

Curriculum Vitae

Name: Mark R. Chance
Mailing Address: Center for Proteomics and Bioinformatics, BRB 930, Case Western Reserve University, 10900 Euclid Ave, Cleveland Ohio, 44106
Home Address: 25 Ridgecreek Tr., Moreland Hills OH, 44022
Date of Birth: July 17, 1958
E-mail: mark.chance@case.edu
Home Page: <http://proteomics.case.edu>
Profile: <http://www.linkedin.com/in/markrchance>
Dated: 12-2015

Summary:

Dr. Chance is Vice Dean for Research and Graduate Education at the School of Medicine of Case Western Reserve University. He is a Professor of Nutrition and of Genetics and Genome Sciences and is the holder of the Charles W. and Iona A. Mathias Chair in Cancer Research. He is founder and director of the Center for Proteomics and Bioinformatics (<http://proteomics.case.edu>). The CPB is an interdisciplinary research center that has attracted over \$120 million in research funding since 2005. He is the Director of the Center for Synchrotron Biosciences (<http://csb.case.edu>) at Brookhaven Laboratory, established in 1994, which has been a world leading resource for synchrotron biophysics since that time. Recently, he became Co-PI of the Cleveland Center for Translational Science Collaborative <http://casemed.case.edu/ctsc/>. He recently established (2011), and is also the Director of the Systems Biology and Bioinformatics Graduate Program (<http://bioinformatics.case.edu>).

Dr. Chance is an internationally recognized expert in proteomics, structural biology, and systems biology with over 270 publications (H-index of 59 with nearly 11,000 citations, Google Scholar). Dr. Chance has led dozens of peer-reviewed Federally funded research programs from the National Institute of Health, including funding from 14 of the 27 current or former Centers and Institutes of the NIH as an individual investigator or leader in interdisciplinary Centers or Program Projects. He has also received funding from NSF and USDA and has continuously had peer-reviewed Federal funding since 1990. He is a member of numerous advisory boards and a frequently invited lecturer at national and international meetings. He multiple inventions and patents and has launched a successful startup company in the field of systems biology, NeoProteomics, Inc.

As Vice Dean for Research he oversees nearly \$250 million in research activity across over 300 faculty in the Medical School and in key affiliates spanning hundreds of Federal, Foundation and Industry research awards. He heads the Office of Research Administration, which oversees grants and contracts, space, cores, graduate education, and research support for the School of Medicine. In response to the changing landscape of Academic Medicine he has reshaped the strategic directions of the School of Medicine in research and graduate education maintaining a top 25 Research ranking among US Medical Schools while introducing innovation programs and expanding graduate education.

Dr. Chance's career goals are to provide scientific leadership to accelerate the development and translation of biomarkers and treatments for complex diseases and provide administrative vision to help evolve academic research with an eye to advancing the careers of the next generation of scientific thought leaders and encourage innovation, translation, and collaboration across the spectrum of the research enterprise.

EDUCATION:

- 1986 Ph.D. (Biophysics), University of Pennsylvania
1980-1984 Graduate courses and qualifying examination in Biochemistry, Massachusetts Institute of Technology
1980 B.A. with Honors in Biology, (cum laude) Wesleyan University

PROFESSIONAL EMPLOYMENT:

- 2015-Present Professor, Department of Nutrition, Case Western Reserve University, School of Medicine, Case Western Reserve University, Cleveland, OH
2011-Present Vice Dean for Research and Graduate Education, School of Medicine
2011-Present Charles W. and Iona A. Mathias Professor of Cancer Research
2010-Present Professor, Department of General Medical Sciences,
2010-Present Professor, Department of Genetics and Genome Sciences
2010-2012 Interim Chair, Department of Genetics and Genome Sciences
2009-Present Chief Scientific Officer, NeoProteomics, Inc. Cleveland, OH
2006-2009 CEO, NeoProteomics, Inc. Cleveland, OH
2005-Present Director, Center for Proteomics and Bioinformatics
2005-2010 Professor, Department of Physiology & Biophysics
1995-Present Director, Center for Synchrotron Biosciences, National Synchrotron Light Source, Brookhaven Labs
1998-2005 Professor, Departments of Physiology & Biophysics and Biochemistry, Albert Einstein College of Medicine, Bronx, NY
1993-1998 Associate Professor, Departments of Physiology & Biophysics and Biochemistry, Albert Einstein College of Medicine, Bronx, NY
1992-1993 Assistant Professor, Department of Physiology & Biophysics, Albert Einstein College of Medicine, Bronx, NY
1988-1992 Assistant Professor, Department of Chemistry, Georgetown University
1987-1988 Research Assistant Professor, Department of Chemistry, New York University, New York, NY
1985-1987 Postdoctoral Research Associate, Institute for Structural and Functional Studies, Philadelphia, PA and AT&T Bell Laboratories
1984-1988 Resident Visitor, AT&T Bell Laboratories, Murray Hill, NJ

AWARDS, FELLOWSHIPS & HONORS:

