

Abstract

“Biomanufacturing: Collaboration between Research and Training”

Jared Auclair, PhD
Associate Teaching Professor
Director of Biotechnology and Bioinformatics
Director of the Biopharmaceutical Analysis Training Laboratory
Director of APEC, ICH Training Programs

Biotechnology is an ever-evolving field, one that evolves at the speed of light. As new technologies, such as cell and gene therapies, become more prevalent research and training, which are not mutually exclusive, into the biomanufacturing process is need. Synthetic drugs have been manufactured continuously for several years now, and the biopharmaceutical field is aggressively moving towards continuous manufacturing of biologics. The less human manipulation the better for the product and the patient. Efforts are underway by organizations such as ICH to write guidelines for continuous manufacturing. In this talk we will discuss research and training in biomanufacturing at Northeastern, and their close relationship to each other. Also, the relationship to bioanalytical technologies will be discussed and areas of future research and training needs.

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EDUCATION

University of Massachusetts Medical School, Worcester, MA
Graduate School of Biomedical Sciences
Ph.D., Biomedical Sciences (Biochemistry and Molecular Pharmacology)
Mentor: Celia Schiffer, Ph.D. and Mohan Somasundaran, Ph.D.
Thesis: Probing the Structural Topology of HIV-1 Virion Infectivity Factor (VIF)
Graduation Date: March 2008

Worcester Polytechnic Institute, Worcester, MA
Bachelor of Science (with distinction), Biotechnology
Graduation Date: May, 2001

PROFESSIONAL QUALIFICATIONS (selected list)

Biotherapeutics. Biologics (innovators) and Biosimilars training and research. *Molecular Biology.* Cloning, PCR, mutagenesis. *Biochemistry.* Protein expression (E. coli, yeast, baculovirus), purification (affinity, anion exchange, size exclusion, hydrophobic interaction), in-gel enzyme activity assays, differential scanning fluorimetry, western blotting, co-immunoprecipitation, protein crystallography. *Mass Spectrometry.* In-gel digestion (‘bottom up’ proteomics), top down techniques, cross-linking, database searching, HPLC (Waters NanoAcquity, Waters Acquity H class, Dionex RSLC 3000, Eksigent), MALDI-TOF (Bruker Microflex), ion trap (Bruker HCT), Q-ToF (Bruker Impact HD, Waters Xevo G2-S) orbitrap (Thermo), FTMS (Bruker Apex and Solarix). *Other.* Clinical blood processing (clean room), mouse care,

cell culture. *Research topics.* Human Immunodeficiency Virus (Protein: Vif); Neurodegeneration (Amyotrophic Lateral Sclerosis; Protein: SOD1).

EXPERIENCE

Current Positions

- July 1, 2018-
to present Associate Teaching Professor
Northeastern University; Department of Chemistry and Chemical Biology
- CHEM5617: Protein Mass Spec Lab
 - CHEM5550: Intro to Glycobiology and Glycoprotein Analysis
- July 1, 2018-
to present Director of Biotechnology
Northeastern University; Department of Chemistry and Chemical Biology
- Deliver quality academic granting programming
 - Oversee Curriculum Development (online/on ground)
 - Leverage industrial contacts to solicit co-ops and industrial partners
 - Develop student pipelines
 - Oversee staffing of academic granting programming
 - Oversee annual budget and revenue flows for individual programs
 - Student Advising
 - Direct works: one Operations manager and an Associate Teaching Prof.
- July 1, 2018
to present Director of Bioinformatics
Northeastern University; Department of Biology
- Deliver quality academic granting programming
 - Oversee Curriculum Development (online/on ground)
 - Leverage industrial contacts to solicit co-ops and industrial partners
 - Develop student pipelines
 - Oversee staffing of academic granting programming
 - Oversee annual budget and revenue flows for individual programs
 - Student Advising
 - Direct works: one Operations manager and an Assistant Teaching Prof.
- July 1, 2018
to present Affiliated Fellow, Barnett Institute of Chemical and Biological Analysis
- Dec.1, 2017
to present Director International Council for Harmonisation (ICH)-Q1 stability training center
- Deliver quality executive/non-degree granting programming
 - Oversee Curriculum Development (online/on ground)
 - Leverage industrial contacts to solicit industrial partners
 - Oversee staffing of non-degree granting programming
 - Convene and be a member of advisory boards for Centers and training
 - Oversee annual budget and revenue flows for individual programs
 - Help cultivate a donor base for programming in partnership with Development
 - Identify new markets, including global, for program expansion
 - Direct works: one Assistant Director and post-doctoral fellow
- Feb. 22, 2017-
to present Director Asia-Pacific Economic Cooperation (APEC) Life Science
Innovation Forum (LSIF) Regulatory Harmonization Steering Committee (RHSC)
Center of Excellence (CoE) in Biotherapeutics
- Deliver quality executive/non-degree granting programming
 - Oversee Curriculum Development (online/on ground)
 - Leverage industrial contacts to solicit industrial partners

