

CONSTANCE JEFFERY

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EDUCATION

1987 B.S., Life Sciences, Massachusetts Institute of Technology (Cambridge, MA)

1993 Ph.D., Biochemistry, University of California at Berkeley (Berkeley, CA)

Laboratory of Prof. Daniel E. Koshland, Jr.

Dissertation Title: *E. coli* Chemotaxis Receptors: I. Effect of Mutations in the Aspartate Receptor Second Transmembrane Domain and II. Computer-Based Homology Modeling of the Serine Receptor Ligand-Binding Domain.

ACADEMIC POSITIONS

2005–present **Associate Professor**, with tenure, Laboratory for Molecular Biology, Department of Biological Sciences, Univ. of Illinois, Chicago, IL

2005–present **Member, UIC Center for Cancer Research**, Univ. of Illinois, Chicago, IL

2003–present **Adjunct Professor**, Bioengineering Dept., Univ. of Illinois, Chicago, IL

2009–2010 **Visiting Associate Professor** (sabbatical), Department of Cell Biology, Harvard Medical School, Boston, MA

1999–2005 **Assistant Professor**, Laboratory for Molecular Biology, Department of Biological Sciences, Univ. of Illinois, Chicago, IL

1993–1997 and 1998–1999 **Cystic Fibrosis Foundation Postdoctoral Fellow** in the lab of Prof. Greg Petsko and Prof. Dagmar Ringe, Rosenstiel Center, Brandeis University (Waltham, MA)

1997–1998 **NIH Postdoctoral Fellow**, Dept. of Physiology, Tufts University School of Medicine (Boston, MA)

RESEARCH SUMMARY

My laboratory studies protein structure and function using biochemistry, biophysics, and computer-based methods. A major theme throughout my research career has been to understand when similarities or differences in amino acid sequences result in the same or different protein functions. This included graduate research studying the effects of amino acid substitutions in transmembrane helices, postdoctoral studies determining X-ray crystal structures of enzymes containing mutations that affected catalytic activity, and continuing in my independent career studying how evolution of protein sequences and disease-causing mutations can result in changes in function.

Our current research projects include:

1. Understanding the structure, function, regulation, and evolution of moonlighting proteins. These multifunctional proteins have two or more biophysical or biochemical functions performed by one polypeptide chain. We are currently focusing on a subclass of moonlighting enzymes with a second function of binding to RNA. In recent years, dozens of enzymes in central metabolic pathways such as glycolysis and the citric acid cycle have been found to have a second function of binding to RNA. Studies of a few “classic”

examples like aconitase have shown that combining catalytic and RNA binding functions in one protein can be a mechanism to coordinate cellular activities, for example, by sensing the cell's metabolic state through availability of the enzyme's ligands and responding by regulating translation of specific transcripts. Conversely, RNA binding could regulate the enzyme's catalytic activity, through binding in the active site, allosteric effects, acting as a scaffold, or sequestering enzymes. Information gained from studying the structures and functions of enzymes in carbohydrate, amino acid, and lipid metabolism that also bind to RNA will increase our understanding of the coordination between central metabolic pathways and RNA functions. This information can be applied in the future to the design and development of novel proteins that regulate RNA translation, stability, and lifetime, as well as RNAs that regulate enzyme function.

2. Analyzing the effects of disease-related mutations on protein structure, function, and stability. Inflammatory Bowel Disease (IBD, including Crohn's Disease and Ulcerative Colitis) is caused by a combination of genetic and environmental factors. Genome-wide association studies (GWAS) have identified dozens of changes in protein coding regions that are associated with IBD genetic susceptibility, but there is an unmet need in understanding the connections between these molecular changes and disease. Our goal is to understand the molecular mechanisms by which IBD-associated mutations contribute to disease. Determining the effects of these mutations on protein structure, function (catalytic activity, chaperone activity), stability, expression levels, and/or half-life is needed for elucidating their role in disease and for laying the groundwork for the development of improved therapeutics, as well as in more precise diagnosis and personalized medicine.

HONORS

- 2022 Fellow, American Association for the Advancement of Science
- 2020 Paper included in Special Virtual Issue of Protein Science featuring Outstanding Research Articles authored by Women in Honor of International Women's Day
- 2017 Women in the Enterprise of Science and Technology "Making a Difference in Meaningful Ways" Award
- 2000 Award for Significant Impact on Undergraduate Students at UIC
- 1992 Honor Students Society, U.C. Berkeley
- 1987 Phi Beta Kappa

RESEARCH SUPPORT

Current

- 2024 - 2026 American Heart Association, UICHeart: University of Illinois Undergraduate Mentoring and Experience in Heart Research (\$165,000)
- 2023 - 2026 NSF Mid Career Advancement Program, MCA: Using Multiple Approaches for Understanding RNA Binding by Enzymes in Intermediary Metabolism (\$414,164)
- 2023 UIC College of Liberal Arts and Sciences Covid Relief Program (\$15,000)
- 2022 UIC Department of Biological Sciences Putting Over the Top Grant (\$30,342)

Completed

- 2021 UIC College of Liberal Arts and Sciences Diversity Initiative Award, to create and mentor undergraduate research projects (\$7,978)

- 2021 NSF RAPID Research Experience for Undergraduates (REU) “RAPID: REU Site: A Virtual Research Experience in Macromolecular Structure and Function” (\$58,461)
- 2020 Women in Bio (WIB) Diversity and Inclusion Award (\$1000)
- 2018 UIC Cancer Center Cancer Biology Pilot Grant “Use of Core Facilities for Glioblastoma Research” (\$20,000)
- 2017 UIC College of Liberal Arts and Sciences Faculty of Science Award “Preliminary Results for New Compounds Targeting Glioblastoma” (\$14,300)
- 2016 UIC Office of International Affairs Nuveen International Development Fund (\$1000)
- 2015 UIC Cancer Center Pilot Grant (co-PI) “Role of K-RAS4B mutations frequently occurring in minority lung cancer patients” (\$50,000)
- 2015 UICentre Grant (co-PI) “Targetting Pak1 for Treatment of Cardiac Disorders” (\$12,500)
- 2014 American Crystallographic Association, Grant to support the Chicago Area International Year of Crystallography Symposium that I co-organized (\$800)
- 2014 Protein Society, Grant to support the Chicago Area International Year of Crystallography Symposium that I co-organized (\$500)
- 2014 Hampton Research, Donation to support the Chicago Area International Year of Crystallography Symposium that I co-organized (\$500)
- 2014 UIC Center for Structural Biology, Support for the Chicago Area International Year of Crystallography Symposium that I co-organized (\$1000)
- 2014 UIC College of Liberal Arts and Sciences Faculty Foreign Travel Award (\$1200)
- 2013 UIC College of Liberal Arts and Sciences Faculty Scholarship Support Program (\$1000)
- 2010 NIH R21 NS065188-02 (co-PI) “Jh, an Insertional Mutation That Causes Juvenile Hydrocephalus” (\$375,176)
- 2006 Society for Biomolecular Sciences “Novel method for TM protein expression at high levels suitable for drug screening” (\$18,750)
- 2004 NSF MCB-0432322 “SGER: Proteomics-level Structural Biology of Transmembrane Proteins” (\$92,657)
- 2003 American Heart Association “Type I and Type II Phosphomannose Isomerases” (\$260,000)
- 2002 American Cancer Society “Moonlighting Proteins” (\$100,000)
- 2001 UIC Cancer Center/American Cancer Society Grant “Autocrine Motility Factor: Mechanism of AMF Receptor Binding” (\$10,000)
- 2000 UIC Campus Research Board “The Cystic Fibrosis Transmembrane Regulator” (\$15,000)
- 1993 Cystic Fibrosis Foundation Postdoctoral Fellowship
- 1988 Regents Graduate Student Fellowship
- 1987 Fankhauser Graduate Student Fellowship

PUBLICATIONS

1. Curtis NJ, Patel KJ, Rizwan A, Jeffery CJ. Moonlighting Proteins: Diverse Functions Found in Fungi. *J Fungi* (Basel). 2023 Nov 15;9(11):1107. doi: 10.3390/jof9111107. PMID: 37998912; PMCID: PMC10672435.
2. Jeffery CJ. Current successes and remaining challenges in protein function prediction. *Front Bioinform*. 2023 Jul 27;3:1222182. doi: 10.3389/fbinf.2023.1222182. PMID: 37576715; PMCID: PMC10415035.