- 2014 Naomi Kanof Investigator Award Lectureship and Medal for Distinguished Achievement in Clinical Investigation, Awarded by the Society of Investigative Dermatology
2011 Charles W. and Iona A. Mathias Chair in Cancer Research
2003 Dean's Achievement Award, Albert Einstein College of Medicine
1996-2001 Irma T. Hirschl Career Scientist Award
1995-2000 Joseph & Anne Wunsch Fellow in Biophysical Engineering
1990-1992 Upjohn Company Research Award
1990-1992 Petroleum Research Fund Award
1990-1991 Georgetown University Faculty Research Award
1985-1986 NIH/NHLBI Cardiovascular Fellow, University of Pennsylvania
1980-1984 NIH Graduate Fellow, Massachusetts Institute of Technology, Cambridge, MA
1980 Hawk Prize in Biochemistry, Wesleyan University
1980 Honors In Biology, Wesleyan University
1975 Rensselaer Polytechnic Institute Medal in Mathematics and Science

COMMITTEE APPOINTMENTS & OTHER PROFESSIONAL ACTIVITIES:

National Committees

2015-Present National Prion Disease Pathology Surveillance Center Advisory Committee
2014-2015 Member, NIGMS National Centers for Systems Biology Program Evaluation Committee
2014, 2013 Member, NIGMS Systems Biology Center Review Panel (also 2007)
2014 Member, NIAMS Accelerating Medicines Partnership in Rheumatoid Arthritis and Lupus Review Panel
2010-2020 Editorial Board Member, Molecular and Cellular Proteomics
2010-2015 Editorial Board Member, Journal of Clinical Bioinformatics
2009-Present Editorial Board Member, Cancer Genomics and Proteomics
2009-Present Member, External Advisory Committee, NIH/NIGMS Mass Spectrometry Resource, Washington University, St. Louis (Chair, 2011 and 2013).
2009-2013 Editorial Board Member, International Journal of Proteomics
2009 Member, NIDDK R24 Systems Biology Review Panel
2009-2010 Reviewer, Research Grants Council, Hong Kong, China
2007-Present Biophysics Proposal Review Panel, Advanced Light Source, Lawrence Berkeley National Laboratory
2007-2009 Experimental Facilities Advisory Committee, National Synchrotron Light Source-II, Brookhaven National Laboratory
2004 Chair, Special NIDDK Study Section for PAR-04-076: Proteomic and Metabolomic Approaches to Diagnose Diabetes and Pre-Diabetes
2004-2005 New York Academy of Medicine Advisory Committee on High Throughput Screening and Sequencing
2003-2007 Regular Member, Biomedical Research & Training Committee-A, NIH
2003-2014 Scientific Advisory Committee, Protein Crystallography Research Resource, Brookhaven National Laboratory, Chair (2007)
2001-2005 Scientific Advisory Committee, Center for Fluorescence Spectroscopy, University of Maryland, (Chair, 2005).
2001-2003 Chair, NIH-NCRR Biomedical Technology Center Directors' Organization
2001 Federation of American Societies of Experimental Biology Consensus Funding Conference, Department of Energy Sub-Panel
2000-2001 Scientific Advisory Committee, National Synchrotron Light Source, Brookhaven National Laboratory, Upton, NY
2000-2001 Chair, User Executive Committee, National Synchrotron Light Source, Brookhaven National Laboratory
1999-2000 Vice Chair, User Executive Committee, National Synchrotron Light Source, Brookhaven National Laboratory
1996-1999 User Executive Committee, National Synchrotron Light Source, Brookhaven National Laboratory
1996-2001 General User Oversight Board and Beamtime Allocation Committee, National Synchrotron Light Source, Brookhaven National Laboratory
1995-Present Director, NIH Biotechnology Research Resource: Center for Synchrotron Biosciences, National Synchrotron Light Source, Brookhaven National Laboratory
1995-2005 Director, NIH Funded Molecular Biophysics Training Program, Albert Einstein College of Medicine
1995-1998 Scientific Advisory Board, ELETTRA Synchrotron, Trieste, Italy
1993-1995 Director, Biostructures Participating Research Team, Beamline X9B, National Synchrotron Light Source, Brookhaven National Laboratory

University Committees (CWRU)

2014-Present Co-PI, Cleveland Center for Translational Science Collaborative
2013 University Hospitals Strategic Planning Steering Committee
2012-2013 Provost's Strategic Planning Steering Committee

2012-Present University Hospitals-CWRU Joint Planning Group
 2007-Present CWRU Center for Translational Science Collaborative, Executive Steering Committee
 2011-2012 Member, Genetics and Genome Sciences Chair Search Committee
 2011-2012 Member, Neurosciences Chair Search Committee
 2011-Present CWRU Institutional Animal Official
 2010-Present Director, Graduate Program in Systems Biology and Bioinformatics
 2009-2012 Faculty Senate, Chair of Committee on Research
 2009-Present MSTP Policy Review Committee and Advisory Committee (Chair, 2011-Present)
 2009-2012 Human Health Alliance Working Group Member
 2009-2012 Informatics Alliance Working Group Member
 2009 Chair, School of Medicine Strategic Plan Executive Committee: Infection and Immunology Focus Group
 2008-2009 CTSC Informatics Operations Management Committee
 2008-2010 Center Translational Science Award, Biomedical Informatics Steering Committee
 2008-2009 School of Medicine, Graduate Education Task Force Committee, Co-Chair
 2008-2009 Expanded Dean's Leadership Committee, School of Medicine
 2008 Provost Search Committee
 2007-Present Council of Basic Science Chairs, School of Medicine, Chair (2008-2009)
 2007-2009 Cancer Center Basic Science Faculty Search Committee, School of Medicine
 2007-Present Cleveland Center for Membrane Structural Biology Advisory Board
 2007-2009 Population Health and Personalized Medicine Working Group, School of Medicine
 2007 Price Waterhouse Cooper Finance Review Steering Committee, School of Medicine
 2006-2009 Member, Case Research Institute Advisory Committee, School of Medicine
 2006-2007 Member, Neurology Chair Search Committee, University Hospital-Case Medical Center
 2005-Present Member, Case Comprehensive Cancer Center

