

Gary R. Skuse, Ph.D.

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Education: B.A. Biology, 1979
University of Rochester
Rochester, New York

Embryology Course, summer of 1981
Marine Biological Laboratory
Woods Hole, Massachusetts

Ph.D. Biology, 1984
Syracuse University
Syracuse, New York

Title of Doctoral Dissertation: Developmental regulation of glycerol
3-phosphate dehydrogenase expression in *Drosophila melanogaster*.

Summer Faculty Institute 2004
Dartmouth College
Ethical, Legal and Social Implications of the Human Genome Project

Academic Experience:

June 1984-
October 1986 Damon Runyon Walter-Winchell Postdoctoral Fellow
Department of Biological Chemistry
Harvard Medical School
Boston, Massachusetts

November 1986-
June 1998 University of Rochester School of Medicine and Dentistry
Rochester, New York

Instructor in Medicine and Genetics
Division of Genetics and Department of Medicine
November 1986-December 1990

Assistant Director of Genetic Testing Laboratory
Division of Genetics
July 1990-February 1994

Scientist
Division of Genetics and Department of Medicine
January 1991-June 1991

Assistant Professor of Medicine, Genetics, Oncology and
Radiation Oncology
July 1991-June 1998

September 1988- September 1999	SUNY Empire State College Rochester New, York
	Adjunct Lecturer in Science, Math and Technology September 1988-August 1994 and January 1999-September 1999
	Tutor in Science, Math and Technology September 1994-December 1998
January 1998- June 2000	Adjunct Assistant Professor of Biology Monroe Community College Rochester, New York
September 1997- Present	Rochester Institute of Technology Rochester, New York
	Adjunct Assistant Professor of Biological Sciences September 1997-June2000
	Visiting Associate Professor of Biological Sciences Director of Bioinformatics July 2000-June 2003
	Associate Professor of Biological Sciences Director of Bioinformatics July 2003- August 2008
	Professor of Biological Sciences Director of Bioinformatics September 2008 – August 2009
	Professor of Biological Sciences Interim Head, School of Biological and Medical Sciences September 2009 – present
	Interim Head, School of Biological and Medical Sciences September 2009 – July 2011
	Associate Head, Thomas H. Gosnell School of Life Sciences August 2011 – June 2013
August 2014 – December 2014	Sabbatical leave: The Impact of Scientific Consultation on the Indigent Defense System. Office of the Monroe County (NY) Public Defender

Teaching Experience:

Syracuse University:

General Biology with Laboratory, one semester

General Biology Laboratory, one semester
Developmental Biology with Laboratory, two semesters
Genetics Laboratory, three semesters

Empire State College:

Anatomy
Anatomy and Physiology I and II
Cell Biology
Computer Applications in Biology
Ethics in Biology and Medicine
Fundamentals of Human Biology
Genetics
History of Medicine and Public Health
Medical Microbiology
Microbiology
Molecular Biology
Physiology
Statistics

University of Rochester:

Graduate seminar entitled "Molecular Biology of Cancer", one semester
Graduate reading course entitled "Growth Factors", one semester
Graduate seminar entitled "Extrinsic Factors and the Genetics of Cancer", one semester
Graduate seminar entitled "Neurofibromatosis"
Lectures on Molecular Genetics in the course entitled "Genetics" for medical students
Lectures on Molecular Biology in the course entitled "Radiobiology" for residents
Director of Section on Carcinogenesis, Toxicology Core Course
Supervision of sixteen graduate students performing rotation projects
Supervision of eleven undergraduate students performing independent research

Rochester Institute of Technology:

Advanced Applied Genomics
Bioinformatic Analysis of Macromolecules (undergraduate level)
Bioinformatics Seminar (graduate level)
Biology of Cancers (upper level)
Biology Seminar (upper level)
Case Studies in Genomics (graduate level)
Cell and Molecular Biology for Biomedical Engineering Laboratory (lower level)
Cell and Molecular Biology Laboratory (lower level)
Cell and Molecular Genetics I and II (graduate level)
Cell Biology (lower level)
Cell Physiology with Laboratory (and associated website, upper level)
Directed Research in Bioinformatics (all levels, RNA-Seq)
Directed Research in Bioinformatics (all levels, environment-signal pathway interactions)
Ethical Foundations in Human Subjects Research (graduate level)