3. Constance J Jeffery, MSFP: Undergraduate “Collaborate from Home” Research in Macromolecular Structure and Function, *Bioinformatics Advances*, 2023;, vbad074, <https://doi.org/10.1093/bioadv/vbad074>
4. Jeffery CJ, Dorgan KM, Pysh L. [Promoting a more integrated approach to structure and function.](#) *Integr Comp Biol.* 2022 Jun 28;. doi: 10.1093/icb/icab144. PMID: 34180524.
5. Jeffery CJ. Updating MoonProt From Home: An Online Student Research Project During the COVID-19 Pandemic *The Biophysicist* 2021 2 (2): 23–27. <https://doi.org/10.35459/tbp.2021.000190>
6. Curtis NJ, Jeffery CJ. [The expanding world of metabolic enzymes moonlighting as RNA binding proteins.](#) *Biochem Soc Trans.* 2021 Jun 30;49(3):1099-1108. doi: 10.1042/BST20200664. PMID: 34110361.
7. Chen C, Liu H, Zabad S, Rivera N, Rowin E, Hassan M, Gomez De Jesus SM, Llinás Santos PS, Kravchenko K, Mikhova M, Ketterer S, Shen A, Shen S, Navas E, Horan B, Raudsepp J, Jeffery C. [MoonProt 3.0: an update of the moonlighting proteins database.](#) *Nucleic Acids Res.* 2021 Jan 8;49(D1):D368-D372. doi: 10.1093/nar/gkaa1101. PMID: 33245761; PMCID: PMC7778978.
8. Jeffery CJ. [Enzymes, pseudoenzymes, and moonlighting proteins: diversity of function in protein superfamilies.](#) *FEBS J.* 2020 Oct;287(19):4141-4149. doi: 10.1111/febs.15446. PMID: 32534477.
9. Liu H, Jeffery CJ. [Moonlighting Proteins in the Fuzzy Logic of Cellular Metabolism.](#) *Molecules.* 2020 Jul 29;25(15). doi: 10.3390/molecules25153440. PMID: 32751110; PMCID: PMC7435893.
10. Chen Q, Britto R, Erill I, Jeffery CJ, Liberzon A, Magrane M, Onami JI, Robinson-Rechavi M, Sponarova J, Zobel J, Verspoor K. [Quality Matters: Biocuration Experts on the Impact of Duplication and Other Data Quality Issues in Biological Databases.](#) *Genomics Proteomics Bioinformatics.* 2020 Apr;18(2):91-103. doi: 10.1016/j.gpb.2018.11.006. PMID: 32652120; PMCID: PMC7646089.
11. Jeffery CJ. [Multitalented actors inside and outside the cell: recent discoveries add to the number of moonlighting proteins.](#) *Biochem Soc Trans.* 2019 Dec 20;47(6):1941-1948. doi: 10.1042/BST20190798. PMID: 31803903.
12. Zhou N, Jiang Y, Bergquist TR, Lee AJ, Kacsóh BZ, Crocker AW, Lewis KA, Georghiou G, Nguyen HN, Hamid MN, Davis L, Dogan T, Atalay V, Rifaioglu AS, Dalkıran A, Cetin Atalay R, Zhang C, Hurto RL, Freddolino PL, Zhang Y, Bhat P, Supek F, Fernández JM, Gemovic B, Perovic VR, Davidović RS, Sumonja N, Veljkovic N, Asgari E, Mofrad MRK, Profiti G, Savojardo C, Martelli PL, Casadio R, Boecker F, Schoof H, Kahanda I, Thurlby N, McHardy AC, Renaux A, Saidi R, Gough J, Freitas AA, Antczak M, Fabris F, Wass MN, Hou J, Cheng J, Wang Z, Romero AE, Paccanaro A, Yang H, Goldberg T, Zhao C, Holm L, Törönen P, Medlar AJ, Zosa E, Borukhov I, Novikov I, Wilkins A, Lichtarge O, Chi PH, Tseng WC, Linial M, Rose PW, Dessimoz C, Vidulin V, Dzeroski S, Sillitoe I, Das S, Lees JG, Jones DT, Wan C, Cozzetto D, Fa R, Torres M, Warwick Vesztrocy A, Rodriguez JM, Tress ML, Frasca M, Notaro M, Grossi G, Petrini A, Re M, Valentini G, Mesiti M, Roche DB, Reeb J, Ritchie DW, Aridhi S, Alborzi SZ, Devignes MD, Koo DCE, Bonneau R, Gligorijević V, Barot M, Fang H, Toppo S, Lavezzo E, Falda M, Berselli M, Tosatto SCE, Carraro M, Piovesan D, Ur Rehman H, Mao Q, Zhang S, Vucetic S, Black GS, Jo D, Suh E, Dayton JB, Larsen DJ, Omdahl AR, McGuffin LJ, Brackenridge DA, Babbitt PC, Yunes JM, Fontana P, Zhang F, Zhu S, You R, Zhang Z, Dai S, Yao S, Tian W, Cao R, Chandler C, Amezola M, Johnson D, Chang JM, Liao WH, Liu YW, Pascarelli S, Frank Y, Hoehndorf R, Kulmanov M, Boudelloua I, Politano G, Di Carlo S, Benso A, Hakala