PROFESSIONAL SOCIETY MEMBERSHIPS:

American Association for the Advancement of Science
 American Association for Cancer Research
 American Chemical Society
 American Society for Biochemistry & Molecular Biology
 American Society for Mass Spectrometry
 Biomedical Engineering Society
 Biophysical Society
 Protein Society

MANUSCRIPT REVIEWER:

Analytical Biochemistry
 Analytical Chemistry
 Analytica Chimica Acta
 Biochemica Biophysica Acta
 Biochemistry
 Biophysical Journal
 Biopolymers
 Biotechniques
 BMC Biotechnology
 Cancer Research
 Cancer Genomics & Proteomics
 European J. Biochemistry
 Genome Research
 Inorganic Chemistry
 Inorganica Chimica Acta
 Journal of the American Chemical Society

Journal of the American Society for Mass Spectrometry
Journal of Biological Chemistry
Journal of Clinical Bioinformatics
Journal of Physical Chemistry
Molecular and Cellular Proteomics
Nature
Nature Structural Biology
Nature Genetics
PLoS Computational Biology
Science

RESEARCH

Currently Funded Projects

Projects as PI

DBI-1228549 (Chance) 8/12-7/17

NSF

Total Award-\$4,000,000

MRI Consortium: Development of a Damping Wiggler Beamline for X-Ray Footprinting at NSLS II

P30-EB-009998 (Chance) 9/09-8/19

NIH

Total Current Award-\$4,800,000

Case Center for Synchrotron Biosciences

This center assists NIH funded users in accessing structural biology beamlines for their research in crystallography, nucleic acid and protein footprinting, and x-ray spectroscopy.

UL1-RR-024989 (Davis, Erzurum, Chance) 9/07-7/17

NIH

Case Western Reserve University/Cleveland Clinic CTSA

Mark Chance – Co-PI of overall grant and Core Grant PI for Translational Technology and Innovations

Core. Total Current Award, \$64,000000

The goal of this core is to facilitate translational activities to understanding the molecular basis of disease across Cleveland.

Projects as PI of Sub-award or Core

P30 AI036219 (Karn) 04/10-4/20

NIH

Center for AIDS Research Proteomics Core

Mark Chance - PI of Proteomics Core

Total Core Award: \$650,000

P30-CA-043703 (Gerson) 7/07-6/18

NIH

Cancer Center Proteomics Core

Mark Chance - PI of Proteomics Core

Total Current Core Award (2013-2018): \$726,000

To provide proteomics services to cancer center investigators.

U54HL119810 (Vince) 08/13-07/20

NIH

The Cleveland Clinic Innovation Accelerator

Mark Chance – CWRU Site PI

The goal of this project is to accelerate the advancement of NHLBI-related research discoveries and innovations into improvements in human health and educating researchers to be full partners in this translation process.

Projects as Co-I/Consultant

R01-LM-11247 (Koyuturk) 8/12-7/16

NIH

Enhancing Genome Wide Association Studies with Integrative Network Analysis

Total Award-\$1,450,000

Role on Project-Co-Investigator

To develop new methods of analyzing GWAS data for complex diseases.

Ohio Pre-Maturity Consortium (Muglia) 7/13-6/18

March of Dimes

Systems Biology of Progesterone Signaling

Total Award to CWRU-\$1.7M

Role on Project-Co-Investigator

To use systems biology and bioinformatics approaches to explore pre-mature birth mechanisms

Recently Completed Projects

U01-GM-094612 (Handel) 9/10-6/15

NIH

Structure, Dynamics, and Activation Mechanisms of Chemokine Receptors

Role: PI of CWRU sub-contract

Total Award: \$650,000

This grant is to further develop the use of radiolytic oxidation for studying chemokine-glycosaminoglycan interactions.

The Cleveland Foundation Center for Proteomic Medicine (Davis) 8/05-3/15

Cleveland Foundation

Total Award: \$3,000,000

Role on Project-Faculty Program Leader

To facilitate the hiring of highly knowledgeable faculty in the areas of proteomics, mass spectrometry and genomics for the Case Western Reserve University School of Medicine.

R01-EB-09688 (Chance) 5/10-4/15

NIH

Radiolytic Footprinting Methods for Structural Mass Spectrometry

Total Award: \$1,130,400

This grant is to further develop methods of radiolytic footprinting to probe the structure of rhodopsin and actin.

