

TM Iverson, PhD

Louise B. McGavock Endowed Chair

Associate Dean for Faculty, School of Medicine, Basic Sciences

Professor, Departments of Pharmacology and Biochemistry

Investigator, Center for Structural Biology, and Vanderbilt Institute of Chemical Biology

Adjunct Faculty, Graduate School, Meharry Medical College

Founding Scientific Director, Vanderbilt High-throughput Biomolecular Crystallization Facility

460 Robinson Research Building

Vanderbilt University

Nashville, TN 37232-6600

Office: (615) 322-7817; lab: (615) 322-8721; fax: (615) 343-6532; email: tina.iverson@vanderbilt.edu

EDUCATION

Imperial College London, London, UK

Postdoctoral training, Department of Biomedical Sciences, 2002-2004; *Advisor*: Prof. So Iwata

Brandeis University, Waltham, Massachusetts

Postdoctoral training, Department of Physiology, 2001-2002; *Advisor*: Prof. Christopher Miller

California Institute of Technology, Pasadena, California

Ph. D., Biochemistry, 2000; *Advisor*: Prof. Douglas C. Rees

St. John's University, Jamaica, New York

B.S., Chemistry, Physics minor, *Summa cum laude*, 1995

ACADEMIC APPOINTMENTS

2024 – present	Associate Dean for Faculty, School of Medicine, Basic Sciences
2021 – present	Adjunct Faculty, Graduate School, Meharry Medical College
2018 – present	Professor, Departments of Pharmacology and Biochemistry, Vanderbilt University
2019 – 2022	Director, Quantitative and Chemical Biology Graduate Program, Vanderbilt University
2010 – 2018	Associate Professor, Departments of Pharmacology and Biochemistry
2005 – 2010	Assistant Professor, Departments of Pharmacology (2005) and Biochemistry (2006)

AWARDS

2020 –	Louise B McGavock Endowed Chair
2008 – 2010	NARSAD Young Investigator
2006 – 2010	Ellison Medical Foundation New Scholar in Aging
2003 – 2005	EMBO Long-Term Postdoctoral Fellowship
2003 – 2004	Ruth L. Kirschstein National Research Service Award Individual Fellowship
2002 – 2003	Life Sciences Research Foundation Postdoctoral Fellowship
2000 – 2002	Howard Hughes Medical Institute Postdoctoral Associate
1999 – 2000	Howard Hughes Medical Institute Graduate Research Assistantship
1995 – 1999	NIH Training Grant in Neurobiology
1998	American Crystallographic Society Student Travel Grant

INVENTIONS AND PATENTS

2021	Engineered probes for sialoglycan recognition US patent docket number 10644-082WO1
2009	β -mem sparse matrix screening kit for β -barrel membrane proteins