- Oversee staffing of non-degree granting programming
- Convene and be a member of advisory boards for Centers and training
- Oversee annual budget and revenue flows for individual programs
- Help cultivate a donor base for programming in partnership with Development
- Identify new markets, including global, for program expansion
- Direct works: one Assistant Director and post-doctoral fellow

July 1, 2016 to present Director of Biopharmaceutical Analysis Training Lab

- Deliver quality executive/non-degree granting programming
- Oversee Curriculum Development (online/on ground)
- Leverage industrial contacts to solicit industrial partners
- Oversee staffing of non-degree granting programming
- Oversee annual budget and revenue flows for individual programs
- Help cultivate a donor base for programming in partnership with Development
- Identify new markets, including global, for program expansion

Jan. 1, 2016 to present Sole Proprietor at JM2 Research and Consulting, LLC

Previous Positions

July 1, 2016 to June 30, 2018 Director of Biotechnology Professional Science Masters and Training

July 1, 2017- to June 30, 2018 Director of Executive Training and Biotechnology Programs
Northeastern University; Department of Chemistry and Chemical Biology

Jan. 1, 2015 to June 30, 2018 Lecturer
Northeastern University; Dept. of Chemistry and Chemical Biology
Supervisors: Graham Jones, Michael Pollastri
Role: Teach Protein Mass Spectrometry Lab (CHM 5617); Glycobiology online (CHM5550)

Jan. 1, 2015 to June 30, 2016 Senior Research Scientist
Northeastern University; Dept. of Chemistry and Chemical Biology
Supervisors: Graham Jones, Jeffrey Agar and William Hancock
Role: Perform independent research and maintain the Biopharmaceutical Analysis Training Lab as well as teach courses there as needed.

Apr. 1, 2008 to Aug. 31, 2015 Postdoctoral Fellow (courtesy appointment)
Brandeis University Waltham, MA
Mentors: Gregory Petsko, D. Phil. and Dagmar Ringe, Ph.D.
Research topic: Molecular pathology and prevention of neurodegeneration

June 3, 2013 to Dec. 31, 2014 Postdoctoral Fellow
Northeastern University Boston, MA
Mentor: Jeffrey Agar, Ph.D.
Research topic: Molecular pathology and prevention of neurodegeneration

Apr. 1, 2008 to May 31, 2013 Postdoctoral Fellow
Brandeis University Waltham, MA
Mentor: Jeffrey Agar, Ph.D.
Research topic: Molecular pathology and prevention of neurodegeneration