- K, Ginter F, Mehryary F, Kaewphan S, Björne J, Moen H, Tolvanen MEE, Salakoski T, Kihara D, Jain A, Šmuc T, Altenhoff A, Ben-Hur A, Rost B, Brenner SE, Orengo CA, Jeffery CJ, Bosco G, Hogan DA, Martin MJ, O'Donovan C, Mooney SD, Greene CS, Radivojac P, Friedberg I. [The CAFA challenge reports improved protein function prediction and new functional annotations for hundreds of genes through experimental screens](#). *Genome Biol.* 2019 Nov 19;20(1):244. doi: 10.1186/s13059-019-1835-8. PMID: 31744546; PMCID: PMC6864930.
13. Jeffery CJ. [An enzyme in the test tube, and a transcription factor in the cell: Moonlighting proteins and cellular factors that affect their behavior](#). *Protein Sci.* 2019 Jul;28(7):1233-1238. doi: 10.1002/pro.3645. PMID: 31087733; PMCID: PMC6566513.
 14. Jeffery CJ. [Intracellular/surface moonlighting proteins that aid in the attachment of gut microbiota to the host](#). *AIMS Microbiol.* 2019;5(1):77-86. doi: 10.3934/microbiol.2019.1.77. eCollection 2019. PMID: 31384704; PMCID: PMC6646928.
 15. Jeffery CJ. [The demise of catalysis, but new functions arise: pseudoenzymes as the phoenixes of the protein world](#). *Biochem Soc Trans.* 2019 Feb 28;47(1):371-379. doi: 10.1042/BST20180473. PMID: 30710059.
 16. Chen C, Jeffery CJ. Moonlighting Functions of Heat Shock Protein 90. In: Asea A, Kaur P, editors. *Heat Shock Protein 90 in Human Diseases and Disorders* Dordrecht, Netherlands: Springer Nature Publishers; 2019.
 17. Jeffery CJ. The use of proteomics studies in identifying moonlighting proteins. In: Wang X, Kuruc M, editors. *Functional Proteomics: Methods and Protocols* New York: Springer Science and Business Media, LLC; 2019. p.437-443.
 18. Jeffery C. [Intracellular proteins moonlighting as bacterial adhesion factors](#). *AIMS Microbiol.* 2018;4(2):362-376. doi: 10.3934/microbiol.2018.2.362. eCollection 2018. PMID: 31294221; PMCID: PMC6604927.
 19. Bhatt F, Patel V, Jeffery CJ. [Open Conformation of the *Escherichia coli* Periplasmic Murein Tripeptide Binding Protein, MppA, at High Resolution](#). *Biology (Basel).* 2018 May 19;7(2). doi: 10.3390/biology7020030. PMID: 29783769; PMCID: PMC6022919.
 20. Jeffery CJ. [Protein moonlighting: what is it, and why is it important?](#). *Philos Trans R Soc Lond B Biol Sci.* 2018 Jan 19;373(1738). doi: 10.1098/rstb.2016.0523. PMID: 29203708; PMCID: PMC5717523.
 21. Chen C, Zabad S, Liu H, Wang W, Jeffery C. [MoonProt 2.0: an expansion and update of the moonlighting proteins database](#). *Nucleic Acids Res.* 2018 Jan 4;46(D1):D640-D644. doi: 10.1093/nar/gkx1043. PMID: 29126295; PMCID: PMC5753272.
 22. Jeffery CJ. [Moonlighting proteins - nature's Swiss army knives](#). *Sci Prog.* 2017 Nov 17;100(4):363-373. doi: 10.3184/003685017X15063357842574. PMID: 29113626.
 23. Voss DM, Spina R, Carter DL, Lim KS, Jeffery CJ, Bar EE. [Disruption of the monocarboxylate transporter-4-basigin interaction inhibits the hypoxic response, proliferation, and tumor progression](#). *Sci Rep.* 2017 Jun 27;7(1):4292. doi: 10.1038/s41598-017-04612-w. PMID: 28655889; PMCID: PMC5487345.
 24. Jeffery CJ. [Keeping good friends close - The surface and secreted proteomes of a probiotic bacterium provide candidate proteins for intestinal attachment and communication with the host](#). *Proteomics.* 2017 Jun;17(11). doi: 10.1002/pmic.201700112. PMID: 28517912.
 25. Jeffery CJ. Moonlighting Proteins In Bacteria. In: Henderson B, editor. *Moonlighting Proteins: Novel Virulence Factors in Bacterial Infection* Netherlands: Springer; 2017.
 26. Wang W, Jeffery CJ. [An analysis of surface proteomics results reveals novel candidates for intracellular/surface moonlighting proteins in bacteria](#). *Mol Biosyst.* 2016 Apr 26;12(5):1420-31. doi: 10.1039/c5mb00550g. PMID: 26938107.

27. Jeffery CJ. [Protein species and moonlighting proteins: Very small changes in a protein's covalent structure can change its biochemical function.](#) J Proteomics. 2016 Feb 16;134:19-24. doi: 10.1016/j.jprot.2015.10.003. PMID: 26455812.
28. Jeffery CJ. [Expression, Solubilization, and Purification of Bacterial Membrane Proteins.](#) Curr Protoc Protein Sci. 2016 Feb 2;83:29.15.1-29.15.15. doi: 10.1002/0471140864.ps2915s83. PMID: 26836409.
29. Amblee V, Jeffery CJ. [Physical Features of Intracellular Proteins that Moonlight on the Cell Surface.](#) PLoS One. 2015;10(6):e0130575. doi: 10.1371/journal.pone.0130575. eCollection 2015. PMID: 26110848; PMCID: PMC4481411.
30. Jeffery CJ. [Why study moonlighting proteins?.](#) Front Genet. 2015;6:211. doi: 10.3389/fgene.2015.00211. eCollection 2015. PMID: 26150826; PMCID: PMC4473056.
31. Mani M, Chen C, Amblee V, Liu H, Mathur T, Zwicke G, Zabad S, Patel B, Thakkar J, Jeffery CJ. [MoonProt: a database for proteins that are known to moonlight.](#) Nucleic Acids Res. 2015 Jan;43(Database issue):D277-82. doi: 10.1093/nar/gku954. PMID: 25324305; PMCID: PMC4384022.
32. Jeffery CJ. Pancreatic Cancer, Islet Cell. In: Colditz GA, Golson GJ, editors. The SAGE Encyclopedia of Cancer and Society 2 ed. Thousand Oaks, California: SAGE Publications, Inc.; 2015. 891-893p.
33. Jeffery CJ. Lung Cancer, Small Cell. In: Colditz GA, Golson GJ, editors. The SAGE Encyclopedia of Cancer and Society 2 ed. Thousand Oaks, California: SAGE Publications, Inc.; 2015. p.697-698.
34. Jeffery CJ. [An introduction to protein moonlighting.](#) Biochem Soc Trans. 2014 Dec;42(6):1679-83. doi: 10.1042/BST20140226. PMID: 25399589.
35. Jeffery CJ. New Ideas on Moonlighting. In: Henderson B, editor. Moonlighting Cell Stress Proteins in Microbial Infections Netherlands: Springer; 2013. p.51-66.
36. Zwicke GL, Mansoori GA, Jeffery CJ. [Utilizing the folate receptor for active targeting of cancer nanotherapeutics.](#) Nano Rev. 2012;3. doi: 10.3402/nano.v3i0.18496. PMID: 23240070; PMCID: PMC3521101.
37. Jeffery CJ. [Danish Team wins First BIOMOD International Undergraduate Nanobiology Design Competition.](#) Nano Rev. 2012;3. doi: 10.3402/nano.v3i0.17201. PMID: 22347542; PMCID: PMC3277442.
38. Jeffery C. [Workshop attendees suggest methods to improve the number and advancement of women scientists in NanoScience/NanoTechnology.](#) Nano Rev. 2012;3. doi: 10.3402/nano.v3i0.15895. PMID: 22319642; PMCID: PMC3274762.
39. Jeffery CJ. [Proteins with neomorphic moonlighting functions in disease.](#) IUBMB Life. 2011 Jul;63(7):489-94. doi: 10.1002/iub.504. PMID: 21698752.
40. Jeffery CJ. [Engineering periplasmic ligand binding proteins as glucose nanosensors.](#) Nano Rev. 2011;2. doi: 10.3402/nano.v2i0.5743. PMID: 22110874; PMCID: PMC3215197.
41. Roux C, Bhatt F, Foret J, de Courcy B, Gresh N, Piquemal JP, Jeffery CJ, Salmon L. [The reaction mechanism of type I phosphomannose isomerases: new information from inhibition and polarizable molecular mechanics studies.](#) Proteins. 2011 Jan;79(1):203-20. doi: 10.1002/prot.22873. PMID: 21058398.
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44. Jeffery CJ. [Moonlighting proteins--an update.](#) Mol Biosyst. 2009 Apr;5(4):345-50. doi: 10.1039/b900658n. PMID: 19396370.
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46. Jeffery CJ. Review of New and Emerging Proteomic Techniques by Dobrin Nedelko and Randall W. Nelson. J Am Soc Mass Spectrom. 2007; 18:162.
47. Jeffery CJ. [Mass spectrometry and the search for moonlighting proteins.](#) Mass Spectrom Rev. 2005 Nov-Dec;24(6):772-82. doi: 10.1002/mas.20041. PMID: 15605385.
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50. Jeffery CJ. [Molecular mechanisms for multitasking: recent crystal structures of moonlighting proteins.](#) Curr Opin Struct Biol. 2004 Dec;14(6):663-8. doi: 10.1016/j.sbi.2004.10.001. PMID: 15582389.
51. Roux C, Lee JH, Jeffery CJ, Salmon L. [Inhibition of type I and type II phosphomannose isomerases by the reaction intermediate analogue 5-phospho-D-arabinonohydroxamic acid supports a catalytic role for the metal cofactor.](#) Biochemistry. 2004 Mar 16;43(10):2926-34. doi: 10.1021/bi035688h. PMID: 15005628.
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53. Jeffery CJ. [Moonlighting proteins: old proteins learning new tricks.](#) Trends Genet. 2003 Aug;19(8):415-7. doi: 10.1016/S0168-9525(03)00167-7. PMID: 12902157.
54. Jeffery CJ. [Multifunctional proteins: examples of gene sharing.](#) Ann Med. 2003;35(1):28-35. doi: 10.1080/07853890310004101. PMID: 12693610.
55. Arsenieva D, Jeffery CJ. [Conformational changes in phosphoglucose isomerase induced by ligand binding.](#) J Mol Biol. 2002 Oct 11;323(1):77-84. doi: 10.1016/s0022-2836(02)00892-6. PMID: 12368100.
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- [catalysis](#). *Biochemistry*. 2001 Feb 13;40(6):1560-6. doi: 10.1021/bi0018483. PMID: 11327814.
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67. Jeffery CJ, Koshland DE Jr. [A single hydrophobic to hydrophobic substitution in the transmembrane domain impairs aspartate receptor function](#). *Biochemistry.* 1994 Mar 29;33(12):3457-63. doi: 10.1021/bi00178a001. PMID: 8142342.
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SEMINAR PRESENTATIONS

