Another was runner up to the $1000 prize winner in her year; then qualified for an M.D. with thesis honors based on her summer research; the thesis in turn won the $1000 first prize in 1987 in the American Woman's Medical Association essay contest. Another won a $500 travel award from the American Society of Hematology to present at the December 1998 meeting)
One Matriculating Graduate Student (Visiting from University of Rochester)
One visiting Graduate Student (Visiting from the University of Belgrade)
One Visiting Scientist (From King's College, London)
Outside Reader for 10 Ph.D. Students
Sponsor for high school teacher awarded ASBMB summer fellowship
With Dr. Linda Hall, supervised Cambi summer undergraduate training program, 1994-1996 , personally supervised 3 students
Six High School Research Students (four under the aegis of SUNY's Minority High School Student Research Apprenticeship Program), 1990-1996
Mentor - Department of Pediatrics Minority Research Training Student (one student, summers of 1995- 1998)
Two Howard Hughes Medical Institute Undergraduate Scholars, 1994-1997

Participant by Invitation

New York Academy of Science Symposium: Antibodies to Enzymes-A Three Component System., New York, NY., Sept. 1962, (First Article for 1963.)
Symposium on Human Genetics, Cold Spring Harbor, NY., June 1964. (Fourth Article for 1964.)
The Biochemistry of Gene Expression in Higher Organisms, Symposium Sponsored by International Union of Biochemistry, The Australian Academy of Science and the Australian Biochemical Society, Sydney, Australia, May 1972, (Third Article for 1973.)
PreFEBS Meeting on Hemoglobin Synthesis Regulation, co-chaired session on translation, Paris, France, July 1975, (No proceedings published.)
NIH Consensus Development Conference on Newborn Screening for Sickle Cell Disease and Other Hemoglobinopathies, Bethesda, MD, April 6-8, 1987, (first article for 1989.)
Chair, Session on Non-Transferrin Bound Iron Metabolism, East Coast Iron Club, Bethesda, MD, December 15, 1995.
CDC, NIH Consensus Development Conference on Screening for Hereditary Hemochromatosis, Atlanta, GA, March 3-5, 1997.
Co-Chair, East Coast Iron Club, Boston, MA, November 13, 1997.
Co-Chair, East Coast Iron Club, Bethesda, MD, November 14, 1998.
First International Workshop on Iron and Copper Homeostasis (3rd abstract for 1999; also cochaired session on Iron and Copper Storage), Pucon, Chile, November 2-5, 1999.
Co-Chair, East Coast Iron Club, New York, NY, November 15, 1999.
Digestive Diseases Week (American Gastroenterological Association Meeting), Atlanta, GA, May 22, 2001, presented talk entitled "Regulation of iron absorption: IRE- and non-IRE forms of DCT1/Nramp2/DMT1" for the research symposium on Iron Transport: Physiology & Pathophysiology.
Second International Workshop on Iron and Copper Homeostasis (USA Organizer for the meeting), Pucon, Chile, November 10-14, 2001. Also presented invited talk "DMT1: A Mammalian Transporter for Multiple Metals." Later published in BioMetals. Also edited the issue.
Invited talk entitled "DMT1/DCT1/Nramp2: A transporter of multiple metals with multiple forms" for the Membrane Transport Symposium sponsored by the joint Physiological and Biochemical Societies' meeting in York (UK) on December 17, 2001.
Third International Workshop on Iron and Copper Homeostasis (USA Organizer for the meeting), Vina del Mar, Chile, December 3-8, 2004. Also presented invited talk "DMT1: Which metals does it transport?" Later published in Biol. Res. Also edited the issue.
EB 2006 symposium - Molecular Mechanisms of Intestinal Iron Transport, invited talk entitled "Some properties of DMT1 (Divalent Metal Transporter 1) that are relevant for intestinal metal ion transport", San Francisco, CA, April 1-5, 2006.

Organized symposium for the 13th TEMA meeting (Trace Elements for Man and Animals) 9-13 November, 2008, in Pucón, Chile on Increasing Awareness of Rare Transition Elements; also coauthor on invited paper presented by Laura Garrick at the same meeting entitled "Accumulation of Trace Metals as an Assay for Transport (by DMT1)" (2nd & 3rd abstracts for 2008).
Invited speaker on Human Iron Transporters, 1st International Conference on Nutrigenomics, Guarujá, Brazil, 28 September, 2010.
Fourth International Workshop on Iron and Copper Homeostasis (USA Organizer for the meeting), Pucon, Chile, November 30-December 3, 2011. Also presented invited talk "Isoform Specific Regulation Of Divalent Metal (Ion) Transporter (DMT1) by Proteasomal Degradation." Later published in BioMetals. Also edited the issue.
Second Workshop on MRI Phase Contrast & Quantitative Susceptibility Mapping, Cornell University, Ithaca, NY, July 25-27, 2013. Presented invited talk "Iron and metallic biochemistry in cellular and animal models".