Jun 11, 2001 Graduate student

- to Mar 14, 2008 University of Massachusetts Medical School Graduate School of Biomedical Sciences
Elucidating the biochemical, biophysical and structural characteristics of HIV-1 Vif.
- Jan. 15 2001 Laboratory Technician
to Jun 18, 2001 ViaCell, Inc. (formally t. Breeders). Worcester, MA (Mass. Biotech. Research Inst.)
Responsibilities include processing of fresh blood, freezing of blood, thawing of blood, ordering stock, and clean room blood processing and thawing of frozen samples. In addition to ordering stock for the company and maintaining the clean room area in terms of equipment maintenance.
- June 1 2000 Laboratory Assistant
to Jan. 15, 2001 ViaCell, Inc. (formally t. Breeders). Worcester, MA (Mass. Biotech. Research Inst.)
Responsibilities include cleaning and autoclaving of laboratory glassware, routine maintenance of laboratory equipment, blood processing, clean room gowning and clinical processing (some), irradiation of cells and mice (radiation training), ordering stock, mouse maintenance, and aiding in supervising three other techs.
- Oct. 28, 1999 Laboratory Assistant
to Mar. 5, 2000 t. Breeders, Inc. Worcester, MA (Mass. Biotechnology Research Inst.)
Responsibilities include cleaning and autoclaving of laboratory glassware, preparation of solutions and buffers, and routine maintenance of laboratory equipment.
- Spring 99 Student Observer
to May 2001 Worcester Polytechnic Institute. Worcester, MA
Observe faculty teaching and give the perspective of the student to the professor.

PUBLICATIONS (book chapters italicized)-Peer Reviewed

Schmitt, N.D., C.M. Rawlins, E.C. Randall, X. Wang, A. Koller, **J.R. Auclair**, J. Kowalski, P.J. Kowalski, E. Luther, A.R. Ivanov, N.Y.R. Agar, J.N. Agar. Genetically Encoded Fluorescent Proteins Enable High-Throughput Assignment of Cell Cohorts Directly from MALDI-MS Images. *Analytical Chemistry in press* (2019).

Auclair, J.R. Regulatory Convergence for Biologics through Capacity Building and Training. *Trends in Biotechnology*, 37 (1): 5-9 (2019).

Donnelly, D.P., M.G. Dowgiallo, J.P. Salisbury, K.C. Aluri, S. Iyengar, M. Chaudhari, M. Mathew, I. Miele, **J.R. Auclair**, S.A. Lopez, R. Manetsch, and J.N. Agar. Cyclic Thiosulfonates and Cyclic Disulfides Selectively Crosslink Thiols While Avoiding Modification of Lone Thiols. *Journal of the American Chemical Society*, 140 (24): 7377-7380 (2018).

Wang, Y., D. Wu, **J.R. Auclair**, J.P. Salisbury, R. Sarin, Y. Tang, N.J. Mozdierz, K. Shah, A.F. Zhang, S.L. Wu, J.N. Agar, J.C. Love, K.R. Love, W.S. Hancock. Integrated bottom-up and top-down liquid chromatography-mass spectrometry (LC-MS) for characterization of recombinant human growth hormone degradation products. *Analytical Chemistry* 89 (23): 12771-12777 (2017).

Quijada, J. V., N.D. Schmitt, J.P. Salisbury, **J.R. Auclair**, and J.N. Agar. Heavy Sugar and Heavy Water Create Tunable Intact Protein Mass Increases for Quantitative MS in any Feed and Organism. *Analytical Chemistry* 88 (22): 11139-11146 (2016).

Liu, S., K.R. Moulton, **J.R. Auclair**, and Z.S. Zhou. Mildly Acidic Conditions Eliminate Deamidation Artifact during Proteolysis: Digestion with Endoprotease Glu-C at pH 4.5. *Amino Acids* 48 (4): 1059-67 (2016).

Salisbury, J.P., R.F. Sirbulescu, B.M. Moran, **J.R. Auclair**, G.K.H. Zupanc, and J.N. Agar. The central nervous system transcriptome of the weakly electric brown ghost knifefish (*Apteronotus leptorhynchus*): de novo assembly, annotation, and proteomics validation. *BMC Genomics* 16 (1): 166 (2015).

Rotunno, M.S., **J.R. Auclair**, S. Maniatis, S.A. Shaffer, J. Agar, and D.A. Bosco. Identification of a Misfolded Region in Superoxide Dismutase 1 that is Exposed in Amyotrophic Lateral Sclerosis. *Journal of Biological Chemistry* 289 (41): 28527-28 (2014).