PUBLICATIONS

(a) *Peer-reviewed articles in referenced journals*

86. Morrison, KM. Agarwal, R, Stubbs, HE, Yu, H., Chen, X., Bensing, BA, Sullam, PM, Smith, JC, Iverson, TM. (2025) Sialic Acid Identity Modulates Host Tropism of Sialoglycan-binding Viridans Group Streptococci. *J. Biol. Chem.*, accepted. [OpenAccess](#). Pre-print in BioRxiv
doi: <https://doi.org/10.1101/2025.06.24.660003>
85. Meister, J., Wanka, L., Perry-Hauser, N., Liu, L., Iverson, TM, Gurevich, VV Beck-Sickinger, A., Kruse, A, Wess, J. (2025) Development of Mutant M3 Muscarinic Receptors Biased for G Protein Activation or Recruitment of β -Arrestins. *Biochemistry*, 64(13):2727-2736. doi: 10.1021/acs.biochem.5c00036.
84. Singh, P.K. and Iverson, T.M. (2025) Improving CryoEM maps of symmetry-mismatched macromolecular assemblies: A case study on the flagellar motor. *J Struct Biol.* 217(2):108184. [doi: 10.1016/j.jsb.2025.108184](#). [OpenAccess](#).
83. Singh, P.K., Sharma. P., Afanzar, O., Goldfarb, M.H., Maklashina, E., Eisenbach. M., Cecchini, G., Iverson, T.M. (2024) CryoEM structures reveal how the bacterial flagellum rotates and switches direction. *Nature microbiology* **9**(5) 1271 – 1281. [PMC 11087270](#). [OpenAccess](#).
Highlighted:
 - Smarter Every Day YouTube series (> 3 million views) <https://www.youtube.com/watch?v=VPSm9gJkPxU>
 - A summary of this publication went separately viral on both twitter and Instagram. Social media (tweet, facebook, Instagram) received > 6 million combined views. The instructions for 3D printing of the motor were downloaded ~75k times within the first 24 hours. An instructional video on cryoEM received > 100,000 views
 - Highlighted by Science enthusiast publications (phys.org, Chemistry World)
 - Highlighted by msn.com
 - Ask Me Anything (AMA) event on the r/AskScience subReddit (4/25/24; <https://redd.it/1ccp1lg>)
 - Featured on the r/InterestingAsF**k subReddit [URL](#)
 - Altimetrics identifies this as within the top 1% of all articles of similar age in terms of online attention
 - This was the #1 accessed AOP in Nature microbiology (>17,000 downloads within 48 hrs of AOP) and in the top 100 (out of 160,000) accessed AOP in any journal. Currently has > 50,000 accesses of the primary research article.
82. Sharma, P., Maklashina, E., Voehler, M., Balintova, S., Dvorakova, S., Kraus, M., Vanova, K.H., Zuzana Nahacka, Z., Zabalova, R., Boukalova, S., Cunatova, K., Mracek, T., Ghayee, H.K., Pacak, K., Rohlena, J., Neuzil, J., Cecchini, G., **Iverson**, T. M. (2024) Disordered-to-ordered transitions in assembly factors allow the complex II catalytic subunit to switch binding partners. *Nat Communications* **15**: 473. <https://rdcu.be/dvLYU>, [PMC10784507](#). [OpenAccess](#).
Highlighted: by SBGrid on Tumblr [URL](#)
81. Dulin, C.C., Sharma, P., Frigo, L., Voehler, M.W., **Iverson**, T.M., Bachmann, B.O. (2023) EcdS6 is a bifunctional decarboxylase from the everninomicin gene cluster. *J. Biol. Chem.* **299**(7):104893. [PMC10338323](#).
80. Singh, P.K., Cecchini, G., Nakagawa, T., **Iverson**, TM. (2023) CryoEM structure of a post-assembly MS-ring reveals plasticity in stoichiometry and conformation. *PLoS ONE*. **18**(5): e0285343. [PMC10198558](#). [OpenAccess](#).
Highlighted: by SBGrid on Tumblr <https://lnkd.in/esRcjdFS>
79. Tomar R, Minko IG, Sharma P, Kellum AH, Lei L, Harp JM, **Iverson** TM, Lloyd RS, Egli M, Stone MP. (2023) Base excision repair of the N-(2-deoxy-d-erhthro-penotfuranosyl)-urea lesion by the hNEIL1 glycosylase. *Nucleic Acids Res.* **51**(8):3754-3769. [PMC10164570](#).
78. Maklashina, E., **Iverson**, TM, Cecchini, G (2022) How an assembly factor enhances covalent FAD attachment to the flavoprotein subunit of complex II. *J. Biol. Chem.* **298** (10): 102472. [PMC9557727](#).
77. Perry-Hauser, N.A. Kaoud, TS, Stoy, H, Zhan, X, Chen, Q, Dalby, KN, Iverson, TM, Gurevich, VV, Gurevich, EV (2022) Short arrestin-3-derived peptides activate JNK3 in cells. *Int J Mol Sci*, **23**(15): 8679. [PMC9368909](#).
76. Perry-Hauser, N.A. Bennett-Hopkins, Zhuo, J.Y., Zheng, C., Perez, I., Schultz, K.M., Vishnivetskiy, S., Kaya, A.I., Sharma, P., Dalby, K.N., Chung, K.Y., Klug, C.S., Gurevich, V.V., **Iverson**, TM (2022) The Two Non-visual Arrestins Engage ERK2 Differently. *J. Mol. Biol.*, **434**(7):167465. [PMC8977243](#).