Participant

FASEB, Atlantic City, NJ., April 1962. (Abstract for 1962).
AAAS, New York, NY , December 1966, (Third Abstract for 1967).
Genetics Society of America, Amherst, MA., August 1968, (Abstract for 1968).
Society for Clinical Research, New Orleans, LA., May 1970, (First two abstracts for 1970).
FASEB, Atlantic City, NJ., April 1972, (First abstract for 1972).
American Society of Hematology, Hollywood, FL., December 1972, (Second and third abstracts for 1972).
New York Academy of Science, Silver Spring, MD., November 1973, (Second and third articles for 1974).
XV Congress, International Society of Hematology, Jerusalem, Israel, September 1974, (First abstract for 1974).
Genetics Society of America, Chapel Hill, NC., August 1975, (First two abstracts for 1975).
FASEB, Chicago, Ill., April 1977, (Abstract for 1977).
Symposium on Protein Turnover and Lysosomal Function, Amherst, NY., August 1977, (Last article for 1978).
Twentieth Annual American Society of Hematology, New Orleans, LA., December 1978, (Abstract for 1978).
Twenty-third Annual American Society of Hematology, San Antonio, TX, December 1981.
Twenty-fourth Annual American Society of Hematology, Washington, DC, December 1982.
Gordon Conferences on the Red Cell, Plymouth, NH, June 1979, June 1981 and August 1983.
Twenty-ninth Annual American Society of Hematology, Washington, DC, December 1987, (Last abstracts for 1987).
Genetics Society of America, Atlanta, GA, June 1989, (Two abstracts for 1989).
Workshop on Molecular Evolution, Woods Hole, MA, August, 1989.
Sixth Cooley's Anemia Symposium, New York, NY, March 1990 (Third article for 1990).
International Society for Experimental Hematology, Seattle, WA, August 1990 (First two abstracts for 1990).
American Society for Cell Biology, San Diego, CA, December, 1990, (Third abstract for 1990).
Thirty-second Annual American Society of Hematology and XXIII Congress, Interational Society of Hematology, Boston, MA, December 1990, (Last abstract for 1990).
Thirty-sixth Annual American Society of Hematology, Nashville, TN, December 1994, (Abstracts for 1994).
International Congress on BioIron, Asheville, NC, April, 1995 (First abstract for 1995)
Thirty-eighth Annual American Society of Hematology, Orlando, FL, December 1996, (Abstracts for 1996).
International Symposium on Iron in Biology and Medicine, Saint-Malo, France, June, 1997 (First three abstracts for 1997).
Thirty-ninth Annual American Society of Hematology, San Diego, CA, December 1997, (Last three abstracts for 1997).
A Symposium on Molecular Medicine and Hemochromatosis at the Crossroads, Bethesda, MD, May, 1998
Fortieth Annual American Society of Hematology, Miami Beach, FL, December 1998, (Abstract for 1998).
Forty-first Annual American Society of Hematology, New Orleans, LA, December 1999, (2nd abstract for 1999).
28th World Congress of the International Society of Hematology, Toronto, Canada, August 2000 (**The 2nd abstract for 2000 was selected for the plenary session**; the 3rd, for an oral presentation by Dr. Conrad).
Forty-second Annual American Society of Hematology, San Francisco, CA, December 2000, (4th abstract for 2000).
BioIron 2001, Cairns, Queensland, Australia, August, 2001. (**The 2nd abstract for 2001 was selected for oral presentation;** the 3rd and 4th for poster presentations).
BioIron 2007, Kyoto, Japan, April 1-6, 2007 (1st & 2nd abstracts for 2007).
BioIron 2009, Porto, Portugal, June 2-6, 2009 (1st abstract for 2009).
BioIron 2011, Vancouver, BC, Canada, June 22-26, 2011 (1st abstract for 2011).
BioIron 2013, London, UK, April 14-18, 2013 (1st abstract for 2013).