Auclair, J.R., J.P. Salisbury, J.L. Johnson, G. A. Petsko, D. Ringe, D. A. Bosco, N.Y.R. Agar, S. Santagata, H. D. Durham, and J. N. Agar. Artifacts to avoid while taking advantage of top-down mass spectrometry-based detection of protein S-thiolation. *Proteomics* 14 (10): 1152-7 (2014).

Auclair J.R., H.R. Brodtkin, J.A. D'Aquino, G.A Petsko, D. Ringe, J.N. Agar. Structural Consequences of Cysteinylation of Cu/Zn-Superoxide Dismutase. *Biochemistry* 52 (36): 6145-6150 (2013).

Auclair J.R., J.L. Johnson, Q. Liu, J.P. Salisbury, M.S. Rotunno, G.A. Petsko, D. Ringe, R.H. Brown Jr, D.A. Bosco, J.N. Agar. Post-Translational Modification by Cysteine Protects Cu/Zn-Superoxide Dismutase From Oxidative Damage. *Biochemistry* 52 (36): 6137-6144 (2013).

Auclair, J.R., M. Somasundaran, K.M. Green, J.E. Evans, C.A. Schiffer, D. Ringe, G. A. Petsko, and J. N. Agar. *Mass-spectrometry tools for analysis of intermolecular interactions. Methods in Molecular Biology* 896: 387-398 (2012).

Wang W., I. Perovic, J. Chittuluru, A. Kagnanovich, L.T.T. Nguyen, J. Liao, **J.R. Auclair**, D. Johnson, A. Landeru, A.K. Simorellis, S. Ju, M. Cookson, F.J. Asturias, J.N. Agar, B.N. Webb, C.H. Kang, D. Ringe, G.A Petsko, T.C. Pochapsky, and Q.Q. Hoang . A soluble alpha-Synuclein construct forms an ordered tetramer. *Proceedings of the National Academy of Science* 10(43): 17797-802 (2011).

Auclair, J.R., K.J. Boggio, G.A. Petsko, D. Ringe, and J.N. Agar. Strategies for stabilizing superoxide dismutase (SOD1), the protein destabilized in the most common form of familial amyotrophic lateral sclerosis. *Proceedings of the National Academy of Science* 107(50): 21394-21399 (2010).

Auclair, J.R., K.M. Green, S. Shandilya, J.E. Evans, M. Somasundaran, and C.A. Schiffer. Mass Spectrometry analysis of HIV-1 Vif reveals an increase in ordered structure upon oligomerization in regions necessary for viral infectivity. *Proteins: Structure, Function, and Bioinformatics* 69(2): 270-284 (2007).

PUBLICATIONS (book chapters italicized)-Columns and other Non-Peer Reviewed

Auclair, J.R., Rathore, A., Krull, I. Methods and Purposes for Determining Higher Order Structures of Biopharmaceuticals (Proteins). LCGC North America, in press (2019).

Auclair, J.R., Rathore, A., Krull, I. Charge-Variant Profiling of Biopharmaceuticals. LCGC North America 36 (1): 26-36 (2018).

Ira S. Krull and **Jared R. Auclair**. *Making Top Down Sequencing of All/Any Proteins a Reality. How Might this be Accomplished? Advances in Chromatography: Volume 55. Edited by Nelu Grinberg and Peter W. Carr (2017).*

ABSTRACTS PRESENTED—ORAL PRESENTATIONS

Auclair, JR. ICH (and APEC) Training Initiatives. DIA Latin American Regulatory Conference (LARC). Miami, Florida, Feb. 21, 2019.

Auclair, JR. Northeastern University and our Training Efforts in Regulatory Convergence. ICH Assembly, Charlotte, N Carolina, Nov. 13-14, 2018.

Auclair, JR. Regulatory Convergence: Bringing Academia, Industry and Regulators Together. AGXPE Conference and Expo, Cambridge, MA, October 29-31, 2018.

Auclair, JR (moderator, speaker), Bierer, B, Chong, S, Eble, M. "Promoting Regulatory Convergence through Training and Capacity Building." BIO 2018, Boston, MA, June 4-7, 2018.