74. Bensing, BA, Stubbs, HE, Agarwal, R, Yamakawa, I, Luong, K, Solakyildirim, K, Yu, H, Castro, MA, Fialkowski, KP, Morrison, KM, Wawrzak, Z, Chen, X, Lebrilla, CB, Baudry, J, Smith, JC, Sullam, PM, **Iverson, TM** (2022) Origins of Broad sialoglycan Selectivity in Siglec-like Adhesins Suggest a Mechanism of Host Receptor Switching. *Nature Communications*. **13**(1):2753 [PMC9117288](#). [OpenAccess](#).
73. Perez, I. Berndt, S., Agarwal, R., Castro, M.A., Vishnivetskiy, S.A., Smith, J.C., Sanders, C.R., Gurevich, V.V., **Iverson, T.M.** (2022) A model for the complex between Arrestin-3 and the Src family Kinase Fgr. *J. Mol. Biol.*, 434(2):167400. [PMC8752512](#).
72. Qu, C., Park, JY, Yun, MW, Yang, F., He, Q, Kim, K, Ham, D., Li, R., **Iverson, TM**, Gurevich, VV., Sun, J, Chung, KY (2021) Scaffolding mechanism of arrestin-2 in the cRaf/MEK1/ERK signaling cascade *Proc Natl Acad Sci USA*, **118**(37): e2026491118. [PMC8449410](#).
71. Nason, R. Büll, C., Konstantinidi, A., Sun, L., Ye, Z., Halim, A., Du, W., Sørensen, D.M., Durbesson, F., Furukawa, S., Mandel, U., Joshi, H.J., Dworkin, L., Hansen, L., David, L., **Iverson, T.M.**, Bensing, B.A., Sullam, P.M., Varki, A., de Vries, E., de Haan, C.A.M., Vincentelli, R., Henrissat, B., Vakhrushev, S.Y., Narimatsu, Y. (2021) Display of the Human Mucinome with Defined O-Glycans by Gene Engineered Cells. *Nature Communications*, 12(1):4070. [PMC8249670](#). [OpenAccess](#).
70. Chen, Q., Zhuo, Y., Sharma, P., Perez, I., Francis, D.J., Chakravarthy, S., Vishnivetskiy, S.A., Berndt, S., Hanson, S.M., Zhan, X., Brooks, E.K., Altenbach, C. Hubbell, W., Klug, C.S., **Iverson, T.M.**, Gurevich, V.V. (2021) An eight amino acid segment controls oligomerization and preferred conformation of the two non-visual arrestins. *J Mol Biol*, **433**(4):166790. [PMCI7870585](#).
69. Sharma, P., Maklashina, E., Cecchini, G., and **Iverson, T.M.** (2020) The roles of SDHAF2 and dicarboxylate in covalent flavinylation of SDHA, the human complex II flavoprotein. *Proc Nat Acad Sci USA*, **117**(38): 23548-23556 [PMC7519310](#).
68. Agarwal, R, Bensing, BA, Dehui Mi, D, Vinson, P., Baudry, J, **Iverson, TM**, Smith, JC. (2020) Structure based virtual screening identifies novel competitive inhibitors for a sialoglycan binding adhesin protein Hsa. *Biochem J*, **477**(19):3695-3707. [PMCI9204803](#).
67. Stubbs, HE, Bensing, BA, Yamakawa, I, Sharma, P, Sullam, PM, **Iverson, TM**. (2020) Tandem Siglec-like binding regions in the *Streptococcus sanguinis* SK1 adhesin create target dependent avidity effects. *J Biol Chem*, **295**(43): 14737-14749. [PMC7586212](#).
66. Limbrick, EM., Graf, M., Derewacz, DK., Nguyen, F., Spraggins, JM., Wieland, M., Yniguez-Gutierrez, A.E, Reisman, B., Zinshteyn, B., McCulloch, K.M., **Iverson, T.M.**, Green, R., Wilson, D.N., Bachmann, B.O. (2020) Bifunctional nitron conjugated secondary metabolite targeting the ribosome. *J Am Chem Soc*, **142**(43): 18369-18377. [PMC8129991](#).
65. Limbrick, E., Derewacz, D., Spraggins, J., McCulloch, K.M., **Iverson, T.M.** Bachmann, B.O. (2020) Methyltransferase contingencies in the pathway of everninomicin D antibiotics and analogs. *Chem Biochem*, **21**(23): 3349-3358. doi: <https://doi.org/10.1002/cbic.202000305>. [PMC in process](#).
64. Kaya, AI, Perry, NA, Gurevich, VV, **Iverson, TM**. (2020) Phosphorylation barcode-dependent signal bias of the dopamine D1 receptor. *Proc Natl Acad Sci USA*, **117**(25): 14139-14149. [PMC7321966](#).
63. Perry, NA, Fialkowski, KP, Kaya, AI, Taliaferro, JM, Gurevich, VV, Dalby, KN, and Iverson, TM. (2019) Arrestin-3 interaction with maternal embryonic leucine-zipper kinase. *Cell Signaling*, **63**: 109366. [PMC6717526](#).
62. Bensing, BA, Li, L, Yakovenko, O, Wong, M, Barnard, KN, Iverson, TM, Lebrilla, CB, Parrish, CR, Thomas, WE, Xiong, Y, Sullam, PM. (2019) Recognition of specific sialoglycan structures by oral streptococci impacts the severity of endocardial infection. *PLoS Pathogens*, **15**(6): e1007896. [PMC6611644](#). [OpenAccess](#).
61. Sammons, R, Perry, NA; Li, Y, Cho, E, Piserchio, A, Zamora-Olivares, D Ghose, R, Kaoud, T, Debevec, G, Bartholomeusz, C, Gurevich, VV, **Iverson, TM**, Giulianotti, MA.; Houghten, R, Dalby, KN (2019) A Novel