R01-HL-106798 (Boom/Chance-Multiple -PIs) 9/10-8/14

NIH

Total Award: \$2,865,152

Proteogenomics of Dysregulated Protein Interaction Networks in MTB Infection

This grant investigates signatures of TB latency and recurrence using proteomic and genomics data combined in a systems biology framework.

Skirball Foundation (Barnholtz-Sloan) 7/12-6/14

Proteomics of Treatment Response in Glioma

Role on Project-Co-Investigator

Total Award \$200,000

Provost's Alliance Funding (Weinberg/Chance-Co-PIs) 6/11-5/14
Center for Mucosal Immunology
Total Award-\$800,000
For joint recruiting of faculty between Dental and Medical Schools in Immunobiology and Proteomics

P01-DE-019759 (Weinberg) 3/09-2/14
National Institute of Health
Oral Mucosal Immunity in Vulnerable HIV Infected Populations
Mark Chance - PI of Proteomics and Bioinformatics Core
Total Core Award: \$1,200,000

Technology Validation Grant (Chance) 6/12-9/13
Ohio Third Frontier
Development of Novel Tools for Health-IT-GIENA
Total Award-\$100,000
The grant will prototype novel bioinformatics software developed by the PI in collaboration with an outside firm, NeoProteomics.

R43-GM-103404 (Nibbe) 3/11/-8/13
NIH
Disease Net Finder: A Systems Medical Tool Kit for Clinical and Translational Research
Role on Project -Consultant
Total Award-\$300,000

P01-AI-074286 (Cho) 5/08-4/13
National Institute of Health
Development of a Subunit Envelope Vaccine
Mark Chance – Co-I- Project 2-Structural Evaluation of Antigens
Total CWRU Award: \$3,000,000
To solve structures of HIV envelope glycoprotein antigens.

P20-DK-090871 (Daneshgari) 9/10-8/12
NIH
Urological Complications of Obesity and Diabetes
Role: Co-Investigator
Total Award: \$628,000

HHSN272500800009C (Dearborn) 9/10-1/13
NIH-NICHD
Integrated NCS Genomics & Proteomics Core
The goal of this contract is to provide quality assessment of NCS samples for genetic and proteomic analysis and to make a core of integrated resources for real time analysis of genetic and epigenetic samples and high-throughput protein analysis within the NCS.
Role-Co-Investigator
Total Contract: \$4,670,000

S10-RR-028927 (Chance) 7/10-7/12
NIH
Thermo Electron LTQ Orbitrap XL with ESI and Dionex Ultimate 3000 HPLC
Total Award: \$982,989

P20-DA-026133 (Chance) 4/09-5/12

National Institute of Health-NIDA
Case Proteomics Center in HIV/AIDS & Drug Abuse
Total Award- \$3,007,946

To apply state-of-the art proteomics and systems biology tools to investigate HIV pathogenesis in the context of drug abuse and provide significant biomarkers of HIV infection, co-infection with other viruses, and drug abuse.

UL1-RR-024989-S1 (Davis)

9/09-9/11

NIH

Case Western Reserve University/Cleveland Clinic CTSA

Mark Chance - PI of Supplement

The goal of this supplement is to develop Systems Medicine Data Analysis pipelines for the CTSA community.

Total award \$950,000

R01-AA-016210 (Rubin)

5/06-4/11

National Institute of Health

Identification and validation of alcohol biomarker signatures by proteomics

Mark Chance - PI of Case Sub-contract

Total Sub-contract: \$602,002

To conduct proteomic analysis of cardiovascular disease related to alcohol exposure.

U54-GM-74945 (Burley)

6/03-5/10

National Institute of Health

New York Structural Genomix Research Consortium

Mark Chance - PI of Case Sub-contract

Total Sub-contract: \$2.0 million

This Program grant develops and implements high-throughput protein crystallography studies as part of the Protein Structure Initiative.

P41-EB-01979 (Chance)

3/94-5/10

NIH

Center for Synchrotron Biosciences

This project has been replaced by P30-EB-09998.

Total Award: \$9,000,000

R01-DE-17486 (Ghannoum)

4/07-05/10

National Institute of Health

Identification of early phase *C. albicans* biofilm proteins

Mark Chance - Co-Investigator

Total Award: \$1.9 million

To analyze quantitative protein expression changes in yeast biofilm formation.

P50-AR-055508 (Cooper)

9/07-5/10

National Institute of Health

CORT in Psoriasis

Mark Chance - PI of Genomics Core

Total Award: \$655,000

To provide systems biology studies of skin disease.

R01-DE-016334 (Weinberg)

8/05-7/09

National Institute of Health

Beta Defensin Protection of Human Oral Epithelial Cells (Weinberg)

Mark Chance - Co-Investigator

Total Award: \$1,400,000
To study the role of beta-defensins in oral immunity.

R21-DC-007866 (Alagramam)
National Institute of Health
Noise Induced Hearing Loss-Proteomics
Mark Chance - Co-Investigator
Total Award: \$436,054

3/07-2/09

To carry out systems biology studies of mouse models of hearing loss.