Ethics in Bioinformatics (graduate level)
Eukaryotic Gene Regulation and Disease (upper level)
General Biology Laboratory (lower level)
General Physiology Laboratory (lower level)
Genomics (upper level)
Human Biology Laboratory (lower level)
Introduction to Bioinformatics (lower level)
Introduction to Biology (AP Scholars, lower level)
Introduction to Cell Biology Laboratory (lower level)
Independent Research (upper level)
Molecular Biology (lower level)
Nanoscience, Engineering and Technology (upper level)
Physiology and Anatomy I and II (with associated website, upper level)
Research Explorations in Genomics (upper level)
Science and the Law (honors course, all levels)
Science Fiction, Science and Society (upper level)
Science of Forensics (honors course, all levels)
Tissue Culture Laboratory (upper level)
Truth and Consequences (upper level)
Unix Under the Hood (lower level)
Visionaries in Motion (lower level)

Monroe Community College:

Biology of HIV and AIDS
Genetics
Genetics (online course)
Human Machine
Human Machine (online course)
Introduction to Biotechnology

Contractual Services:

Preparation and review of examination questions for a nationally administered professional college admissions test

Review of forensic DNA analyses for regional attorneys

Graduate Students:

Linda J. Metheny, Ph.D. received July 1996, M.S. received spring 1994: NF1 mRNA isoform expression is modulated by extrinsic factors: A proposed mechanism for regulation.

Amedeo J. Cappione, Ph.D. received August 1999, M.S. received spring 1995: The neurofibromatosis type 1 messenger RNA is a substrate for base-modification C to U mRNA editing.

Brian L. French, M.S. received fall 1996: No thesis submitted.

James Thompson, M.S. received spring 2005: Genetic algorithms applied to biological sequence analysis.

Mathew Conte, M.S. received spring 2005: Isoelectric point prediction from the amino acid sequence of a protein.

Jamie L. Duke, M.S. received spring 2006: Structural analysis of the EGR family of transcription factors: Templates for predicting protein-DNA interactions.

David R. Riley, M.S. received spring 2006: Development of an automated template selection and alignment tool for protein structure homology modeling.

Renikko Alleyne, M.S. received spring 2006: Tool for the identification of differentially expressed genes using a user-defined threshold.

Matthew Wronkowski, M.S. received summer 2007: Conservation of the BRCA1 gene.

Melissa Wilbert, M.S. received summer 2008: Differential selective pressures acting on the influenza A genome: A comparative study.

Sherry Dadgar, M.S. received fall 2008: Estimating evolutionary dynamics of cleavage site peptides among H5HA avian influenza employing mathematical information theory approaches.

Anusha Kannan, M.S. received winter 2008: Detecting relevant changes in high throughput gene expression data.

Madhu Panneerselvam, M.S. received spring 2009: Pedigree tool

Rhea Sanchez, M.S. received 2009: Annotation consistency tool: The assessment of JCVI microbial genome annotations.

Vishal Thovarai, M.S. received 2009: *In silico* design of potential novel anti-malarial agents.

Ashlee Benjamin, M.S. received spring 2009: Genetic elements of microbes: A comprehensive and integrated genomic database applicaton

Rhea Sanchez, M.S. received spring 2009: Annotation consistency tool: The assessment of JCVI microbial genome annotations.

Brandon Marzullo, M.S. received spring 2010: The NHANES III database: Design and a retrospective study to identify associations between vitamin D and hypertension. (co-advised with Dr. Michael V. Osier)

Bindhu Satheeshkumar, M.S. received 2011: RIT influenza virus database and evidence for differential selection pressures on geographically distinct human influenza A/H3N2 virus populations.

Shruti Sharma, M.S. received 2011: Electronic medical records concepts and data management.

Richard Rodriquez, M.S. received 2011: RNA-sequencing analysis from the triceps muscle of normal and myostatin-deficient mice using various tools.

Manimozhi Manivannan, M.S. received 2013: Transcriptional analysis of B-Cells post flu vaccination using RNA sequencing.

Chaitanya Krishna Kotha, M.S. received spring 2014: Development of SRADE tool and analysis of quality scores of the reads of next-generation sequencing data.

Joseph K. Kaplan, M.S. received fall 2014: Blast-off: Determining glioblastoma GOI sequence conservation across model organisms.

Miriam E. Barnett, M.S. received spring 2015: Computational identification of conserved haustorial-expressed genes in the grapevine powdery mildew fungus *Erysiphe necator*.