Auclair, JR, Ringe, D, Petsko, GA, Agar, JN. "Cysteinylation of the ALS-Associated Protein SOD1 Confers Resistance to Oxidation." Experimental Biology 2015 (American Society for Biochemistry and Molecular Biology), Boston, MA March 29-April 1, 2015.

Auclair, JR., Boggio, KJ, Ringe, D, Petsko, GA, and Agar, JN. "Chemical Stabilization of SOD1 variants." 9th Research Meeting of the International Consortium on Superoxide Dismutase and ALS (ICOSA), Worcester, MA May 20-22, 2010.

Auclair, J., Green, K., Shandilya, S., Evans, J., Somasundaran, M., Schiffer, C. "Mass Spectrometry Analysis of HIV-1 VIF Reveals an Increase in Ordered Structure upon Oligomerization in Regions Necessary for Viral Infectivity" Seventh HIV DRP Symposium Antiviral Drug Resistance, Chantilly, VA Nov. 12-15, 2006. Participation Award Recipient.

ABSTRACTS PRESENTED—POSTERS

Auclair, JR, Ringe, D, Petsko, GA, Agar, JN. "Cysteinylation of the ALS-Associated Protein SOD1 Confers Resistance to Oxidation." Experimental Biology 2015 (American Society for Biochemistry and Molecular Biology), Boston, MA March 29-April 1, 2015.

Auclair, JR, Jacob, RE, Liu, Q, Ringe, D, Petsko, GA, Engen, JR and Agar, JN. "Insights into the Conformational Dynamics of Oxidized Cu, Zn Superoxide Dismutase (SOD1), an ALS-Associated Post-Translational Modification." 62th ASMS Conference on Mass Spectrometry and Allied Topics, Baltimore, MD June 15-19, 2014.

Auclair, JR, Boggio, KJ, Ringe, D, Petsko, GA, and Agar, JN. "Structural Characterization of Chemically Stabilized, ALS-associated Variants of Cu, Zn Superoxide Dismutase" 57th ASMS Conference on Mass Spectrometry and Allied Topics, Salt Lake City, UT May 23-27, 2010.

Auclair, JR, Boggio, KJ, Ringe, D, Petsko, PA, and Agar, JN. "Analysis of Cross-linked Cu, Zn Superoxide Dismutase (SOD1) associated with Familial Amyotrophic Lateral Sclerosis by MALDI-TOF and FT-ICR MS." 57th ASMS Conference on Mass Spectrometry and Allied Topics, Philadelphia, PA May 31-June 4, 2009.

Auclair, J., Somasundaran, S., and Schiffer, C. "Oligomerization and Binding Domains of HIV-1 Vif: Analysis using Mass spectrometry and peptide-competition." Twenty-first Symposium of the Protein Society, Boston, MA July 21-July 25, 2007.

Auclair, J., Somasundaran, S., and Schiffer, C. "Analysis of HIV-1 Vif binding and oligomerization domains using mass spectrometry and peptide-competition" The 21st annual meeting of Groups Studying the Structures of AIDS-Related Systems and Their Application to Drug Design, Bethesda, MD (NIH), June 28-29, 2007

Auclair, J., Somasundaran, S., and Schiffer, C. "Analysis of HIV-1 Vif binding and oligomerization domains using mass spectrometry and peptide-competition" Proteins Gordon Research Conference, Plymouth, NH June 17-22, 2007.

Auclair, J., Green, K., Shandilya, S., Evans, J., Somasundaran, M., Schiffer, C. "Mass Spectrometry Analysis Shows Increased Ordered Structure Correlates with HIV-1 Vif Function." Fourteenth Conference on Retroviruses and Opportunistic Infections. Los Angeles, CA Feb. 25-28, 2007. Young Investigator Awardee.

Auclair, J., Green, K., Evans, J., Somasundaran, M., Schiffer, C. "Low Resolution Structural Mapping of HIV-1 Vif using Mass Spectrometry." Sixth HIV DRP Symposium Antiviral Drug Resistance, Chantilly, VA Nov. 13-16, 2005.