Invited talks since 2007:

Case Cardiovascular Research Institute, Cleveland, OH "Structural and Cellular Proteomics in the Post-Genomic Era"	Jan 2007
USB Corporation, Cleveland, OH "Structural and Cellular Proteomics in the Post-Genomic Era"	Jan 2007
NHLBI Systems Medicine Workshop, Bethesda, MD "Structural Genomics and Macromolecular Complexes"	Jan 2007
2007 Pittsburgh Conference (PITTCO), Pittsburgh, PA "Top-Down Proteomics Using 2D DIGE-Digging Deep for Markers of Diabetic Complications"	Feb 2007
SGX Pharmaceuticals, San Diego, CA "Paradigm Shifts in Structural Genomics: Computational and Experimental Approaches in High-throughput Structure Determination"	April 2007
American Society for Mass Spectrometry Meeting, Indianapolis, IN "Three Dimensional Structure of Cofilin Bound to Monomeric Actin Derived by Structural Mass Spectrometry Data"	June 2007
Cambridge Healthtech Institute Biomarkers Symposium, Philadelphia, PA "Systems Biology to Diagnostic Testing for Diabetic Complications"	Sept 2007
Lerner Research Institute Retreat, Keynote Speaker, Geneva, OH "Systems Biology to Clinical Diagnostics: A Proteomics Approach"	Sept 2007
Modeling of Protein Interactions Conference, Lawrence, KS "Merging Computational and Experimental Data in Structural Mass Spectrometry Experiments"	Sept 2007
Dean's Research Symposium, Case Western Reserve University, Cleveland, OH "Proteomic Biomarkers of Diabetes Complications"	April 2008
Proteomic Tools for Diagnostics Conference (GOT Summit), Boston, MA "Clinical Proteomic Analysis of Diabetes: Biomarker Discovery for End Organ Complications"	May 2008
American Society for Mass Spectrometry Meeting, Denver, CO "Processing of Urinary Proteins as Biomarkers for Diabetic Complications"	June 2008
Cambridge Healthtech Institute Biomarker Discovery Summit, Philadelphia, PA "Integrating Gene and Protein Expression Biomarkers in a Systems Biology Approach to Colon Cancer"	Sept 2008
NCRR/NIBIB - P41 Center Directors Meeting, Washington DC "Integrative Approaches in Translational Medicine"	Nov 2008
Human Proteome Organization (HUPO) Meeting, San Diego, CA "Discovery and scoring of protein interaction sub-networks discriminative of late stage human colon cancer"	Feb 2009

Human Proteome Organization (HUPO) Meeting, San Diego, CA "Conserved waters define a structural and functional channel involved in activation of the G protein-coupled receptor rhodopsin"	Feb 2009
Department of Medicine Grand Rounds, University Hospitals, Cleveland, OH "Systems Biology for Clinical Diagnosis and Therapy"	Mar 2009
8 th TREC Center's Symposium Cleveland, OH "Systems Biology for Clinical Diagnosis and Therapy"	Oct 2009
NSLS-II Workshop, Brookhaven National Laboratory, Upton, NY "Footprinting and Conformational Dynamics: Synergy with SAXS"	May 2009
Cambridge Healthtech Institute's Webinar Symposium Systems Biology of Colon Cancer: Bridging the Silos in High-Throughput Data	June 2009
American Society for Mass Spectrometry Meeting, Philadelphia, PA "Quantitative Top-Down Proteomics and Systems Biology of Colon Cancer"	June 2009
OCCBIO '09, Case Western Reserve University, Cleveland, OH "Overview of and Statistical Analysis of "-omic" Data"	June 2009
Cambridge Healthtech Institute's 7 th Annual Protein Biomarkers meeting, ADAPT 2009: Accelerating Development & Advancing Personalized Therapy, Washington D.C. "Molecular Synergy of Driver Genes in Colon Cancer"	Sept 2009
Division of Pulmonary, Critical Care and Sleep Medicine Grand Rounds, University Hospitals, Cleveland, OH "Systems Biology for Clinical Diagnosis and Therapy"	Oct 2009
Oral HIV/AIDS Research Alliance (OHARA) Investigators Meeting, Cleveland, OH "Proteomics and Systems Biology of HIV in the Oral Cavity"	Oct 2009
Sleep Research Network Meeting, Washington, D.C. "Protein Networks: A Tool to Discover Function"	Oct 2009
Department of Pharmacology Seminar Series, University of Nebraska Medical Center, Omaha, NE "Systems Biology Integration of Molecular Targets in Studies of HIV and Cancer"	Nov 2009
GE Healthcare DIGE Symposium, Plenary lecture, Cleveland, OH "Seeing Spots: Are Things Beginning to Gel?"	Dec 2009
Human Proteome Organization (HUPO) Meeting, Denver, CO "Structural proteomics of membrane protein dynamics: Mechanisms of ion channel and signaling protein function"	Mar 2010
Mt. Sinai Health Care Foundation- Health Research Alliance Members' Meeting, Cleveland, OH "Working with biospecimens to develop clinically useful biomarkers: issues and opportunities"	Mar 2010