Anup Aryal, M.S. received spring 2016: Developing a prototype web tool for data mining social media for visualization of health related data for hypothesis generation.

Marcia Sato, M.S. received spring 2016: The influences of different socioeconomic scenarios in bioinformatics and biotechnology research.

Alessandro Aiezza, II, MS received summer 2016: The FLiCK framework: enabling rapid development and performance benchmarking of compression applications for genetic data files.

Amanda M. Hartung, MS received summer 2016: Investigation of methods for machine learning associations between genetic variations and phenotype.

Grants and Awards Received:

Grant in Aid of Research from Sigma Xi, the Scientific Research Society entitled: Differences in the messenger RNA species which code for the enzyme glycerol 3-phosphate dehydrogenase in larval and adult *Drosophila melanogaster*. July 1982-June 1983. Total project cost: \$2,000.

Postdoctoral Fellowship from the Damon Runyon-Walter Winchell Cancer Fund entitled: Structure and function of the genes encoding enzymes involved in mRNA metabolism in vaccinia. June 1984-November 1986. Total project cost: \$54,000

Institutional Research Grant from the American Cancer Society through the University of Rochester Cancer Center entitled: Tumor suppressor genes in Neurofibromatosis. July 1988-June 1989. Total project cost: \$7,000.

Research Grant from the G. Harold and Leila Y. Mathers Charitable Foundation entitled: Molecular Genetics of Hereditary Predisposition to Cancer. January 1989-December 1990. Total project cost: \$75,000.

FIRST Award from the National Institutes of Health entitled: Molecular Pathogenesis of Tumors in Neurofibromatosis. July 1991-June 1997. Total project cost: \$560,000
Biomedical Research Support Grant entitled: Genetic linkage of a von Hippel Lindau disease variant. January 1992-December 1992. Total project cost: \$5,000

Research Grant from Cancer Action, Inc. entitled: Molecular characterization of a neurofibromatosis tumor cell line. July 1, 1992-June 30, 1993. Total project cost: \$9,000.

Research Grant from the Buffalo Rochester Syracuse Neurooncology Research Group entitled: Investigation of NF1 mRNA editing in CNS tumors. April 1996-March 1997. Total project cost: \$5,000.

Research Grant from the Charlotte Geyer Foundation entitled: Molecular Pathogenesis of Tumors in Neurofibromatosis Type I. July 1, 1996-June 30, 1997. Total project cost: \$100,000.

Research Grant from The Council for Tobacco Research entitled: Factors Involved in Human RNA Editing. January 1, 1997-December 31, 1999. Total project cost: \$250,000.

Research Grant from the National Institutes of Health entitled: Molecular pathogenesis of Tumors in Neurofibromatosis. May 1997-April 2000. Total project cost:\$700,000.

Grant to develop a Professional Master's Degree program in Bioinformatics/ Computational Biology from the Alfred P. Sloan Foundation. April 1, 2001-December 31, 2003. Total project cost: \$150,000.

Course, Curriculum and Laboratory Improvement (CCLI) grant from the National Science Foundation entitled: Bioinformatics Computing: An Exportable Curriculum. January 2002-January 2004. Total project cost: \$74,842 plus supplements of \$31,227 and \$36,754 to present Bioinformatics Workshops during the summers of 2002 and 2003.

Shared University Research (SUR) grant from IBM to establish the IBM Center for Comparative and Evolutionary Genomics at RIT. Approximate value \$217,000.

NUE: Development and Dissemination of a Sophomore Course in Nano-Science, Engineering and Technology grant from the National Science Foundation. Total project cost: \$99,876. July 1, 2004-June 30, 2006.

Grant entitled Addressing the Need for a Curriculum Standard in Bioinformatics from the Alfred P. Sloan Foundation. Total project cost: \$43,900. August 1, 2004 – December 31, 2005.

New York State Excelsior Scholars Programs for Grade Seven Mathematics and Science Students. Total project cost: \$160,860. May 1, 2008 – October 31, 2008.

Exploring Computer Science in the Liberal Arts from the National Science Foundation.
Total project cost: \$49,989. June 15, 2015 – June 14, 2016.