Auclair, J., Evans, J., Somasundaran, M., Schiffer, C. "A Structural Analysis of HIV-1 Using Mass Spectrometry." Nineteenth Symposium the Protein Society, Boston, MA July 30-Aug. 3, 2005.

Auclair, J., Somasundaran, M., Schiffer, C. "Low Resolution Structural Mapping of HIV-1 Vif and its Interaction with APOBEC3G." 3rd International AIDS Society (IAS) Conference on HIV Pathogenesis and Treatment, Rio de Janeiro, Brazil July 24-27, 2005 (not able to attend).

Auclair, J., Somasundaran, M., Schiffer, C. "Low Resolution Structural Mapping of HIV-1 Vif." Cold Spring Harbor Laboratory Meeting—Retrovirus, Cold Spring Harbor, NY May 24-29, 2005.

Auclair, J., Somasundaran, M., Schiffer, C. "Biophysical and Structural Analysis of HIV-1 Vif and Its Cellular Inhibitor Apobec3G." Eleventh Conference on Retroviruses and Opportunistic Infections. San Francisco, CA Feb. 8-11, 2004.

Auclair, J., Somasundaran, M., Schiffer, C. "Biophysical and Structural Analysis of HIV-1 Vif and Its Cellular Inhibitor Apobec3G." Fourth HIV DRP Symposium Antiviral Drug Resistance. Chantilly, VA Dec. 7-10, 2003.

INVITED SEMINARS

"Regulatory Convergence for Biologics through Capacity Building, Training and (other) Research." 18th Annual Csaba Horvath Memorial Symposium, Yale West Campus. October 18, 2018

"The Role of Academia in Global Convergence and the Benefits of Regulatory Convergence from the Academic Perspective." APEC LSIF High Level Dialogue on Innovation, Regulatory Systems, and Regulatory Convergence, Ho Chi Minh City, Vietnam, August 21, 2017

"Analytical Characterization of Biotherapeutics: Looking to the Future with Biosimilars." 16th Annual Csaba Horvath Memorial Symposium, Yale West Campus. October 27, 2016

"Analytical Characterization of Biotherapeutics: Looking to the Future with Biosimilars." Massep.org (Massachusetts Separation Discussion Group), Cambridge, MA. April 12, 2016

"Targeting Cysteine 111 in the ALS-Associated Protein SOD1 as a Potential Therapeutic Approach." Veterans Association Brain Bank, Boston, MA. November 21, 2014

"Covalent interactions as a therapeutic approach for stabilizing superoxide dismutase (SOD1), the protein destabilized in the most common form of familial amyotrophic lateral sclerosis." Protein Misfolding and Disease: From Human Genetics to Drug Discovery present by The New England Structural Biology Association, Inc. Bentley University, Waltham, MA March 29, 2013

"Identifying Pharmacological Chaperones that Promote Survival in Mouse Models of ALS." Brandeis University Scientific Advisory Council Meeting (BUSAC). Host: I. Abrams. Brandeis University, Waltham, MA May 18, 2011.

"A Novel Strategy for Stabilizing Human Cu, Zn Superoxide Dismutase (SOD1), the Protein That Is Destabilized In the Most Common Form of Familial Amyotrophic Lateral Sclerosis." Brandeis Biochemistry and Biophysics seminar series. Host: J. Agar. Brandeis University, Waltham, MA October 9, 2009.

"Low Resolution Structural Mapping of HIV-1 Vif using Mass Spectrometry." 2005 Think Tank Meeting hosted by the HIV Drug Resistance Program (National Cancer Institute [NCI]). Host: J. Coffin. Frederick, MD April 4-6. 2005.