BioMetals2014, Durham, NC, July 13-17, 2014 (3rd abstract for 2014; selected for both oral platform and poster presentations)
BioIron 2015, Hangzhou, PRC, September 6-10, 2015 (1st abstract for 2015).

COLLABORATIONS WITH OTHER PRINCIPAL INVESTIGATORS

R. Guthrie, SUNY at Buffalo, Screening for Inborn Errors of Metabolism.
M. Reichlin, University of Oklahoma, Basis of Immunological Response to Specific Hemoglobins.
D. Housman, M.I.T., Genetic Variation at the DNA Level.
B.P. Alter, Mt. Sinai, Duplicate, Diverged Genes and Their Products.
P. Ponka, McGill University, Rodents Mutated in the Transferrin Cycle.
J. Grasso, University of Connecticut, Rodents Mutated in the Transferrin Cycle.
R. Murphy, Carnegie Mellon University, FACS Analysis of Transferrin Cycle Mutants.
J. Glass, Louisiana State University, Endosomes from Transferrin Cycle Mutants.
G. Dean, University of Cincinnati, Vacuolar Proton-ATPase expression in Belgrade rats.
M.D. Fleming and N. Andrews, Harvard University School of Medicine, Mapping the Locus for the Belgrade Anemia in Rats
J. Connor, Penn State University School of Medicine, Iron Distribution and Metabolism in Belgrade Rats
M. Conrad, J. Umbreit University of South Alabama, Metal Transport in the Belgrade Rat and in Surrogate Tissue Culture Cells
J. Roth & D. Higgins, SUNY at Buffalo, Metal Transport in Neuronal Tissue
A. Ghio, EPA, Metal Transport in Lung Tissue
J. Salazar, R. Raisman-Vozari, E. Hirsch, INSERM, M.T. Nuñez, Millenium Institute, Iron Dyshomeostasis in Parkinsonism
F. Thevénod, N. Wolff, Universitat Witten/Herdecke, A. Ghio, EPA, Mitochondrial Metal Ion Import
J.F. Collins, University of Florida, DMT1 Function

OUTSIDE GRANT SUPPORT (BUDGETS IN DIRECT COST DOLLARS)

1.1964-1966, NSF, #GB-3129, Immunological Detection of Mutationally Altered Enzyme, $46,000.

2.1965-1967, Research Corporation, Control of Gene-Determined Protein Synthesis, $3,500.

3.1966-1970, NIH, #AM10391, Control of Gene-Determined Protein Synthesis, $78,391.

4.1970-1986, NIH, #AM14923, Studies on Hemoglobin: Biosynthesis and Genetics, $723,923.

5.1972-1973, UHF, #CH-5-CH72, Screening for Hemoglobinopathies in Western New York, $5,739.

6.1974-1976, National Foundation, March of Dimes, #I-344, Gene Substitution for Rabbit Hemoglobins, $68,876.

7.1980-1984, NIH, #HL/AM24908, Hemoglobin Synthesis in Vivo, $142,574.

8.1992-1994, NIH, #HL48690, An Intracellular Mutant in the Transferrin Cycle, $80,000, (Shannon award); 1995-2000 $777,332 (Co-PI with Laura M. Garrick).

9.1997-98, UB Multidisciplinary Funds, Converting Mutant Mouse Models to Cell Culture Systems, $20,000.

10. 2001-2006, NIH, #DK59794, The Belgrade Rat: A Mutation in a Critical Metal Transporter, $935,000 (Co-PI with Laura M. Garrick).

11. 2001-2004, USDA, NYR-2001-00826, Gastrointestinal Uptake of Iron, $186,302.

12. 2001-2002, NSF, INT-0112251, Second International Workshop on Iron and Copper Homeostasis, $29,040.

13. 2001-2002, NIH, DK60469, Second International Workshop on Iron and Copper Homeostasis, $10,000.

14. 2004-2005, NIH, DK060469-02, Third International Workshop on Iron and Copper Homeostasis, $6,000.

15. 2006-2008, Johnson & Johnson Pharmaceutical Research & Development, Effects of Selected Inhibitors on Potential Causes of Microcytic Anemia, $94,115.

16. 2011-2012, NSF, CBET-1132351, Fourth International Workshop on Iron and Copper Homeostasis, $17,000.

17. 2016-2022, NIH, DK109717, Divalent Metal-ion Transporter 1 as a Therapeutic Target to Optimize Intestinal Iron Transport, $600,000

For all of the above I was principal investigator. I have also been co-investigator on the following:

1.1970-1977, MCH, Project #417, Human Genetics Program, ca.-$1,000,000. Principal Investigator: R. Davidson, then R. Bannerman.