From Discovery to Market: Integrating Interdisciplinary Skills through a Collaborative
Research-Based Laboratory Curriculum from the National Science Foundation. Total
Request: \$150,940 (subcontract with University of Houston)

Ad Hoc Reviews:

Journals: American Journal of Human Genetics
Genetic Analysis: Techniques and Applications
Human Molecular Genetics
International Journal of Radiation Oncology, Biology, Physics
International Journal of Plant Genomics (Guest co-editor)
Journal of Cellular Physiology
Journal of Neuro-oncology
Journal of Neuropathology and Experimental Neurology
The Lancet
Tissue Engineering

Funding Agencies: National Institutes of Health (Ad Hoc Technical Review Group)
National Institutes of Health (Special Emphasis Panel)
National Institutes of Health (Interdisciplinary Molecular Science & Training, Panel Member, Panel Chair and Associate Chair)
National Science Foundation (ATE, CCLI, RCN, Science Master's programs, S-STEM, IUSE and IUSE Computer Science)
National Science Foundation Ideas Lab Mentor (1 of 4 invited)
National Science Foundation Computing Education Innovation Workshop (sole invited moderator)
National Science Foundation ATE panel chair
Neurofibromatosis, Inc.
US Army Medical Research and Development Command (NF Evaluation Panel member, 1993 program)
US Army Medical Research and Development Command (Site Visit Team Chairman, 1993 program)
US Army Medical Research and Development Command (NF Evaluation Panel Chairman, 1993 program)
US Army Medical Research and Development Command (NF Peer Review Panel member, 1997, 1998 and 1999 programs)
National Science Foundation (Advanced Technology in Education program)
Lytmos Group, Inc. (Lee's Summit, MO)

Program/ Curricular: University at Buffalo Bioinformatics Program
Canisius College Bioinformatics Program
George Washington University Science Education Program in Computational Molecular Biology (site visit)
Montclair State University Science Informatics (site visit)
College Board AP Biology Curriculum Revision

Finger Lakes Community College Biotechnology Program (site visit)
Member, Editorial Board, Journal of Emerging Diseases and Virology

Professional Memberships:

Association for Computing Machinery

Special Interest Group for Computer Science Education (SIGCSE)

Special Interest Group for Bioinformatics, Computational Biology and Biometrical Informatics (SIGBio)

American Association for the Advancement of Science

New York State Defenders Association of Criminal Defense Lawyers

Invited Lectures:

Regional Meetings

July 2001: "DNA and the Law" at the annual meeting of the New York State Defenders Association, Lake George, New York

December 2001: "DNA and the Law" at the regional meeting of the New York State Defenders Association, Rochester Institute of Technology

January 2003: "Bioinformatics Curriculum Development" at the inaugural meeting of the Western New York Bioinformatics Educators, Buffalo, New York

October 2004: "Bioinformatics: Opportunities in Education and Research" at the annual meeting of the Consortium for Computing Sciences in Colleges, Eastern Conference, Baltimore, MD

April 2006: "DNA Analyses in the Crime Lab: The Science Underlying the Profile" at the Criminal Defense Tactics and Techniques VIII sponsored by the New York State Defenders Association, Rochester, NY.

March 2009: "Biotechnology in the Information Age", Rochester Museum and Science Center, Part of Science on the Edge lecture series.

October 2009: "Biotechnology in the Information Age", Genesee Community College, 2nd Annual Biotechnology Conference keynote address.

April 2011: "DNA for Dummies: A basic overview of the science of DNA for lawyers" at the meeting entitled Cutting Edge Criminal Defense presented by the New York State Defenders Association in Binghamton, NY.

April 2014: Panelist: The Intersection of Faith and Science, Fingerlakes Community College

April 2014: Panelist: Teaching Opportunities for Ph.D. Graduates in the Life Sciences, University of Rochester

October 2014: "The Law and Science of DNA" at the Western New York Advanced Trial Skills Program, Drug and Sex Offense Case Track, Batavia, NY.

November 2014: "The Law and Science of DNA" at the Western New York Advanced Trial Skills Program, Murder and Violent Felony Offense Track, Batavia, NY.

June 2015: at the Western New York Advanced Trial Skills Program, Defending a Murder Case, Batavia, NY.

July 2015: "Working with Experts: Getting Past the Ego and Toward Expertise" at the annual meeting of the New York State Defender's Association, Saratoga Springs, NY.

August 2015: "Presentation of DNA Results in the Courtroom: The Y Chromosome, Hazards of Statistical Interpretations of DNA Results and Tactics", part of the "Lunch and Law" seminar program, Rochester, NY.