TEACHING EXPERIENCE

- July 2018-present United States Pharmacopeia (USP) certified instructor for:
- BIO-129-01: *USP–NF* General Chapter <129> Analytical Procedures for Recombinant Therapeutic Monoclonal Antibodies
 - BIO-212-01: N-linked Glycan Analysis: New Compendial Procedures and Associated Reference Standards
 - BIO-509-02: USP Standards that Support the Development and Characterization of Biologics
- Oct. 2017-present Northeastern University, pilot International Council on Harmonization Center of Excellence in ICH-Q1 stability guidelines
- September 2016-present Northeastern University, Department of Chemistry and Chemical Biology Introduction to Glycobiology and Glycoproteins (CHEM5550) Developed the course for online delivery and taught.
- Jan. 1, 2016-present Northeastern University, Asian Pacific Economic Corporation (APEC) Center of Excellence in Biotherapeutics curriculum development including at the APEC Senior Officials Meeting in Lima, Peru February, 2016.
- Jan. 1, 2015-present Northeastern University, Department of Chemistry and Chemical Biology Protein Mass Spectrometry Laboratory (CHM 5617)
- July 2014-Present Northeastern Biopharmaceutical Analysis Training Laboratory Instructor Developed and taught the lab sections for the intact protein, antibody, and glycoprotein training courses including sample preparation and mass spectrometry sections; also, set-up the wet lab.
- June 2014 3rd Penn State Bioinorganic Workshop Instructor Helped teach the High Resolution Mass Spectrometry lab
- June 2012 2nd Penn State Bioinorganic Workshop Instructor Helped teach the High Resolution Mass Spectrometry lab
- Fall 98 to Fall 2000 Worcester Polytechnic Institute. Worcester, MA Peer Learning Assistant Facilitated group activities peer editing, and assisting the professor (similar to an undergraduate Teaching Assistant).

SCIENTIFIC ADVISORY BOARDS

LifeStory Health, Inc. July 2017-present

PROFESSIONAL BOARDS

NIIMBL 2018-

MassBio Academia Forum member 2018-

MassBioEd Life Sciences Higher Ed Steering Council 2017-

Co-Chair, Asia-Pacific Economic Cooperation (APEC) Life Science Innovation Forum (LSIF) Regulatory Harmonization Steering Committee (RHSC) Center of Excellence (CoE) Coalition 2017-

PROFESSIONAL ASSOCIATIONS

American Society of Biochemistry and Molecular Biology 2014-present
American Society for Mass Spectrometry 2009-present
American Association for the Advancement of Science (sponsored membership) 2007-2012
Protein Society 2005-2007
American Chemical Society June 18, 2003-present
Tau Beta Pi (engineering honor society)

COMMITTEES

Co-chair Support of Students Subcommittee (COED) 2005-2008
Council on Equal Opportunity and Diversity (CEOD) (Affirmative Action Committee) 2004-2008
Graduate Student Body Committee President 2004-2005
Graduate Student Body Committee Vice-President 2003-2004
Biochemistry and Molecular Pharmacology Student Seminar Series Co-Chair 2002-2004
Graduate Student Body Committee Co-Chair Community Service 2002-2003

GRANTS/AWARDS

Massachusetts Life Science Center Competitive Capital Grants Program 2019
June 2019
Biopharmaceutical Analysis Training Laboratory 2.0
\$4,271,867
Role: PI

National Science Foundation (NSF)
01/2019-12/2023
An Accelerated Pathway from Associates to Master's (A2M) Degree in Biotechnology
\$4,443,775 (5 years)
Role: co-PI

Tufts Clinical and Translational Science Institute (CTSI) Pilot Study
05/2017-04/2018 \$57,078/yr (\$15,000 Northeastern)
Development of Microfluidic Platforms to Non-Invasively Predict BPD and BPD-Associated Pulmonary Hypertension in Premature Neonates
This study aims to develop a non-invasive biomarker diagnostic for BPD-associated PH.
Role: co-PI

Auclair, JR, Salisbury, JP, Ringe, D, Petsko, GA, and Agar, JN. "Identifying Pharmacological Chaperones that Promote Survival in Mouse Models of ALS." The Brandeis University Virtual Incubator Sprout Grant Competition Waltham, MA May 5, 2011. Winning Proposal (1 of 6).

2005 Graduate School of Biomedical Sciences (GSBS) Student Service Award—Community