Case Western Reserve University Board of Trustees Meeting, Cleveland, OH "New Technologies and Health Care Innovation: Getting from Discovery to Commercialization"	June 2010
OCCBIO 2010, The Ohio State University, Columbus, OH "Integrative Proteomics Approaches to Identify Functional Sub-networks in Human Colorectal Cancer"	June 2010
OCCBIO 2010, The Ohio State University, Columbus, OH "Systems Biology Informatics Pipelines for CTSA Translational Research"	June 2010
Commission for the Advancement Academic Medicine (CAAM), Case Western Reserve University, Cleveland, OH "Working with biospecimens to develop clinically useful biomarkers: issues and opportunities"	June 2010
Cambridge Healthtech Institute's 8 th Annual Protein Biomarkers meeting, ADAPT 2010: Accelerating Development & Advancing Personalized Therapy, Washington D.C. "Systems Biology Analysis of Glioblastoma Gene Expression Data Reveal Proteomic Biomarkers of Survival"	Sept 2010
2010 Workshop on Petascale Computing and Personalized Medicine, Urbana, IL "Organizing -omics data for translational research: Systems biology analysis of glioblastoma gene expression data"	Oct 2010
P41 Director's Meeting, NIH, Washington DC "Organizing -omics data for translational research: Systems biology analysis of glioblastoma gene expression data"	Oct 2010
Pacific Symposium on Biocomputing 2011, Hawaii "Integrative -omics for Translational Science - Session Introduction"	Jan 2011
CHI Peptalk, San Diego, CA "Drug & Vaccine Development from Envelope Glycoproteins to GPCRs"	Jan 2011
Genentech Corp. "Footprinting research for Drug & Vaccine Development"	Feb 2011
IADR/AADR 2011 San Diego "Proteomics and Systems Biology of HIV Mediated Epithelial Cell Dysregulation"	Mar 2011
Purdue University Seminar Series "Structural Mass Spectrometry: Drug and Vaccine Development from Envelope Glycoproteins to GPCRs"	Apr 2011
GLBIO 2011 "Differential Protein Expression Classifier for Biomarker Discovery for Early Detection of Human Disease Prognosis"	May 2011
Systems Biology Summit, Richmond, VA "Genomics classifiers coupled to targeted proteomics provide novel predictors in cancer"	June 2011
The New York Academy of Sciences, NY, NY	Sept 2011

Conference on Personalized Medicine: A Search for Tailored Therapeutics "Network Biology Classifiers for Cancer Prediction"	Nov. 2011
University of Maryland, Baltimore, MD Department of Biochemistry "Structural Mass Spectrometry as a Probe of Membrane Protein Dynamics"	
ASMS Sanibel Research Conference, St. Petersburg, FL "Labeling Strategies for Structural Characterization of Membrane Proteins"	Jan. 2012
Gordon Research Conference in Proteins and Membrane Proteins, Ventura CA "Structural Mass Spectrometry of Membrane Proteins and Water Dynamics"	Feb. 2012
University of Pennsylvania, Philadelphia, PA Department of Biochemistry and Biophysics "Structural Mass Spectrometry of Membrane Proteins and Water Dynamics"	March 2012
ReCOMB Satellite Conference on Computational Proteomics 2012 San Diego, CA "Statistical Issues in expression proteomics: peptides vs proteins" "Computational approaches in structural mass spectrometry"	April 2012
Ohio State University, Columbus, OH Department of Biomedical Informatics "Systems Biology Approaches in Complex Disease: Identifying Biomarkers, Drug Targets, and Outcomes"	May 2012
American Society for Mass Spectrometry Annual Meeting, Vancouver BC, Canada Biomarkers of HIV and HCV Immunobiology: A proteomics first systems medicine Approach	May 2012
Washington University, St. Louis, MO Department of Chemistry and Midwest Mass Spectrometry Discussion Group "Structural Mass Spectrometry of Protein Complexes and Membrane Proteins"	Oct. 2012
Gladstone Institute, San Francisco CA "Commercialization and Technology Acceleration at Case Western Reserve University School of Medicine"	Jan. 2013
Bio-IT World, Boston MA "Network Biology and Personalized Medicine in Multiple Sclerosis"	April 2013
Britton Chance Centennial Symposium, Philadelphia, PA Keynote Presentation-"A Century of Science, A Lifetime of Achievement"	June, 2013
Biomedical Engineering Annual Symposium, Seattle WA "Network Biology and Personalized Medicine in Multiple Sclerosis"	Sept. 2013
American Association for Dental Research Symposium, Ann Arbor MI "Omics-based Predictive Tests-Are We There Yet?"	Oct. 2013
Genentech, Inc., San Francisco CA "Strategies for biologic drug development: Biomarkers for patient stratification"	Jan. 2014