October 2015: at the Western New York Advanced Trial Skills Program, Defending a Sex Case, Batavia, NY.

May 2016: DNA Mixture Evidence: All Mixed Up with Somewhere to Go. CLE Course sponsored by the Erie County Assigned Counsel Program, Buffalo, NY.

April 2017: Scientific Subjectivity: Interpreting DNA Mixtures. Federal Criminal Defense Practice Seminar, Batavia, NY.

December 2017: Weaving Science into a Successful Defense Strategy. NYSACDL Superstar Trial Seminar 2017, Buffalo, NY.

April 2018: Chronic Illness and The Human Computer. Taste of Science, Rochester, NY.

April 2018: Dealing with DNA. NYSACDL Central New York Criminal Defense Seminar – Spring 2018. Syracuse, NY.

National Meetings

October 1993: "Genetic Mechanisms in NF1 Malignancies" at the University of Chicago Medical School

October 1993: "Malignancy in Neurofibromatosis" at "Neurofibromatosis in Adults: Do the problems end in childhood?", Naperville, Illinois

October 1997: "Post-Transcriptional Regulation of Gene Expression" National Institutes of Health, Bethesda, Maryland.

February 2003: "Meeting the Challenges in Emerging Areas: Education Across the Life, Mathematical, and Computer Sciences" Panel participant. Bethesda, Maryland.

October 2003 "What are we teaching when we teach 'bioinformatics'? How do we modify content choice and pedagogical approach for different target audiences?", Bio21 Conference, Chapel Hill, NC.

August 2013: "DNA for Dummies: Everything you always wanted to know about DNA but were afraid to ask", Multi-Track Federal Criminal Defense Seminar, Buffalo, NY.

International Meetings

February 1996: "Gene Therapy for Gastric Cancer" and co-chair of the workshop on pathogenesis at "*Helicobacter pylori* and Gastric Cancer: State of the Art", Ulm Germany.

January 2003: Bioinformatics Education Panel Participant at the Pacific Symposium on Biocomputing, Lihue, HI.

March 2004: "The Role of Bioinformatics in Computer Science" Special Interest Group for Computer Science Education (SIGCSE), Norfolk, VA

Workshops Organized and Presented

June 2000: "Enzyme Stability" at Rochester Institute of Technology

April 2001: "DNA and the Law" at Rochester Institute of Technology

July 2002: "Bioinformatics" at Rochester Institute of Technology

August 2002 and July 2003: "Bioinformatics Workshop for Educators" (NSF Sponsored) at Rochester Institute of Technology

March 2003 "Bioinformatics for Computer Scientists" Special Interest Group for Computer Science Education (SIGCSE), Norfolk, VA

April 2004: "Bioinformatics Basics for Computer Scientists" a workshop presented at third Consortium for Computing Sciences in Colleges Northeastern Conference, Schenectady, NY

February 2005: "Bioinformatics Basics for Computer Scientists" Special Interest Group for Computer Science Education (SIGCSE), St. Louis, MO

June 2009: "Fundamentals of Tissue Culture" at Rochester Institute of Technology

August 2009: "Fundamental Molecular Biology in Bioprocessing Operations" at Rochester Institute of Technology

July 2013 – July 2017: "Solving Crimes with DNA: Facts, Fiction and Television", a week-long "summer camp" for high school students.

July 2015: "Exploring Computer Science in the Liberal Arts", (NSF sponsored) at the RIT Inn and Conference Center.

Community Projects:

Science Action at Northside Elementary School in Fairport, New York
Charter member of planning and implementation team

Science in Action presentations at Northside Elementary School in Fairport, New York
Annual presenter

Science Exploration Days at St. John Fisher College in Rochester, New York
Annual participant (lectures and exhibits) since 1995

“Bring Your Child to Work Day” at Wyeth-Lederle in Rochester, New York
Design and implement annual program in 1997 and 1998 (as consultant)

Member of the Advisory Board, Center for Biotechnology Education and Training at
Rochester Institute of Technology

Member of the External Advisory Board for the Bioinformatics program at Canisius
College

Served as “expert” in Bioinformatics education for the Bio-IT World online “Ask the
Expert” column

Member of the Science and Technology Advisory Council for the Academic Center for
Integrated Biological, Chemical and Technological Sciences at Niagara
University

Member of the Institutional Biosafety Committee, Vaccinex, Incorporated.