- 1999 Illinois Institute of Technology, Dept. of Biological, Chemical, and Physical Sciences, Chicago, IL
- 2000 UIC Chemistry Department Seminar, Chicago, IL
- 2001 Midwest Enzyme Conference, Chicago, IL
- 2002 Dept. Molecular and Cell Biology, University of California at Berkeley, Berkeley, CA
- 2002 UIC/UIUC Bioinformatics Symposium, UIC, Chicago, IL
- 2002 Brandeis University, Waltham, MA
- 2002 Illinois Institute of Technology, Chicago, IL

2002 Chemistry Department, Massachusetts Institute of Technology (MIT), Cambridge, MA
2003 University of Massachusetts at Lowell, Lowell, MA
2003 Unvergraduate Colloquium, Illinois Institute of Technology, Chicago, IL
2003 Notre Dame University, South Bend, IN
2003 Northern Illinois University, DeKalb, IL
2004 American Crystallographic Association Annual Meeting, Chicago, IL
2007 Society for Biomolecular Screening international meeting, Montreal, Canada
2010 Petsko/Ringe Symposium at Brandeis University, Waltham, MA
2011 PathoSystems Resource Integration Center (PATRIC), Virginia Biotechnology Institute
2011 Indiana University School of Medicine, Indianapolis, IN
2012 Amherst College, Amherst, MA
2012 American Chemical Society National Meeting, San Diego, CA
2012 International BioCuration Meeting, Washington, D.C.
2012 American Crystallographic Association, Boston, MA
2013 Tufts University, Medford, MA
2013 Kansas City Medical School
2013 Midwest Conference on Protein Folding, Assembly, and Molecular Motions, Notre Dame, IN
2013 Loyola University, Chicago
2014 The Biological and Biomedical Consequences of Protein Moonlighting Meeting, London, UK
2014 Purdue University, West Lafayette, IN
2015 UIC Structural Biology Journal Club
2016 Meeting on Multifunctional Molecules, La Universidad Nacional Autonoma de Mexico, Mexico City
2016 UIC Cancer Center Research Forum
2016 University of Rhode Island 10/13/16, host Ying Zhang
2016 Function Special Interest Group, International Society for Computational Biology, Orlando, FL, keynote speaker
2017 Conference: Moonlighting Proteins: Their Evolution and Functional Roles, Facultad de Ciencias, Instituto de Investigaciones Biomedicas, and Instituto de Fisiologia Celular, Mexico City, keynote speaker
2017 La Universidad Nacional Autonoma de Mexico, Facultad de Ciencias, Instituto de Investigaciones Biomedicas, and Instituto de Fisiologia Celular
2017 University of Illinois at Rockford College of Pharmacy, Rockford, IL
2017 Massachusetts Institute of Technology, 30th reunion of Class of 1987
2018 Biophysical Society International Meeting, San Francisco, CA
2018 EMBO Workshop: Pseudoenzymes 2018: From molecular mechanisms to cell biology, Sardinia, Italy
2018 ASBMB Special Symposium The Many Faces of Kinases and Pseudokinases, San Diego, CA
2019 Biophysics Society Networking event at UIC, Chicago, IL
2019 UIC Liver/GI group meeting
2019 Ask me Anything for 1000Girls/1000Futures Sept. 8–14, online typed discussion
2019 Greater Boston Area Statistical Mechanics Meeting, Brandeis University, Waltham, MA–table talk
2020 ASBMB Spotlight Session (virtual)
2020 ISMB meeting Function/CAFA section (virtual)

- 2021 Protein Society Meeting (virtual)
- 2021 NSF RP2: PREPARE 2nd Annual RAPID PI meeting (virtual)
- 2022 ISMB/ISCB meeting in Madison, WI
- 2022 American Chemical Society Meeting in Chicago, IL
- 2023 Biophysical Society Annual Meeting, San Diego, CA
- 2023 Splicing Caparica, Lisbon, Portugal
- 2023 ISCB Meeting, Lyon, France
- 2023 University of Wyoming, Laramie, WY