- Class of Common Docking Domain Inhibitors That Prevent ERK2 Activation and Substrate Phosphorylation. *ACS Chemical Biology*, **14**(6): 1183-1194. [PMC7231510](#).
60. Berndt, S., Gurevich, V.V., **Iverson**, T.M. (2019) Crystal structure of the SH3 domain of human Lyn non-receptor tyrosine kinase *PLoS ONE* **14**(4): e0215140. [PMC6457566](#). [OpenAccess](#).
59. Sharma, P., Maklashina, E., Cecchini, G., and **Iverson**, T.M. (2019) Maturation of the respiratory complex II flavoprotein. *Curr Op Struct Biol* **59**:38-46. [PMC7519310](#).
Highlighted: recommended in Faculty of 1000 as being of special significance in its field
58. McCulloch, K.M., Yamakawa, I., Shifrin, D.A., McConnell, R.E., Foegeding, N.J., Singh, P.K., Mao, S., Tyska, M.J., and **Iverson**, T.M. (2019) An Alternative N-terminal Fold of the Intestine-specific Annexin A13a Induces Dimerization and Regulates Membrane-binding. *J Biol Chem*, **294**(10): 3454 –3463. [PMC6416438](#).
57. Perry N.A., Kaoud, T.S., Ortega, O.O. Kaya, A.I., Marcus, D.J., Pleinis, J.M., Berndt, S., Chen, Q., Zhan, X., Dalby, K.N., Lopez, C.F., **Iverson**, T.M. and Gurevich, V.V. (2019) Arrestin-3 scaffolding of the JNK3 cascade suggests a mechanism for signal amplification. *Proc Natl Acad Sci USA*, **116**(3):810-815. [PMC6338856](#).
56. Starbird, CA, Perry, N. A., Chen, Q., Berndt, S., Yamakawa, I., Loukachevitch, L. V., Limbrick, E.M., Bachmann, B.O., **Iverson**, T.M., McCulloch, K M. (2018) Structure of the bifunctional everninomicin biosynthetic enzyme EvdMO1 suggests independent activity of the fused methyltransferase-oxidase domains. *Biochemistry*, **57**: 6827-6837. [PMC7231510](#).
55. Maklashina, E., Rajagukguk, S., **Iverson**, T.M., Cecchini, G. (2018) The unassembled flavoprotein subunits of human and bacterial complex II have impaired catalytic activity and generate only minor amounts of ROS, *J. Biol Chem*, **293**(20): 7754 –7765. [PMC5961047](#).
Highlighted: recommended in Faculty of 1000 as being of special significance in its field
54. Chen, Q., **Iverson**, T.M., and Gurevich, V.V. (2018) Structural basis of arrestin-dependent signal transduction *Trends in Biological Sci*, **43**(6):412-423 [PMC5959776](#)
53. Sharma, P., Maklashina, E., Cecchini, G., and **Iverson**, TM. (2018) Crystal structure of an assembly intermediate of respiratory Complex II *Nature Communications* **9**(1):274. [doi: 10.1038/s41467-017-02713-8](#). [PMC5773532](#) [OpenAccess](#).
52. Starbird, C.A., Tomasiak, T.M., Singh, P.K., Eisenbach, M. Cecchini, G., and **Iverson**, T.M. (2018) New crystal forms of the integral membrane *Escherichia coli* quinol:fumarate reductase suggest that ligands control domain movement. *J. Struct. Biol.*, **202**(1):100-104. [PMC5835405](#).
51. Tso, S, Chen, Q, Vishnivetskiy, SA, Gurevich, VV, **Iverson**, TM and Brautigam, CA. (2018) Using two-site binding models to analyze microscale thermophoresis data. *Anal Biochem* **540-541**:64-75. [PMC5906060](#)
50. Chen, Q, Perry, N.A., Vishnivetskiy, S.A., Gilbert, N.C., Zhuo, Y., Berndt, S., Singh, P.K., Tholen, J., Ohi, M.D., Gurevich, E.V., Brautigam, C.A., Klug, C.S., Gurevich, V.V., **Iverson**, T.M. (2017) Structural basis for arrestin-3 activation and signaling. *Nature Communications*, **8**:1427. [doi: 10.1038/s41467-017-01218-8](#); [PMC5681653](#). [OpenAccess](#).
49. Starbird, C.A., Maklashina, E., Sharma, P., Qualls-Histed, S., Cecchini, G., and **Iverson**, T.M. (2017) Investigations of covalent flavinylation in the *Escherichia coli* complex II homolog quinol:fumarate reductase. *J. Biol. Chem.*, **292**(31): 12921-12933. [PMC5546032](#).
48. Prokop, S., Vishnivetskiy, SA, Perry, NA, **Iverson**, TM, Hunyadi, L and Gurevich, VV. (2017) Differential Manipulation of Basal and Agonist-induced Arrestin-3 Binding to GPCRs *Cell Signal.*, **36**:98-107. [PMC5797668](#)
47. Loukachevitch, LV, Bensing, BA, Yu, H. Jie, Z, Chen, X; Sullam, PM, **Iverson**, TM. (2016) Structures of the *Streptococcus sanguinis* SrpA Binding Region with Human Sialoglycans Suggest Features of the Physiological Ligand. *Biochemistry*, **55**(42): 5927–5937. [PMC5388602](#)