Member of the Institutional Biosafety Committee, University of Rochester

Member of the Core Working Group for the Caroline Werner Gannett Project at
Rochester Institute of Technology

Member of the Community Education Advisory Board, Center for Bioscience Education
and Technology at Rochester Institute of Technology

Member of the Workforce Development Advisory Board, Center for Bioscience
Education and Technology at Rochester Institute of Technology

Founding member and former Chair, Institutional Biosafety Committee at Rochester
Institute of Technology

Member of the Board of Directors, Rochester Amateur Radio Association, Inc. (2011-
present)

Vice President, Rochester Amateur Radio Association, Inc. (2012-2015)

Member of the Volunteer Examiner Team, Rochester Amateur Radio Association (2010)

– 2017)

Member of the Scientific Advisory Board, 5D Innovations, West Henrietta, NY

Member of the Project Lead the Way/Science, Technology, Engineering and Math (PLTW/STEM) Advisory Board, McQuaid Jesuit, Rochester, NY

External Ph.D. thesis reviewer for Swati Choudhary, Indian Institute of Technology at Madras, *Development of SCF-Based Fusion Proteins for C-Kit Targeted Therapy and Diagnostic Applications*. February 2016.

Publications:

Sullivan, D.T., Donovan, F.A. and Skuse, G. (1983). Developmental regulation of glycerol 3-phosphate dehydrogenase synthesis in *Drosophila*. *Biochem. Genet.* 21, 49-62.

Skuse, G.R. and Sullivan, D.T. (1985). Developmentally regulated alternate modes of expression of the *Gpdh* locus of *Drosophila*. *EMBO J.* 4, 2275-2280.

Rowley, P.T. and Skuse, G.R. (1987). Oncogene expression in myelopoiesis. *Int. J. Cell Cloning* 5, 255-266.

Blennerhassett, G.T., Furth, M.E., Anderson, A., Burns, J.P., Chaganti, R.S.K., Blick, M., Talpaz, M., Dev, V.G., Chan, L.C., Wiedemann, L.M., Greaves, M.F., Hagemeijer, A. van der Plas, D., Skuse, G., Wang, N. and Stam, K. (1988). Clinical evaluation of a DNA probe assay for the Philadelphia (ph¹) translocation in chronic myelogenous leukemia. *Leukemia* 2, 648-657.

Skuse, G.R. and Rowley, P.T. (1989) Tumor suppressor genes and inherited predisposition to malignancy. *Seminars in Oncology* 16, 128-137.

Skuse, G.R., Kosciolk, B.A. and Rowley, P.T. (1989) Molecular genetic analysis of tumors in von Recklinghausen neurofibromatosis: Loss of heterozygosity for chromosome 17. *Genes, Chromosomes and Cancer* 1, 36-41.

Wang, N., Cedrone, E., Skuse, G.R., Insel, R. and Dry, J. (1990) Two identical active X chromosomes in human mammary carcinoma cells. *Cancer Genet. Cytogenet.* 46, 271-280.

Wang, N., Cedrone, E., Skuse, G.R., Schwartz, C. and Derylak, S. (1990) Transposition of the oncogene *ets1* in t(11;19) translocation in acute leukemia. *Cancer Genet. Cytogenet.* 50, 199-205.

Skuse, G.R. and Rowley, P.T. (1991) "Tumor Suppressor Genes and Human Neoplasia" in *Biochemical and Molecular Aspects of Selected Tumors* (T.P. Pretlow and T.G. Pretlow eds.) Academic Press, Orlando, FL, pp 1-23.

Skuse, G.R., Kosciolk, B.A. and Rowley, P.T. (1991) The neurofibroma in von Recklinghausen neurofibromatosis has a unicellular origin. *Am. J. Hum. Genet.* 49, 600-607.

Ludlow, J.W.. and Skuse G.R. (1994) "Tumor Suppressors: Involvement in Human Diseases, Viral Protein Interactions, and Growth Regulation". The R.G. Landes Company, Georgetown, TX. (ISBN 1570591059)

Ludlow, J.W. and Skuse, G.R. (1995) Viral oncoprotein binding to pRB, p130, and p300. *Virus Research*, 35, 113-121.