OTHER LAB PRODUCTS and ONLINE MATERIALS

- 2010–present Internet Database: MoonProt Database, A database for proteins that are known to moonlight. Moonlightingproteins.org.
- 2014 British Biochemical Society Webcast 8/29/14 “The Multiple Lives of Moonlighting Proteins”, by Constance Jeffery, University of Illinois at Chicago
https://www.youtube.com/watch?v=mIl3aL2FVv4&list=PLKzT3b3RHQwhoPqlo_kBc0mbJCNKxPYE1&index=3
- 2015 “Research Topic” on Moonlighting Proteins *Frontiers in Bioengineering and Biotechnology*, editor
- 2016 Summary of research paper added to Atlas of Science, “Intracellular/surface proteins in pathogens: Another purpose in another place?”
- 2017 Contributed a biography of Lily Jan to Biophysical Society Website
- 2018 MoonProt added to Database Commons
[http://bigd.big.ac.cn/databasecommons/database/edit/?name=MoonProt&token=\\$2a\\$10\\$203Kuh1jMiN5cLRJ08KWWuePkM43rngQVQ28Nnx96aVHamZedpVDC&uid=117&email=cjeffery@uic.edu](http://bigd.big.ac.cn/databasecommons/database/edit/?name=MoonProt&token=$2a$10$203Kuh1jMiN5cLRJ08KWWuePkM43rngQVQ28Nnx96aVHamZedpVDC&uid=117&email=cjeffery@uic.edu)
- 2019 Summary of research paper added to Atlas of Science, “Scissors? A truck? Or BOTH? Moonlighting proteins can do it all”
- 2020 Jeffery C. Enzymes, moonlighting enzymes, pseudoenzymes: similar in sequence, different in function [version 1; not peer reviewed]. *F1000Research* 2020, **9**(ISCB Comm J):1273 (poster) (doi: [10.7490/f1000research.1118349.1](https://doi.org/10.7490/f1000research.1118349.1))
- 2021 Jeffery CJ. “Developing an inter-institutional student research opportunity in biophysics during the COVID era: Updating MoonProt From Home: An Online Student Research Project During the COVID-19 Pandemic” Webinar Sponsored by the Biophysicist and the Biophysical Society Education Committee, March 2021

PANEL DISCUSSIONS

- 2016 The Forum, BBC, member of panel discussion on sharing, radio/podcast, (July)
<http://www.bbc.co.uk/programmes/p042gv0t>
- 2018 Panelist on Webinar about Scientific Collaboration. hosted by Aarti Kluvar for 1000Girls/1000Futures with the New York Academy of Science
- 2018 Panelist about women in science at EMBO meeting on Pseudoenzymes in Sardinia, Italy
- 2018 Panelist for Workshop at Biophysical Society meeting, “Leveling the Playing Field” Sponsored by CPOW

INTERVIEWS

- 2019 Ask me Anything for 1000Girls/1000Futures Sept. 8–14, online typed discussion with high school students and mentors with the 1000Girls/1000Futures program with the New York Academy of Science

2019 Interviewed for BrainSTEM podcast (May)

2023 NSF Prepares Science Before the Storm Podcast “Juggling Multiple Roles: Moonlighting Proteins and the Scientists Who Study Them” May 15, 2023

<https://podcasters.spotify.com/pod/show/science-before-the-storm/episodes/Juggling-Multiple-Roles-Moonlighting-Proteins-and-the-Scientists-Who-Study-Them-e23g9tf>

NEWS ARTICLES

2014 Association for Women in Science Central Jersey Chapter (AWISNJ) Featured Article “Decoding Proteins: Structure and Function Analysis” by Constance Jeffery

2016 Featured scientist in CuSTEMized’s online children’s book *My Scientific Name*

2017 Featured on the Biophysical Society Blog:

<https://biophysicalsociety.wordpress.com/2017/04/19/meet-a-biophysicist-marching-for-science/>

2018 “A Scientist Reflects on Recent Φ BK Inductions and the Importance of the Liberal Arts”, by Hoda Fakhari, The Key Reporter, Phi Beta Kappa Society

<http://www.keyreporter.org/PbkNews/PbkNews/Details/2545.html>

2018 “Connie Jeffery”, Biophysicist in Profile, BPS Bulletin, The Newsletter of the Biophysical Society

2021 “Cheers! for Volunteers - Connie Jeffery”, BPS Bulletin, The Newsletter of the Biophysical Society

TEACHING and MENTORING

Mentor for Graduate Students in my laboratory

1. Ji-Hyun Lee 2004 Ph.D. “The phosphoglucose isomerase ring opening step and analysis of the structural basis of inherited disease”
2. Arsenieva, Diana. 2006 Ph.D. “Rabbit and trypanosomal phosphoglucose isomerase crystal structures with and without ligands”
3. Forum Bhatt 2007 Ph.D. “Structure of Peptide Binding Protein MppA and Purification of Multidrug Resistance Proteins MexB and MexD”
4. Matthew Mani 2013 M.S. “Moonlighting Proteins Database (MoonProt): A database for proteins that are known to moonlight”
5. Navya Josyula 2014 M.S. “Identifying Ligand Binding Sites of Proteins using Crystallographic Bfactors and Relative Pocket Sizes”
6. Wangfei Wang 2015 M.S. “Intracellular/Surface Moonlighting Proteins”
7. Chang Chen 2019 Ph.D. “Functional and Structural Analysis of Moonlighting Proteins and Inflammatory Bowel Diseases Related Protein Variants”
8. Haipeng Liu 2021 Ph.D. “In Silico Analyses of Gene Expression and Protein Structure/Function and Applications in Disease”
9. Nicole Curtis, 2021 - present, Ph.D. candidate

Mentor for Postdoctoral Researcher

2000–2002 Joseph Orgel, received NSF CAREER Award and is currently a professor at the Illinois Institute of Technology

Mentor for Volunteer Technicians and Visiting Scholars

2003–2006 Vidya Madhavan

2010–2011 Damon Garg (nondegree grad student volunteer)

2012–2013 Grant Zwicke

2012–2013 Tanu Mather

2015–2016 Sweta Gopaulakrishnan
2015–2016 Victoria Louise Hartley (non-degree grad student volunteer)
2016–2016 Eredina Rojas (visiting graduate student, La Universidad Nacional Autonoma de Mexico)
2016–2016 Beatriz Lopez (visiting technician, La Universidad Nacional Autonoma de Mexico)
2020–2020 Revathy Venukuttan (graduate student between degree and postdoc)
2021–2022 Jay Garg (graduate student volunteer)
2022–2023 Pritha Das

Honors/Awards won by Graduate Student Lab Members

2002 J.H. Lee, Biology Dept. Graduate Student Award for Excellence in Research
2003 D. Arsenieva, Biology Dept. Graduate Student Award for Excellence in Research
2004 J.H. Lee, Cancer Federation Scholarship
2004 F. Bhatt, Cancer Federation Scholarship
2014 C. Chen, scholarship to attend the 19th Summer Institute in Statistical Genetics, U. Washington, Seattle
2014, 2017, 2018 Chang Chen, UIC Graduate Student Travel Award
2019 Chang Chen, Crohn's and Colitis Congress Travel Award
2022 N. Curtis, Biology Dept. Graduate Student Diversity & Inclusion - Mentor Award
2022 N. Curtis, Biology Department Graduate Student Award for Excellence in Teaching
2022 N. Curtis, Biology Department Graduate Student Award for Excellence in Research
2022 N. Curtis, UIC Graduate College Travel Award