2.1970-1977, MCH, Project #435, Multiple Test Procedures - Inborn Errors of Metabolism, ca. $1,000,000. Principal Investigator: Dr. R. Guthrie.

3.1970-1977, NIH, #HD03967, Detection and Study of Inborn Errors, ca. - $300,000. Principal Investigator: Dr. R. Guthrie.

4.1983-1991, NIH, AM#33039, A New Hereditary Anemia, ca. - $424,000. Principal Investigator: Dr. R. Bannerman, then Dr. L.M. Garrick.

5.1987-1991, NSF, #DCB8702100, The Belgrade Rat - An Intracellular Defect in the Transferrin Cycle, $224,569. Principal Investigator: Dr. L.M. Garrick.

6.1992-1993, NSF, #MCB9200924, Is the Belgrade Defect Constrained to Iron Uptake in Erythroid Cells?, $27,875. Principal Investigator: Dr. L.M. Garrick.

7.1997, NHLBI, Positional Cloning of the Gene Responsible for Iron Transport Defects in the Belgrade Rat, Service Commitment. Principal Investigator: N. Andrews.

8. 2002-2005, NIH/NIEHS, Divalent Metal Transporter: Role in Metal Toxicity, $675,000. Principal Investigator: Dr. J.A. Roth.

9. 2016-2022, NIH, DK109717, Divalent Metal-ion Transporter 1 as a Therapeutic Target to Optimize Intestinal Iron Transport, $2,642,406, Principal Investigator: Dr. J.F. Collins

PUBLICATIONS

1959

Garrick, M.D. Effects of Pyridoxine Deficiencies in a Pyridoxine-Requiring Mutant of *Neurospora crassa* on Tryptophan Synthetase. Senior Essay, The Johns Hopkins University, Baltimore, Maryland*.

1963

Garrick, M.D. and Suskind, S.R. Antigenetically Active Fragments of Tryptophan Synthetase. Ann. N.Y. Acad. Sci. 103: 793-803.*|

Garrick, M.D. Enzymatic and Antigenic Properties of Neurospora Tryptophan Synthetase After Treatment with Trypsin. Ph.D. Dissertation. The Johns Hopkins University, Baltimore, Maryland*.

1964

Garrick, M.D. and Suskind, S.R. Trypsin Treated with Tryptophan Synthetase I. Enzymatic Properties. J. Mol. Biol. 9: 70-82.

Garrick, M.D. and Suskind, S.R. Trypsin Treated with Tryptophan Synthetase II. Antigenic Properties. J. Mol. Biol. 9: 83-99.

Garrick, M.D., Elberfeld, H. and Suskind, S.R. Tryptophan Synthetase from Neurospora: A Modification of the Reaction Scheme. Science 145: 491-492.

Boyer, S.H., Hathaway, P. and Garrick, M.D. Modulation of Protein Synthesis in Man: An *in vitro* Study of Hemoglobin Synthesis by Heterozygotes. Cold Spring Harbor Sympos. Quant. Biol. 29: 333-346.*|

McKusick, V.A., Abbey, H., Bartolos, M.., Bias, W., Bowen, P., Boyer, S.H., IV, Breen, W.J., Cohen, B.H., Duchastel, Y., Emery, A.E.H., Eldridge, R.. Fainer, D., Garrick, M., Glynn, M.F., Goodman, Hanley, W.B., Hathaway, P., Hawkins, M.R., Lee, C. S. N., McCrone, J., McKusick, A. B., Murphy, E. A. , Nosenzo, C., Pascasic, F., Rimoin, D. L., Schimke, R. N., Sherwin, R. W., Temtamy, S., J. Welch, P., Wise, D., Woodrow. J. C., Young, J, II. Medical Genetics 1963. J. Chron. Dis. 17: 1077-1215. DOI: 10.1016/0021-9681(64)90158-4.

1965

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* Denotes article that was not refereed: all other articles were.
| Denotes invited submission.
§ Denotes review article.

Reprints or preprints of any of the above articles available on request.

The following articles are in preparation - inquire to establish whether available if a preprint is desired.

Romano, M.A., Watkins, A., Glass, J., Yeh, K., Yeh, M., Garrick, M.D. & Garrick, L.M. Endosome Preparations from Belgrade Rat Reticulocytes Exhibit Multiple Defects.

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