Skuse, G.R. and Ludlow, J.W. (1995) The role of tumor suppressor genes in disease and their potential for gene therapy. *The Lancet* 345, 902-906.

Metheny, L. J., Cappione, A.J. and Skuse, G.R. (1995) Genetic and epigenetic mechanisms in the pathogenesis of neurofibromatosis type I. *J. Neuropathol. Exp. Neurol.* 54, 753-760.

Skuse, G.R., Cappione, A.J., Sowden, M., Metheny, L.J. and Smith, H.C. (1996) The Neurofibromatosis type I messenger RNA undergoes base-modification RNA editing. *Nucl. Acids Res.* 24, 478-486.

Metheny, L.J. and Skuse, G.R. (1996) NF1 mRNA isoform expression in PC12 cells: Modulation by extrinsic factors. *Exp. Cell Res.* 228, 44-49.

Cappione, A.J., French, B.L. and Skuse, G.R. (1997) A potential role for NF1 mRNA editing in the pathogenesis of NF1 tumors. *Am. J. Hum. Genet.* 60, 305-312.

Skuse, G.R. and Cappione, A.J. (1997) RNA processing and clinical variability in neurofibromatosis type 1 (NF1). *Hum. Mol. Genet.* 6, 1707-1712.

Skuse, G.R. (1998) Identification of an insertion and accompanying deletion in exon 31 of the neurofibromatosis type 1 gene. *Hum. Mutn. Supplement 1*, S50-S52.

Metheny, L.J. and Skuse, G.R. Protein synthesis inhibitors lead to increased levels of murine type I and type III NF1 mRNA isoforms. (in preparation).

Cappione, A.J. and Skuse, G.R. NF1 mRNA editing by the apoB catalytic component 1: evidence for the role of gene-specific auxiliary proteins (submitted for publication).

Haake, A.R. and Skuse, G.R. (2002) Formulating Bioinformatics Curricula. *Conf. for Info. Technol. Curriculum*.

Polansky, H. (2003) Microcompetition with foreign DNA and the origin of chronic disease. (Skuse, G.R. ed.) Center for the Biology of Chronic Disease, Rochester, NY. (ISBN 0974046302)

Burhans, D. T., Campbell, A.E.R. and Skuse, G.R. (2003) Exploring the role of knowledge representation and reasoning in biomedical text understanding. Working notes of the SIGIR '03 Workshop on Text Analysis and Search for Bioinformatics, Toronto.

Burhans, D.T. and Skuse, G.R. The role of computer science in undergraduate bioinformatics education. Working notes of the 2004 SIGCSE symposium, Norfolk, VA, March 2004.

Lyshevski, S.E., Andersen, J.D., Boedo, S., Fuller, L., Raffaele, R., Savakis A. and Skuse, G.R. "New Nano-Science, Engineering and Technology course at the Rochester Institute of

Technology,” *Proc. ASEE Conf. Engineering on the Edge: Engineering in the New Century*, Binghamton, NY, pp. section E.5.1-E.5.6, 2005.

Lyshevski, S.E., Andersen, J.D., Boedo, S., Fuller, S., Raffaele, R., Savakis, A. and Skuse, G.R. (2006) Multidisciplinary undergraduate nano-science, engineering and technology course. *Proc. IEEE Conference on Nanotechnology*, Cincinnati, OH, 399-402.

Lopatto, D., Alvarez, C., Barnard, D., Chandrasekaran, C., Chung, H.-M., Du, C., Eckdahl, T., Goodman, A.L., Hauser, C., Jones, C.J., Kopp, O.R., Kuleck, G.A., McNeil, G., Morris, R., Myka, J.L., Nagengast, A., Overvoorde, P.J., Poet, J.L., Reed, K., Regisford, G., Revie, D., Rosenwald, A., Saville, K., Shaw, M., Skuse, G.R., Smith, C., Smith, M., Spratt, M., Stamm, J., Thompson, J.S., Wilson, B.A., Witkowski, C., Youngblom, J., Leung, W., Shaffer, C., Buhler, J., Mardis, E. and Elgin, S.C.R. (2008) Genomics education partnership. *Science* 322, 684-685.

Skuse, G.R. and Du, C. *Bioinformatics Tools for Plant Genomics* (Editorial) (2008) *Int. J. Plant Genomics*, Article ID 910474, 2 pages, 2008. doi:10.1155/2008/910474.