Graduate student qualifying exam and advisory committees

2000–2002 Dmitry Suchkov, Biological Sciences
2000–2004 Ji-Hyun Lee, Biological Sciences
2000–2005 Ed Draper, Biological Sciences
2000–2006 Diana Arsenieva, Biological Sciences
2001–2006 Michelle Joike, Biological Sciences
2001–2007 Forum Bhatt, Biological Sciences
2002–2005 Yakov Vitrenko, Biological Sciences
2004 Olga Kornfeld, Biological Sciences
2007 Teuta Boci, Biological Sciences
2008 Joe Dundas, Bioengineering, UIC College of Engineering
2008 Deirdre Foley, Biochemistry and Molecular Genetics, UIC College of Medicine
2010 Renhua Huang, Biological Sciences
2012 Tanmay Chavan, Biochemistry and Molecular Genetics, UIC College of Medicine
2015 Haipeng Liu, Medicinal Chemistry and Pharmacognosy, UIC College of Pharmacy
2016 Joshua Bernstein, Biochemistry and Molecular Genetics, UIC College of Medicine
2018 Jingting Xu, Bioengineering, UIC College of Engineering
2018 Chang Chen, Bioinformatics, Bioengineering, UIC College of Engineering
2020 Nic Leschinsky, Biochemistry and Molecular Genetics, UIC College of Medicine
2021 Yang Chen, UIC Department of Biology
2022 Nicole Curtis, UIC Department of Biology

Graduate Student Thesis Committees

- 2003 Laura Beaster-Jones, Biological Sciences
2003 Fatima Marankan, Medicinal Chemistry and Pharmacognosy, UIC College of Pharmacy
2004 Ji-Hyun Lee, Ph.D., Biological Sciences
2006 Diana Arsenieva, Ph.D., Biological Sciences
2007 Forum Bhatt, Ph.D., Biological Sciences
2007 Annette Roos, Ph.D., Department of Cell and Molecular Biology, Uppsala, Universitet, Sweden
2008 Deirdre Foley, Ph.D., Biochemistry and Molecular Genetics, UIC College of Medicine
2010 Joe Dundas, Ph.D., Bioengineering, UIC College of Engineering
2012 Renhua Huang, Ph.D., Biological Sciences
2013 Xiaona Fan, M.S., Biological Sciences
2013 Matthew Mani, M.S., Bioengineering, UIC College of Engineering
2014 Navya Josyula, M.S., Bioengineering, UIC College of Engineering
2015 Wangfei Wang, M.S., Bioengineering, UIC College of Engineering
2017 Joshua Bernstein, Ph.D., Biochemistry and Molecular Genetics, UIC College of Medicine
2018 Anthony Savushkin, Ph.D., Department of Chemistry
2019 Jingting Xu, Ph.D. Bioengineering, UIC College of Engineering
2019 Chang Chen, Ph.D., Bioengineering, UIC College of Engineering
2021 Haipeng Liu, Ph.D., Medicinal Chemistry and Pharmacognosy, UIC College of Pharmacy
2022 Yang Chen, Ph.D., Biological Sciences
2022 Nimma Ramesh, Ph.D., remote reviewer of thesis, Dept. Biotechnology, National Institute of Pharmaceutical Education and Research, Punjab, India

Supervision of Undergraduate Theses

- 2009 Ciara Macenas
2009 Fatiha Siddiqui
2013 Vaishak Amblee
2015 Hannah Lee
2021 Maheen Hassan
2022 Victoria Ogunniyi
2023 Krupa Patel

Mentor/advisor for Honors College activities (non-research, for example, extra Biochemistry practice problems or essays)

- 2008 Prakruti Modi
2015 Lukman Fahiyi
2020 Nomin Bayarsaikhan
2020 Alyssa Redini Ramos
2021 Rahma Elabady
2021 Mounika Gadiraju
2021 Victoria Ogunniyi
2021 Summayya Ather
2023 Yuhua Tan

Supervision of Undergraduate Student Research

1999–2002 Kathy Chang
1999–2003 Vishal Patel
2001–2003 Ayessa Yason
2002–2003 Brian (Bong Ik) Bae
2003–2003 Albert Adebeyo
2003–2006 Brian Appavu
2003–2004 Aditi Gulabani
2003–2003 Sarah Goldrick
2004–2004 Crystal Deberry
2006–2006 Guadalupe Navarro
2007–2007 Robin Zhou
2007–2007 David Lee (from UIUC)
2007–2009 Ciara Macenas
2007–2009 Ji-in Choi
2007–2008 Ji-In Lee
2008–2009 Krystal Wilhoite
2010–2012 Aaron Kunamalla
2010–2011 Sernard Gill
2010–2012 Sonali Gandhi
2011–2013 Vaishak Amblee
2012–2013 David Dolivo
2012–2014 Victoria Gill
2012–2014 Nicole Long
2013–2013 Kanchan Markan
2013–2013 Bansi Patel
2013–2013 Jagravi Thakkar
2013–2014 Nhan Phuoc Dang
2013–2015 Hannah Lee
2014–2015 Michael Chen
2014–2016 Riyushi Mahadik
2014–2015 Shivani Patel
2014–2015 Ahlam Shaabneh
2015–2016 Debra Sodimu
2016–2017 Bianca Garcia
2020–2020 Efose Oriafio (from the Massachusetts Institute of Technology)
2020–2020 Emily Rowen
2020–2021 Maheen Hassan
2020–present Karyna Kravchenko (V.N. Karazin Kharkiv National University, Ukraine)
2021–2021 Nina Rivera
2021–2022 Victoria Ogunniyi
2021–2022 Cesar Siete
2022–2022 Lancy Patel
2022–2022 Iman Bajes
2022–2022 Pierina Gonzalez
2022–2022 Shivam Patel
2022–2022 Karina Rangel
2021–2023 Krupa Patel

Honors and Awards for research by Undergraduate Lab Members

- 2000 Kathy Chang and Vishal Patel won Sarah Madonna Kabbes Scholarships for Undergraduate Research from the Honors College
- 2002 Vishal Patel and Kathy Chang poster award in the UIC Undergraduate Research Symposium
- 2003 Vishal Patel, Undergraduate Poster Award, Protein Society National Symposium, Boston, MA
- 2004 and 2005 Brian Appavu, poster awards, UIC Undergraduate Research Symposium
- 2008 Ji-In Choi won a Hirsch Family scholarship
- 2010 Sonali Gandhi won a Chancellor's Undergraduate Research Opportunity Award (CURA)
- 2010 Sernard Gill and Aaron Kunamalli won Liberal Arts and Science Undergraduate Research Initiative (LASURI) awards
- 2011 Vaishak Amblee won a Sarah McNabbes award
- 2012 Vaishak Amblee won an Honors College Research Grant
- 2013 Hannah Lee won an Honors College Research Grant
- 2013 Hannah Lee won a LASURI award
- 2013 Kanchan Markan, Hannah Lee and Victoria Gill won CURA awards
- 2014 Hannah Lee, Michael Chen, Ahlam Shaabneh, Shivani Patel won CURA awards
- 2016 Bianca Garcia won a LASURI award
- 2015 Debra Sodimu won a LASURI award
- 2015 Riyushi Mahadik won a CURA award
- 2020 Maheen Hassan won an Honors College Research Grant
- 2021 Krupa Patel won a CURA Award
- 2021 Victoria Ogunniyi won an Honors College Research Grant
- 2021 Karina Rangel won a CURA Award
- 2022 Krupa Patel won a second CURA Award
- 2022 Krupa Patel won an Honors College Research Grant

Fifteen undergraduates and four high school students are authors on publications (underlined)