46. Kaya, A.I., Lokits, A.D., Gilbert, J.A., **Iverson**, T.M. Meiler, J., and Hamm, H.E. (2016) A conserved hydrophobic core in G α i1 regulates G protein activation and release from activated receptor. *J. Biol. Chem.* **291**(37): 19674-19686. [PMC5016700](#)
Highlighted: By the GPCR consortium.
45. Bensing, BA, Loukachevitch, LV, McCulloch, KM, Yu, H, Wawrzak, Z, Anderson, SA, Vann, KR, Chen, X., Sullam, PM, **Iverson**, TM (2016) Structural basis for sialoglycan binding by the *Streptococcus sanguinis* SrpA adhesin. *J. Biol. Chem.* **291**(14): 7230-7240. [PMC4817157](#)
Highlighted: On the cover, Paper of the Week and First Authors selected for author profiles. http://www.jbc.org/content/291/14/7230/suppl/DCAuthor_profile_LVL and http://www.jbc.org/content/291/14/7230/suppl/DCAuthor_profile_KMM
Commentary in: *J. Biol. Chem.* (2016) **291**: 7241. doi: 10.1074/jbc.P115.701425
44. Bensing, BA, Deng, L, Khedri, Z, Prakobphol, A, **Iverson**, TM, Fisher SJ, Varki A and Sullam, PM (2016) Novel aspects of sialoglycan recognition by the Siglec-like SRR glycoproteins of streptococci *Glycobiology* **26**(11) 1221-1233 [PMC6086536](#)
43. Zhan, X, Stoy, H, Kaoud, TS, Perry, NA, Chen Q, Perez, A, Els-Heindl, S, Slagis, JV, **Iverson**, TM, Beck-Sickinger, AG, Gurevich, EV, Dalby, KN, Gurevich VV. (2016) Peptide mini-scaffold facilitates JNK3 activation in cells. *Sci Reports*, **6**: 20125. [PMCID4751492](#)
42. Maklashina, E., Rajagukguk, S., Starbird, C.A., McDonald, W.H., Koganitsky, A., Eisenbach, M. **Iverson**, T.M., and Cecchini, G. (2016) Interaction of the Covalent Flavin Assembly Factor and Complex II Flavoprotein Subunit. *J. Biol. Chem.* **291**(6): 2904-2916. [PMC4742753](#)
41. McCulloch, K.M., McCranie, E.K., Smith, J.A., Sarwar, M. Mathieu, J.L., Gitschlag, B., Du, Y., Bachmann, B.O., and **Iverson**, T.M. (2015) Oxidative cyclizations in orthosomycin biosynthesis expand the known chemistry of oxygenase superfamily. *Proc. Natl. Acad. Sci. USA* **112**(37):11547-52. [PMC4577193](#)
Commentary in: Boal, A.K., Bollinger, J.M., and Chang, W. (2015) Assembly of the unusual oxacycles in the orthosomycin antibiotics *Proc. Natl Acad. Sci USA* **112**(39):11989-90
40. Kaya, A.I., Lokits, A.D., Gilbert, J., **Iverson**, T.M., Meiler, J., Hamm, H.E. (2014) A Conserved Phenylalanine as Relay Between the α 5 helix and the GDP Binding Region of Heterotrimeric G protein α_{i1} subunit. *J. Biol. Chem.* **289**(35):24475-87. [PMC4148873](#)
39. Thaker, T.M., Preininger, A.M., Sarwar, M., Hamm, H.E., and **Iverson**, T.M. (2014) A Transient Interaction Between the P-loop and Switch I Contributes to the Allosteric Network Between Receptor and Nucleotide in G α i1. *J. Biol. Chem.* **289**(16): 11331-41. [PMC4036270](#)
38. Birmingham, W.R., Nannemann, D.P., Starbird, C.A., Panosian, T.D., **Iverson**, T.M., and Bachmann, B.O. (2014) Bioretrosynthetic Construction of a Didanosine Biosynthetic Pathway. *Nat. Chem. Biol.* **10**(5): 392-9. [PMC4017637](#)
Highlighted: by popular news media and in Faculty of 1000.
37. Seo, H.S., Misanov, G., Seepersaud, R., Doran, K.S., Dubrovskaya, I., Shuvalova, L., Anderson, W.F., **Iverson**, T.M. and Sullam, P.M. (2013) Characterization of Fibrinogen Binding by Glycoproteins Srr1 and Srr2 of *Streptococcus agalactiae*. *J. Biol. Chem.* **288**(50): 35982–3599. [PMC3861647](#)
36. Singh, P.K., Sarwar, M., Maklashina, E., Tomasiak, T.M., Kotlyar, V., Rajagukguk, S., Cecchini, G., and **Iverson**, T.M. (2013) Plasticity of the Quinone-Binding Site of the Complex II Homolog Quinol:Fumarate Reductase. *J. Biol. Chem.* **288**(34): 24923-24931. [PMC3750132](#)
35. Vishnivetskiy, S.A., Chen, Q., Palazzo, M.C., Brooks, E.K., Altenbach, C., **Iverson**, T.M. Hubbell, W.L., and Gurevich, V.V. (2013) Engineering Visual Arrestin-1 with Special Functional Characteristics. *J. Biol. Chem.* **288**: 3394-3405. [PMC3561558](#)

34. Zhuang, T., Chen, Q., Cho, M., Vishnivetskiy, S.A., **Iverson**, T.M., Gurevich, V.V., and Sanders, C.R. (2013) Involvement of Distinct Arrestin-1 Elements in Binding to Different Functional Forms of Rhodopsin. *Proc Natl Acad Sci USA* **110**(3): 942-947. [PMC3549108](#)
33. Thaker, T.M., Tanabe, M., Fowler, M.L., Preininger, A.M., Ingram-Smith, C., Smith, K.S., and **Iverson**, T.M. (2013) Crystal Structures of Acetate Kinases from the Eukaryotic Pathogens *Entamoeba histolytica* and *Cryptococcus neoformans*. *J. Struct. Biol.* **181**: 185-189. [PMC3565045](#)
32. **Iverson**, T.M. (2013) Catalytic Mechanisms of Complex II Enzymes: A Structural Perspective. *Biochim Biophys Acta*. **1827**(5): 648-657 [PMC3537904](#)
Highlighted: on the cover.
31. **Iverson**, T.M., Maklashina, E., and Cecchini, G. (2012) Structural Basis for Malfunction in Complex II. *J. Biol. Chem.* **287**(42): 35430-35438. [PMC3471735](#)
30. **Iverson**, T.M., Panosian, T.D., Birmingham, W., Nannemann, D. P., and Bachmann, B.O. (2012) Molecular Differences Between a Mutase and a Phosphatase: Investigations of the Activation Step in *Bacillus cereus* Phosphopentomutase. *Biochemistry* **51**(9): 1964-1975. [PMC3302354](#)
Highlighted: Paper of the Week.
29. Pyburn, T.M., Bensing, B.A., Xiong, Y.Q., Melancon, B.J., Tomasiak, T.M., Yankovskaya, V., Oliver, K., Ward, N.J., Sulikowski, G.A., Cecchini, G., Tyska, M.J., Sullam, P.M., and **Iverson**, T.M. (2011) A Structural Model for Binding of the Serine-Rich Repeat Adhesin GspB to Host Carbohydrate Receptors. *PLoS Pathog.* **7**(7): e1002112. [PMC3131266](#)
28. Kaya, A.I., Thaker, T.M., Preininger, A.M., **Iverson**, T.M., and Hamm, H.E. (2011) Coupling Efficiency of Rhodopsin and Transducin in Bicelles. *Biochemistry*, **50**(15): 3193-3203. [PMC3119548](#)
27. Kuchtey, J., Olson, L.M., Rinkoski, T., MacKay, E.O., **Iverson**, T.M. Gelatt, K.N., Haines, J.L. and Kuchtey, R.W. (2011) Mutation in *ADAMTS10* in a Canine Model of Primary Open Angle Glaucoma. *PLoS Genetics* **7**(2): e1001306 [PMC3040645](#)
26. Panosian, T.D., Nannemann, D.P., Watkins, G., Phelen, V.V., McDonald, W.H., Wadzinski, B., Bachmann, B.O., and **Iverson**, T.M. (2011) *Bacillus cereus* Phosphopentomutase is an Alkaline Phosphatase Family Member That Exhibits an Altered Entry Point into the Catalytic Cycle. *J. Biol. Chem.* **286**(10): 8043-8054. [PMCID: 3048691](#)
25. Tomasiak, T.M., Archuleta, T.L., Andréll, J., Luna-Chavez, C., Davis, T., Sarwar, M., Ham, A.J., McDonald, W.H., Yankovskaya, V., Stern, H.A., Johnston, J.N., Maklashina, E., Cecchini, G., and **Iverson**, T.M. (2011) Geometric Restraints Drive On- and Off-pathway Catalysis by the *Escherichia coli* Menaquinol:fumarate Reductase. *J. Biol. Chem.* **286**(4): 3047-3056. [PMCID: 3024798](#)
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(b) Book Chapters & Invited Review Articles