and epitope mapping for Avastin and other biologics”	
Agensys, Inc, Santa Monica, CA “Strategies for biologics drug development: Biomarkers for patient stratification and epitope mapping for biologics”	Feb. 2014
Pittsburg Conference, Chicago IL “XFP: A national resource for X-ray footprinting at the NSLS-II to probe nucleic acids and protein structure and dynamics”	Mar. 2014
Baylor University, Houston, TX Department of Biochemistry and Molecular Biology “Structural Mass Spectrometry of Protein Complexes and Membrane Proteins”	April 2014
Naomi Kanof Investigator Award Lectureship, Society of Investigative Dermatology Albuquerque NM “Integrating -omics data for understanding complex disease”	May 2014
Ohio Venture Association, Cleveland Ohio “Technology Commercialization at case Western Reserve University”	May 2014
Chemcentryx Corp., Mountain View, CA Strategies for drug development: Biomarkers for patient stratification and mechanism of action studies for GPCRs	May 2104
Genzyme Corp. Boston MA Strategies for biologic drug development: Biomarkers for patient stratification and epitope mapping for biologics	June 2014
March of Dimes Burroughs Wellcome Fund 5 th Biennial Symposium Long Beach, CA “Systems Biology of Pre-term Birth”	Dec. 2014
Tohoku University, Sendai Japan Department of Chemistry “Structural Mass Spectrometry of Protein Complexes and Membrane Proteins”	Feb. 2015
Genzyme Corp. Boston MA “Systems biology for patient stratification and therapeutics development”	April 2014
American Society for Mass Spectrometry, St Louis MO “Structural Mass Spectrometry of Protein Complexes and Membrane Proteins”	June 2015
Advanced Light Source, Lawrence Berkeley Laboratories, Berkeley CA “New Opportunities in X-ray Footprinting”	Oct. 2015
Tohoku University, Sendai Japan School of Informatics and Tohoku Megabank Organization “Systems Biology of Complex Disease”	Nov. 2015

BIBLIOGRAPHY (All Papers and Book Chapters):

1. Chance, M.R. "Investigation of Non-Interstitial Collagen Types in Chick Embryo Tissues". B.A. Thesis, Wesleyan University (1980).
2. Findsen, E., Scott, T., Friedman, J., Chance, M., Ondrias, M. "Picosecond Studies of Myoglobin CO Photolysis". *J. Amer. Chem. Soc.* **107**: 3355-3357 (1985).
3. Chance, M.R. "The Proximal Ligand in Enzyme Function". Ph.D. Thesis, University of Pennsylvania, Philadelphia, PA (1986).
4. Chance, M., Kumar, C., Powers, L., Chance, B. "X-ray Absorption Studies of Myoglobin Peroxide Reveal Functional Differences Between Globins and Heme Enzymes". *Biochemistry* **25**: 1259-1265 (1986).
5. Chance, M., Powers, L., Poulos, T., Chance, B. "Cytochrome-c Peroxidase Compound ES is Identical in Structure to Hrp Compound I". *Biochemistry* **25**: 1266-1270 (1986).
6. Chance, M., Parkhurst, L., Powers, L., Chance, B. "Movement of Fe with Respect to the Heme Plane in the R-T Transition of Carp Hb". *J. Biol. Chem.* **261**: 5689-5692 (1986).
7. Chance, M., Campbell, B., Hoover, R., Friedman, J. "Myoglobin Recombination at Low Temperature: Two Phases Revealed by FTIR Spectroscopy". *J. Biol. Chem.* **262**: 6959-6961 (1987).
8. Campbell, B., Chance, M., Friedman, J. "Linkage of Functional and Structural Heterogeneity in Proteins: Dynamic Holeburning in Carboxymyoglobin". *Science* **238**: 373-376 (1987).
9. Campbell, B., Chance, M., Friedman, J. "Ligand Binding Channels Reflected in the Resonance Raman Spectra of Cryogenically Trapped Species of Myoglobin". *J. Biol. Chem.* **262**: 14885-14890 (1987).
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Patents and Applications

Method to enhance qualitative and quantitative analysis of 2-D gels.
Publication Date: 2/15/2010, Publication Number: US 2010-0046813 A1

Protein and peptide biomarkers of renal and cardiovascular complications of type 1 and type 2 diabetes detected in time.

Publication Date: 9/9/2011, Publication Number: WO 2011/109830

Diagnostic biomarkers and molecular targets to guide treatment of idiopathic pneumonia syndrome: Proteomics methods development and human studies of bone marrow transplant patients.
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Crane: A method for diagnosis, prognosis and prediction of drug response in complex diseases by examination of combinatorial coordinate dysregulation of protein sub-networks using microarray data.

Publication Date: 10/27/2011, Publication Number: WO 2011/1333834, Australian patent granted 8/17/2105, # 2011242613

Licensed to NeoProteomics, Inc. 12/2010

System and method to identify dysregulated pathways and related interactions, Publication date, 9/25/2014, Publication number: US 20140288846 A1, Optioned to NeoProteomics, Inc. 10/2014

Other Inventions Currently Optioned/Licensed

2010-1838: ProtMapMS: Software tools for automated examination of covalently labeled biomolecules by structural mass spectrometry.

Licensed to NeoProteomics, Inc. 8/10/2010

2010-1889: Disease Pathfinder: A computational framework identifying signaling networks via integration of biological networks and high-throughput datasets.

Licensed to NeoProteomics, Inc., 12/2010

2011-1968: Crosstalk: A software tool that provides a seed-guide search for candidate sub-network markers in disease.