- Chang Chen, Haipeng Liu, Shadi Zabad, Nina Rivera, Emily Rowin, Maheen Hassan, Stephanie M Gomez De Jesus, Paola S Llinás Santos, Karyna Kravchenko, Mariia Mikhova, Sophia Ketterer, Annabel Shen, Sophia Shen, Erin Navas, Bryan Horan, Jaak Raudsepp, Constance Jeffery (2021) MoonProt 3.0: an update of the moonlighting proteins database, *Nucleic Acids Research*, gkaa1101,
- Ji-Hyun Lee, Kathy Z. Chang, Vishal Patel, Constance J. Jeffery. (2001) *Biochemistry*, 40: 7799-7805.
- Diana Arsenieva, Brian L. Appavu, Gloria Mazock, Constance J. Jeffery. (2009) *Proteins: Structure, Function, and Bioinformatics* 74:72-80.
- Grant L. Zwicke, G. A. Mansoori, Constance J. Jeffery. (2012) Utilizing the Folate Receptor for Active Targeting of Cancer Nanotherapeutics. *Nano Rev.* 2012;3.
- Matthew Mani, Chang Chen, Vaishak Amblee, Haipeng Liu, Tanu Mathur, Grant Zwicke, Shadi Zabad, Bansi Patel, Jagravi Thakkar, Constance J. Jeffery. (2015) Moonlighting Proteins Database (MoonProt): A database of proteins that are known to moonlight. *Nucleic Acids Research*. D277–D282.
- Vaishak Amblee, Constance J. Jeffery. (2015) Physical Features of Intracellular Proteins that Moonlight on the Cell Surface. *PLOS One*. 10(6):e0130575. doi: 10.1371/journal.pone.0130575. eCollection 2015. PMID: 26110848

Forum Bhatt, [Vishal Patel](#), Constance J. Jeffrey (2018) Open Conformation of the *Escherichia coli* Periplasmic Murein Tripeptide Binding Protein, MppA, at High Resolution. *Biology (Basel)*. 7(2). pii: E30. doi: 10.3390/biology7020030. PMID: 29783769

Director and Mentor for an NSF REU on Macromolecular Structure and Function and mentor for 2 undergraduate participants

2021 Cesar Siete

2021 Carolina Ortiz-Navarro

Mentor for UIC Summer Research Opportunities Program

2006 Joseph Battle, Jr.

2006 Jeffrey Osuji

2007 Ashley Groves

2007 Frank Aaron Bunson

2008 Krystal Wilhoite

2008 Alicia Boykin

2008 Jerriel Hall

2008 Shantell Willie

2020 Paola Llinas

2020 Stephanie Gomez

Courses taught

Fall 2000, 2001 LAS100, Introduction to Liberal Arts

Fall 2012–present, Spring 2017–present Bios352/Chem352, Introductory Biochemistry

Spring 2012–2018, 2020–present Bios391, Undergraduate Independent Study

Fall and Spring 2000–present Bios399, Undergraduate Independent Research

Spring 2001–2015, 2021–present Bios454/Chem454, Biochemistry II

Spring 2001 Bche513 Structure of Biopolymers

Fall 2000–2016, 2018–2019 Bios524, Molecular Biology I

Spring or Fall 2002, 2005, 2008, 2011 Bios594, Special Topics in Biological Sciences (Graduate seminar class)

Course Development

- In the 2012-2013 academic year I performed a pilot study involving and training undergraduate and graduate students in database annotation and having them assist in annotation of our MoonProt Database. During this time, four undergraduates, two laboratory personnel volunteers (one a recent graduate), and one graduate student worked on annotation. My analysis of the results of the test procedure are as follows: With proper training and guidance, each team member annotated at least three proteins with related functions (i.e., three enzyme/crystallins, three enzyme/adhesins, or three chaperones/proteases, etc.) in one semester. Some students annotated far more proteins, with a total of 32 proteins annotated by students. In the future, this method can involve more undergraduates, at least 10 per year. It was a good learning experience for multiple students and lab volunteers that provided team members with training in critical reading of journal articles, using and evaluating sequence alignments, and using databases like MoonProt, UniProt and the Protein Data Bank. It provided a deeper understanding of important concepts in protein structure and function, including catalysis, ligand binding, receptors, active site, etc. While being able to understand and use these types of concepts and experience would be useful

in graduate school or medical school and in future jobs in academics, biotechnology companies, and pharmaceutical companies, this type of in-depth experience is not available in classes.

- Updating the MoonProt Database has been one method by which we continued our research activities during the coronavirus pandemic of 2020. While other research opportunities for undergraduates and high school students were not available during social distancing, I developed opportunities for three UIC undergraduate students, two Summer Research Opportunity Program undergraduate students in Puerto Rico, two additional undergraduate volunteers from within the USA or internationally (Ukraine) and four high school students and their teachers to be involved in lab activities and learn about protein sequence and structural analysis.
- Developed a new part of Bios524 (Molecular Biology I). My portion of this graduate course included protein structure and function, enzymes, X-ray crystallography, sequence and structural homology, protein engineering and proteomics.
- Developed a new version of Bios352/Chem352 (Introduction to Biochemistry) using *Lehninger's Principles of Biochemistry* as the textbook. This provided students with more in-depth knowledge of many of the topics covered in the course.
- Developed a new part of Bche513 (Structure of Biopolymers) that focused on the structures and molecular mechanisms of membrane proteins, enzymes, and proteins in signal transduction pathways.
- Designed a new section of LAS100 (Introduction to Liberal Arts). This was a semester-long course in which first year undergraduate students interacted with the professor in a relaxed, small group format that is not possible in their large lecture courses, and it was a pass/fail course with fun educational activities. Students participated in making models of amino acids, tours of our structure facilities, visits to my lab, and meeting graduate students and postdoctoral researchers. We used crossword puzzles and other fun educational materials that I created.

UNIVERSITY and DEPARTMENTAL SERVICE

University

2021, 2022 Participated in the Chicagoland Postdoc Recruitment Event

2021–present Member, UIC chapter of Phi Beta Kappa Advisory Board

2020–2021 Mentor/Faculty Fellow for the Honors College

2017–2018 President, UIC chapter of Phi Beta Kappa

2014–2017 Co-organizer, Structural Biology Journal Club

2014 Co-organizer of Chicago Symposium in Honor of the International Year of Crystallography

2012–2013 Reviewer, Chancellor's Graduate Fellowships

2011–2012 Reviewer, Honors College Applications

2008 Mentor, Summer Research Opportunities Program

2007 Mentor, Summer Research Opportunities Program

2006 Internal reviewer of Burroughs-Welcome pre-proposals

2006 Mentor, Summer Research Opportunities Program

2005 Member, Molecular Biophysics Training Grant Advisory Committee

2000–present Reviewer, UIC chapter of Phi Beta Kappa Membership Applications

2000 Reviewer, UIC Campus Research Board Grant

1999–2009 Mentor/Faculty Fellow for the Honors College

Department of Biological Sciences

2023 Peer Reviewer of 2 courses

2020–present Member, Biology Department Diversity Committee

2020–present Member, Molecular, Cell, and Developmental Biology Graduate Student Admissions Committee

2013–2018 Member, Laboratory for Molecular Biology Graduate Student Admissions Committee