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5. Tanabe, M. and **Iverson**, T.M., A Practical Guide to X-ray Crystallography of β -barrel Membrane Proteins: Expression, Purification, Detergent Selection & Crystallization, in L. DeLucas (ed.) Current Topics in Membranes, Academic Press, San Diego, CA. (2009) Vol. 63, Chap. 10. pp. 229-267.
4. Cecchini, G., Maklashina, E., Tomasiak, T.M., and **Iverson** T.M., Conformational Changes at the Dicarboxylate Binding Site of Succinate Dehydrogenase (Complex II) and Fumarate Reductase, in S. Frago, C. Gómez-Moeno, and M. Medina (eds.) Flavins and Flavoproteins, Prensas Universitarias de Zaragoza (2008) pp. 17-26.
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EXTRAMURAL RESEARCH SUPPORT

(a) Ongoing Extramural Research Support

- | | | | |
|-----|--|---|--------------------------------------|
| 22. | R01GM120569
NIH/NIGMS
<i>Molecular basis for arrestin-mediated signaling</i>
This application evaluates receptor-independent arrestin signaling from a structural perspective. Aim 1 identifies how the active form of arrestin is stabilized during receptor-independent signaling. Aim 2 identifies the allosteric connections between the activation sites and the effector-binding sites. Aim 3 determines structure with effectors or effector peptides. | Iverson (PI)
\$397,500 direct/year | 08/01/16 – TBD (renewal pending, 7%) |
| 4. | MCB 2401909
NSF
<i>Excellence in Research: Determination of Structure and Substrate-Specificity of a Unique HAD Phosphatase in Mitochondria</i>
This proposal investigates trypanosome Tim50, a member of the HAD phosphatase family. The role of the Iverson lab is to assist in expression, purification, and structure determination.
Role: co-investigator/collaborator | Chaudhuri (PI)
\$25,000 direct/year (Iverson lab) | 08/01/2024 – 07/31/2027 |
| 3. | R43DA156151
NIH/NIDA
<i>Improving Cryo-EM Specimen Quality Using Surface Science</i>
This SBTR is to develop technologies that could improve the orientation and air-water interface in cryoEM. Aspects of the proposal seek to make cryoEM more affordable, allowing implementation at non-R1 universities.
Role: co-investigator/collaborator | Bond, DeNovX LLC (PI)
\$66,246 direct/year (Iverson lab) | 09/01/2024 – 08/31/2025 |
| 2. | R01 CA262670-01A1
NIH/NCI
<i>Dual-Mechanism Allosteric Inhibitors of ERK Signaling</i>
ERK enzymes are kinases that trigger growth and proliferation pathways in humans. Their activity is intimately linked to cancer, but these are considered poor direct targets for small molecules. The aims use a combination of approaches to develop ERK inhibitors that are more potent than classical inhibitors. | Dalby (PI)
\$65,631 direct/year (Iverson lab) | 07/01/2022 – 06/30/2026 |
| 1. | R01 GM137458
NIH/NIGMS
<i>Engineered probes for sialoglycan detection</i> | Iverson (PI)
\$363,365 direct/year | 09/20/2020 – 06/30/2025 |

Probes that detect specific glycan structures on cells can enhance our understanding of processes mediated by glycosylation or can be used as diagnostic tools in disease states with altered glycosylation. However, there are few practical reagents for the detection of sialoglycans, particularly $\alpha 2,3$ and $\alpha 2,6$ linked sialoglycans, both of which are biomarkers for cancer. This application proposes to develop such probes using protein engineering. The engineering is based upon bacterial sialoglycan-binding proteins including serine-rich repeat adhesins and sialyl transferases.