Licensed to NeoProteomics, 12/2010

TEACHING & STUDENTS:

GRADUATE STUDENTS SUPERVISED

GEORGETOWN UNIVERSITY:

- 1) Roxane Lee, MS Chemistry 1991 (Current position unknown)
- 2) Irit Sagi, PhD Chemistry 1992, Associate Professor with Tenure, Dept. of Structural Biology, Weizmann Institute.
- 3) Suzanne Frisbie, PhD Chemistry 1992, NCI Unit Coordinator, Tech Transfer Branch, National Institute of Health
- 4) Michael Wirt, PhD Chemistry 1992 (Currently orthopedics MD)
- 5) Eefei Chen, PhD Chemistry 1993, Instructor, with Dr. David Kliger, Dept. of Chemistry, University of California, Santa Cruz, University of California President's Postdoctoral Fellow in 1997.
- 6) Amy Brownawell, BS-MS Chemistry 1993 (Current position unknown)

AECOM:

- 7) Lisa Miller, MA Chemistry 1992, Georgetown University, PhD Biophysics 1995, Albert Einstein College of Medicine, Winner of Sue Golding Award (Top Graduate Student), University of California President's Fellow at the Advanced Light Source, Lawrence Berkeley Laboratory with Dr. Stephen Cramer 1995-1996. Aging Fellow, Albert Einstein College of Medicine, 1996-1998, Assistant Scientist, Brookhaven National

Laboratory, 1999-2000, Associate Scientist, 2000-2003, Scientist, 2003-present, Currently, Associate Division Director for Spectroscopy & Imaging Photon Sciences Directorate, NSLS & NSLS-II

- 8) Eva Scheuring, PhD Biophysics 1995, Albert Einstein College of Medicine. Human Frontiers Fellow, 1996-1999, NIH Post-Doctoral Fellow with Dr. Aneel Aggarwal, Mt. Sinai, 1999-2003, Assistant Professor, Dept. of Physiology & Biophysics, Mt. Sinai School of Medicine, 2003-Present.
- 9) Bianca Sclavi, PhD Biophysics 1998 with Honors, Albert Einstein College of Medicine. EMBO Fellow, Pasteur Institute, 1998-2001, NSF Fellow, 2001-2004, CNRS, Chargé de Recherche de 1ère classe, CNRS, 2004-Present.
- 10) Raymond Huang, PhD Biophysics, 2002, Albert Einstein College of Medicine, currently Radiology MD.

CASE WESTERN RESERVE UNIVERSITY:

- 11) Rod Nibbe, Ph.D Pharmacology, 2009, Case Western Reserve University, currently bioinformatics consultant, Anchorage Ala.,
- 12) Vishal Patel, MD-PhD, Genetics, Systems Biology Track, Ph.D. 2011, Case Western Reserve University, currently Healthcare Analytics Manager, xG Health Solutions.
- 13) Danica Wjerda, MD-PhD Candidate, Systems Biology & Bioinformatics, 2012-present
- 14) Doug Brubaker, PhD Candidate, Systems Biology & Bioinformatics, 2013-present
- 15) Awuri Asuru, PhD Candidate, Systems Biology & Bioinformatics, 2015-present

CLASSROOM & TEACHING EXPERIENCE:

Georgetown University, Chemistry Department:

1988 Fall, General Chemistry-Majors Section; 1989 & 1990 Summer, Physical Chemistry for the Life Sciences; 1989-1992 Fall, Biochemistry Course for Senior Majors and Graduate Students, Text: Biochemistry, Vogt; 1989-1991 Spring, Physical Chemistry Laboratory; 1991 Spring, Biochemistry Laboratory; 1992 Spring, Nursing Chemistry, Lecture and Laboratory

AECOM, Departments of Physiology & Biophysics and Biochemistry:

Established Metallobiochemistry Course in collaboration with Dr. P. Aisen and Dr. J. Peisach. Text: Bioinorganic Chemistry, 1994, Bertini, et.al., Editors. Course given in Spring, 1994 & 1996.

Established Biophysical Chemistry of Macromolecules Course in collaboration with Dr. S. Almo. Text: Proteins, Creighton, 1993. Course given in Fall, 1997-2000, 2002, 2003, 2004.

Founding Director, Molecular Biophysics Training Program, 1994-2005.

Established Responsible Conduct of Research Course, course leader in Spring 2001, 2002.

PI of NIH funded Molecular Biophysics Training Grant 1995-2005.

Organized Bioinformatics Workshops at AECOM-January 20-21, 2004 and Jan 11-13, 2005.

Case Western Reserve University, Center for Proteomics and Bioinformatics:

2008 and 2010 Spring, Current Proteomics Course, Lectures on Structural Mass Spectrometry

2010-Founding Director, Graduate Program in Systems Biology and Bioinformatics; received Ohio Board of Regents Approval in 2011. Program currently has 20 MS and PhD students as it begins its third year in 2014.

2014-Steering Committee Undergraduate Data Science and Analytics Minor-Coordinator of Health Informatics Track

OTHER TEACHING ACCOMPLISHMENTS:

American Society for Mass Spectrometry: Short Courses in Structural Mass Spectrometry (2009-2014) and Quantitative Intact Proteomics (2010)