2010–2011 Member, Biology Department Biochemistry Faculty Search Committee

2009 Biology Dept. Representative to the Biochemistry Committee

2006–2007 Member, Biology Department Hiring Directions Committee

2006–2007 Member, Biology Department Promotion and Tenure Committee

2005 Departmental Representative for the Biochemistry Major

2004–2005 Member, Biology Department Head Search Committee

2004–2005 Member, Biology Department Faculty Search Committee

1999–2007 Member, Laboratory for Molecular Biology Graduate Recruiting and Admissions Committee

1999–2002 Chair, Laboratory for Molecular Biology Seminar Committee

1999–2002 Manager, Laboratory for Molecular Biology Computer Room

1999–2002 Member, Laboratory for Molecular Biology Curriculum Committee

OTHER PROFESSIONAL ACTIVITIES

Symposia and Meetings Organized

2005–present Co-Organizer of Midwest Conferences on Protein Folding, Assembly, and Molecular Motions (MWFold), Notre Dame University, Notre Dame, IN

2005 Organizer and Chair of Symposium on Moonlighting Proteins at the Biophysical Society National Meeting

2014 Co-organizer of the Chicago Symposium in Honor of the International Year of Crystallography

2018 Co-organizer of a workshop at the Biophysical Society meeting, “Leveling the Playing Field Workshop”, Sponsored by the Committee for Professional Opportunities for Women (CPOW)

2021 Co-organizer of a webinar panel discussion for the Biophysical Society “Sharing Solutions for Research and Career Recovery Post Pandemic”, Sponsored by the Committee for Professional Opportunities for Women (CPOW)

Professional Memberships

Advanced Photon Source (synchrotron) User, Argonne National Labs

Biophysical Society

Protein Society

American Chemical Society

New York Academy of Sciences (NYAS)

American Association for the Advancement of Science (AAAS)

WEST (Women Entrepreneurs in Science and Technology)

AWIS (Association for Women in Science)

AMITA (Association for MIT Alumnae)

Sigma Xi

Phi Beta Kappa

Biochemical Society

Professional Service

2000 Poster judge at ABMB national meeting
2003 Guest lectures the American Crystallographic Association summer school in X-ray crystallography
2003 Poster judge at Protein Society national meeting
2004 Guest lectures the American Crystallographic Association summer school in X-ray crystallography
2006 Guest lectures the American Crystallographic Association summer school in X-ray crystallography
2009 Co-Chaired symposium “Membrane Protein Structure”, Biophysical Society meeting
2011 Poster judge at Protein Society national meeting
2011–2013 Mentor for Association for Women in Science (AWIS) mentoring circle
2011–2019 Mentor for MIT GWAMIT (Graduate Women at MIT)
2012–2015 Mentor for NeXXt Scholars Program with the New York Academy of Sciences and the U.S. State Department
2013 Poster judge at AAAS national meeting
2013 Poster judge at Protein Society national meeting
2015–present Mentor, STEMU, 1000 Girls/1000 Futures, and Junior Academy programs organized by the New York Academy of Sciences
2015–helped interview mentor applicants for 1000 Girls/1000 Futures
2015–2021 Biophysical Society National Committee, Committee for Professional Opportunities for Women (CPOW)
2018 Reviewed poster abstracts for Protein Society Meeting
2018 Poster judge at Protein Society national meeting
2018 Reviewed mentor applications for STEMU 2018
2018 Poster judge at Biophysical Society national
2017 Reviewed poster abstracts for Protein Society Meeting
2021 Poster judge at Protein Society national meeting
2022 Chaired session on “Mini-Proteins” at Protein Society national meeting
2022 Poster judge at Protein Society national meeting

National and International Grant Reviewing

2023 NSF Reviewer – Study Section
2023 NSF Reviewer – Study Section (2 NSF study sections in 2023)
2020 NSF Reviewer - Study Section
2020 Reviewed Grant for Keck Foundation
2019 Reviewed Grant proposal for Human Frontiers Science Program (HFSP)
2018 Reviewed Natural Sciences and Engineering Research Council of Canada Discovery Grant
2019 ESF College of Expert Reviewers, European Science Foundation
2018 Reviewed grant for Poland National Science Centre
2018 Reviewed grant pre-proposals, NAR, the French National Research Agency
2019 Reviewed Natural Sciences and Engineering Research Council of Canada Herzberg Prize application
2016 Reviewer of Grant Applications for Sigma Delta Epsilon/Graduate Women in Science (GWIS)
2015–2021 Reviewer of Travel Awards for the Biophysical Society
2015 Reviewed grant pre-proposals, NAR, the French National Research Agency
2015 NSF Reviewer - Study Section

2015 Reviewed grant for Poland National Science Centre (Narodowe Centrum Nauki–NCN)
2014 Reviewer of Grant Applications for Sigma Delta Epsilon/Graduate Women in Science (GWIS)
2013 Reviewed grant for UK Biotechnology and Biological Sciences Research Council
2013 Reviewed grant for UK MRC (Medical Research Council)
2013 Reviewer of Grant Applications for Sigma Delta Epsilon/Graduate Women in Science (GWIS)
2012 Ad hoc NSF grant reviewer
2011 Ad hoc NSF grant reviewer
2010–2013 European Research Council remote referee in peer review evaluations
2010 Reviewer of Wellcome Trust grant proposal
2009 Ad hoc NSF grant reviewer
2008 Ad hoc NSF grant reviewer
2006 Reviewer of ACS Petroleum Research Fund grant proposals
2005 Reviewer of ACS Petroleum Research Fund grant proposals
2004 Reviewer of ACS Petroleum Research Fund grant proposals
2004 Ad hoc NSF grant reviewer

Manuscript Reviewer

Science
FEBS Letters
Biochemistry
Protein Science
Bioinformatics
Biochimica et Biophysica Acta
Journal of Bacteriology
Trends in Plant Science
Nature Biotechnology
Archives of Microbiology
Journal of Biological Chemistry
Nucleic Acids Research
Biopolymers
Acta Crystallographica F
FEBS Journal
Annals of Medicine
Archives of Biochemistry and Biophysics
Nucleic Acids Research
Nature Reviews Drug Discovery
Current Protein and Peptide Science
Biochimie
Infection and Immunity
Biochemical Journal
BioEssays
NanoReviews
Biological Reviews
BMC Systems Biology
Bioscience Reports
Journal of Bacteriology
Chinese Journal of Oceanology and Limnology

Comparative Biochemistry and Physiology
Proceedings of the National Academy of Science (PNAS)
Nucleic Acids Research
BBA-Molecular Basis of Disease
Biology
International Journal of Biochemistry and Cell Biology
Journal of Inherited Metabolic Disease
PLOS Computational Biology
IUBMB Life
Microbiology and Molecular Biology Reviews
Proteomics
Biochemical Society Transactions
Journal of Cell Science
IUCr Journal
Frontiers in Cellular and Infection Microbiology
Bioorganic Chemistry
Acta Crystallographica Section F
Cell Cycle
Trends in Microbiology
Molecular Genetics and Metabolism
The Biophysicist
Nature Communications
PLOS One
FEMS Microbiology Letters
PeerJ – The Journal of Life and Environmental Sciences
BBA – Molecular Cell Research

Review of Textbook Chapters:

2014 Reviewed chapter of new Biochemistry textbook for Pearson
2010–2011 Reviewed chapters of Biochemistry textbook for WW Norton & Company
(New York, NY)
2009–2010 Reviewed chapters of Molecular Biology textbook for WH Freeman &
Company