(b) Completed Extramural Research Support

19. R01 GM061606 Iverson, Cecchini (mPI) 04/01/2001–12/31/2024 (renewal pending)
 NIH/NIGMS \$459,216 direct/year (\$185,587 Iverson lab)
Structure/function of Complex II oxidoreductases
 This is a renewal application that investigates mechanisms of complex II assembly, cofactor insertion and attachment, and physiological changes during ischemia reperfusion injury. GM079419 (see completed support) was merged with this grant in 2013.
 SUPPLEMENT: PA-15-322. Research Supplements to Promote Diversity in Health-Related Research
 \$35,564 direct/year (Iverson lab) 07/01/16-03/31/18
 SUPPLEMENT: PA-16-134. Supplements for Cryo-Electron Microscopy Technology Transfer
 \$89,071 direct/year (Iverson lab) 07/01/16-03/31/18
18. R44DA047146-02 Bond, DeNovX LLC (PI) 09/30/2022 – 08/31/2024
 NIH/NIDA \$175,000 direct/year (Iverson lab)
Advanced Nucleation Technologies for Membrane Protein Crystallization to Accelerate Structure-Based Drug Design for Substance Use Disorders
 This SBTR is to develop technologies that could improve the ability to crystallize membrane proteins. This may be particularly important for smaller membrane proteins that cannot be easily interrogated by cryoEM.
 Role: co-investigator/collaborator
17. R01AI140400 Iverson/Bachmann (mPI) 07/01/2019–06/30/2024
 NIH/NIAID \$331,386 direct/year (\$100,000 Iverson lab)
Biosynthesis and Synthetic Biology of Antibiotic Oligosaccharides
 Despite continuous chemical elaboration of the major antibiotic structural scaffolds, pathogenic bacteria have developed resistance to most known antibiotics used in the clinic. Herein we propose to harness a natural product antibiotic scaffold that has never been clinically exploited, the orthosomycins. We propose to develop and systematically apply an amalgam of genetic, chemical, and biological tools to generate new orthosomycins, gain new understanding of their novel mechanism of action, and overcome barriers to clinical application for treatment of multiple drug resistant bacterial infections.
16. R01DE019807 Ruhl (PI) 07/01/2018–06/30/23
 NIH/NIDCR \$50,000 direct/year (Iverson lab)
Microbial Recognition of Sialic Acid Diversity in the Oral Cavity
 This application investigates how bacterial adhesins differentiate between two forms of sialic acid: Neu5Ac and Neu5Gc. The role of the Iverson laboratory is to determine structures of select adhesins alone and in complex with sialic acid ligands in order to reveal the molecular basis for this difference.
 Role: co-Investigator/Collaborator
15. R01 AI106987 Sullam, Iverson, Thomas (mPI) 07/01/14–06/30/19
 NIH/NIAID \$400,000 direct/year (\$111,287 Iverson lab)
Receptor Binding Promiscuity in Serine-Rich Repeat Adhesins
 The experiments detailed in this application will evaluate the molecular basis for promiscuous binding of the unique domain of serine-rich repeat adhesins of Gram-positive bacteria and will relate binding promiscuity to virulence in rat models of endocarditis. Aim 1 will explore the structural basis for substrate affinity and selectivity in three adhesins, GspB, Hsa, and SrpA. Aim 2 will investigate the role of force dependent bonds in the pathogen-host interaction. Aim 3 will test the role of both selectivity and force-dependence in virulence.
14. R21 DA043680 Iverson, Gurevich (corresponding mPI) 04/01/17–03/31/19

- NIH/NIDA \$125,000 direct/year
Mechanisms of signal bias in arrestins
 This R21 application develops peptide tools and chimeric proteins to assess how the receptor-arrestin interaction biases signaling toward cell proliferation or cell death.
13. 14GRNT20390021 Iverson (PI) 07/01/14-06/30/16
 American Heart Association \$75,000 direct/year
Molecular basis for streptococcal platelet attachment mediated by phage lysin
 This AHA application evaluates the molecular basis for conversion of commensal *Streptococcus mitis* to a pathogen by bacteriophage SM1 proteins. Aim 1 uses a mutagenesis approach to delineate the binding site while Aim 2 uses a structural approach.
12. 1R01 GM095633 Iverson (PI) 09/01/10-08/30/14
 NIH/NIGMS/Roadmap \$192,376 direct/year
Stabilization of Membrane Protein Signaling Complexes
 This application is in response to RFA-RM-09-012 for membrane protein production and structure determination. The goal of the proposal is to identify mimics of the biological membrane that stabilize transmembrane signaling complexes and are amenable to current structural techniques.
11. 12GRNT11920011 Iverson (PI) 07/01/12-06/30/14
 American Heart Association \$75,000 direct/year
Structural Basis for Orthoester Bond Formation in Everninomicin
 This application has two aims that focuses on the orthoester linkages of everninomicin. The goal of this research is to determine the structure and substrate selectivity of (Aim 1) ORF18 and (Aim 2) ORF26 products of the everninomicin gene cluster.
10. 1R01 GM079419 (renewed as GM06106) Iverson (PI) 04/01/07-02/28/13
 NIH/NIGMS \$171,600 direct/year
Complexities of Complex II: A Versatile Architecture for Respiration
 The goal of this project is to look at the physiological function of complex II. Details of the catalytic mechanism and its inhibition are investigated. The aims of the proposal are to 1) identify the chemical details of dicarboxylate oxidoreduction, which we will do by stabilization and crystallization of the complex in various states of catalysis; 2) establish how conformational rearrangements correlate with catalytic activity, which we will do by EPR; and 3) determine the selectivity of quinone inhibitors and their effects of reactive oxygen species generation.
9. 1R21AI079558 Iverson (PI) 09/01/10-08/30/12
 NIH/NIAID \$150,000 direct/year
The Interaction Between Outer Membrane Porins and Toll-Like Receptors
 The aims of this proposal are to: 1) Identify the structure of the TLR2-PorB complex using electron microscopy; 2) Investigate the contribution of electrostatics to complex formation; and 3) Identify additional combinations of TLRs that bind to OMPs *in vitro*.
8. 1R21EY018435 Iverson (PI) 10/01/09-09/30/11
 NIH/NEI \$125,000 direct/year
Transition States in G Protein Coupled Receptor Signaling
 The aims of this proposal were to use 1) cross-linking of the rhodopsin-transducin complex and 2) mutagenesis of the $G\alpha_i$ subunit (in the context of a $G\alpha_i\beta_1\gamma_1$ artificial heterotrimer) to stabilize the rhodopsin-transducin complex.
7. 09GRNT2220122 Iverson (PI) 07/01/09-06/30/11
 American Heart Association \$75,000 direct/year
The Molecular Basis for Platelet Attachment by Streptococcal Adhesins
 The goal of this research was to determine the molecular basis for carbohydrate selectivity for the serine-rich adhesin GspB from *Streptococcus gordonii*. The aims of the proposal were to: 1) map the precise carbohydrate-binding site by site-directed mutagenesis, 2) determine the x-ray crystal structure of GspB_{BR} alone and in complex with receptor carbohydrate.
6. S10RR026915 Iverson (PI) 07/01/10-06/30/11
 NIH/NCRR \$490,000 direct/year
Crystallographic Automation