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Skuse, G.R. and Lamkin-Kennard, K. A. (2013) Reverse engineering life: physical and chemical mimetics for controlled stem cell differentiation into cardiomyocytes. In *Organ Regeneration: Methods and Protocols* (Methods in Molecular Biology, vol 1001), pp 99-114 (J. Basu and J.W. Ludlow eds.). Humana Press. NY, NY.

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Metheny, L.J. and Skuse, G.R. Characterization of a novel NF1 tumor cell line, NFRL91. Meeting of the National Neurofibromatosis Foundation International Consortium on Gene Cloning and Gene Function for NF1 and NF2, April 1993.

Cappione, A.J., Metheny, L.J. and Skuse, G.R. Evidence for editing of the neurofibromatosis type 1 transcript. 1994 Albany Conference: RNA editing, an evolving mechanism of gene regulation, October 1994.

Skuse, G.R., Sowden, M., Smith, H.C. and Cappione, A.J. Neurofibromatosis type I (NF1) mRNA edits by a mooring sequence dependent apoB-like mechanism. 1995 Cold Spring Harbor Laboratory RNA Processing Meeting.

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Johnson, A. and Skuse, G.R. Identifying associations among neurological diseases using bioinformatics tools. Annual Biomedical Research Conference for Minority Students, San Francisco, CA, October 2006.

Johnson, A. and Skuse, G.R. Environmental effects on the rate of change in DNA sequences of complex organisms. Annual Biomedical Research Conference for Minority Students, Austin, TX, November 2007.

Skuse, G.R., Osier, M.V., Marchetti, C. and Dadgar, S. Estimating genomic diversity of the cleavage site peptides among H5HA avian influenza ameliorates the synthesis of influenza vaccine. International Society of Computational Biology/European Conference on Computational Biology, Stockholm, Sweden. June 2009.

Skuse, G.R. and Walzer, D.A. Exploring Computer Science in the Liberal Arts, poster for annual meeting of the Special Interest Group for Computer Science Education (SIGCSE), Memphis, TN, March 2016.

Business Experience:

June 1987- April 2005	Principal Consultant Biocom Services Fairport, New York Major projects include: Assessing Biotechnology in Western New York (funded by Empire State Development Corporation) at Rochester Institute of Technology
August 1995- December 2004	Chief Information Officer (and founding partner) GenNet Information Systems, Inc. Fairport, New York
April 2004- Present	Advisory Board Member Microsystems and Nanotechnologies
May 2005- Present	Managing Member and Principal Consultant Biocom Services, LLC Fairport, New York

July 2007 – Present Principal Communications Technology Consultant
Airsupport, LLC
Canandaigua, New York

Computers and Information Management Experience:

Academic: University of Rochester Integrated Academic Information Management
1995-1997 System (IAIMS) Project
Member of Basic Science Research committee during planning phase
Contributed to design of project implementation plan

Member of “Mock Site Visit Committee”
served as “expert” in preparation for visit from team from the National Library
of Medicine

1993-1997 Designed course entitled “Molecular Biology Resources on the Internet” for the
University of Rochester’s library (composed and updated course syllabus)

Business: Chief Information Officer and founding partner of GenNet Information Systems, Inc.
1995-2004 Design and implement commercial websites (including several with integral
databases)
Specify and approve equipment purchases
Design and implement network architecture
Compose and edit information content
Design and implement secure mail services

Bioinformatics Wisconsin Package (Genetics Computer Group)
Software: NCBI suite (BLAST, ENTREZ, OMIM, Pub-Med)

Operating Windows 95, 98, NT (server and workstation), 2000, XP Professional, Windows
Systems 7, 8, 10, Linux, Mac OS X and Solaris 8, 9 and 10

US and European Patents Written (for Sci Pharmaceuticals, Inc., Rochester, NY)

- Assays and methods based on microcompetition with a foreign polynucleotide
- Assays for drug discovery based on microcompetition with a foreign polynucleotide
- Diagnosis methods based on microcompetition for a limiting gabp complex
- Drug discovery assays based on microcompetition for a limiting gabp complex
- Treatment methods based on microcompetition for a limiting gabp complex
- Inhibition of microcompetition with a foreign polynucleotide as treatment of chronic disease
- Methods for chronic disease diagnosis based on microcompetition with a foreign polynucleotide

- Microcompetiton and human disease

Notary Public: State of New York, Qualified in Monroe County