The goal of this proposal was to provide funds to expand the crystallographic automation into newly available robotics specific to membrane proteins as well as to improve the opportunities for outreach and collaboration across the campus.

5. 1R01 GM081816 Sanders (PI) 10/01/07–09/30/10
NIH/NIGMS/Roadmap \$212,000 direct/year
Overcoming the Barrier to Structural Analysis of GPCRs
This application was in response to an RFA. The goal of this research was to develop techniques to improve the determination of membrane protein structures and focuses on ligand-activated G protein coupled receptors.
Role: co-PI
4. AG-NS-0325-06 Iverson (PI) 07/01/06–07/01/10
The Ellison Medical Foundation \$46,296 direct/year
The Molecular Contribution of Mitochondrial Complex II to the Aging Process
We wanted to look at ROS formation by complex II
3. 30652 Iverson (PI) 07/01/08–06/30/10
NARSAD \$30,000 direct/year
Allosteric Nucleotide Exchange in $G\alpha_{i1}$
The goal of the research was to characterize transition states in G-protein mediated signaling.
2. Research Grant Iverson (PI) 01/01/06–12/31/07
Epilepsy Foundation \$50,000 direct/year
Fighting Against the Cause: The HCN Channel and Structure-Based Drug Design
The goal of this study was to determine the structure of a cyclic nucleotide gated cation channel.
1. F32 GM06834-01 Iverson (postdoctoral) 07/10/03–01/09/05
NIH/NIGMS Ruth L. Kirschstein National Research Service Award
Molecular Mechanisms of Transport by MFS Proteins
I proposed to determine the structure of a major facilitator superfamily transporter using x-ray crystallography.

(c) Trainee Extramural Fellowships

7. 1937963 I. Perez (predoctoral) 07/01/20 – 06/30/23
National Science Foundation
Arrestin-dependent signal bias
Role: Mentor
6. 19POST34450093 P. Sharma (postdoctoral) 01/01/19 – 12/31/20
American Heart Association
Role of assembly factors in maturation of the catalytic subunit of human respiratory complex II
Role: Mentor
5. 18PRE34030017 N.A. Perry (predoctoral) 07/01/18 – 06/30/19
American Heart Association
Arrestin-interaction with the ASK1-MKK4/7-JNK3 cascade
Role: Mentor
4. 16PRE30180007 N.A. Perry (predoctoral) 07/01/16 – 06/30/18
American Heart Association
Arrestin-3 scaffolding of the JNK3 activation cascade as a model of arrestin-dependent signaling
Role: Mentor
3. DGE:0909667 C.A. Starbird (predoctoral) 09/01/13 – 05/30/16
National Science Foundation
Mechanisms of covalent flavinylation in complex II
Role: Mentor
2. 13POST16910057 N.C. Gilbert (postdoctoral) 07/01/13 – 06/30/15
American Heart Association

Mechanisms of basal activity in the prostaglandin EP₃ receptor

Role: Mentor

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|----|---|---|
| 1. | Individual fellowship
Uehara Medical Foundation
<i>[Innate immunity and Toll like receptors]</i> (Japanese)
Role: Mentor | M. Tanabe (postdoctoral)

01/01/06 – 12/31/07 |
|----|---|---|

(d) Mentored Training Grant Support

- | | | |
|-----|--|--|
| 15. | 5T32GM008320
National Institutes of Health
<i>Molecular Biophysics Training Grant</i>
Role: Mentor | C. Icardi (predoctoral)

07/01/24 – 06/30/2x |
| 14. | 2T32GM
National Institutes of Health
<i>Training Program in Pharmacological Sciences</i>
Role: Mentor | M. Goldfarb (predoctoral)

07/01/23 – 06/30/25 |
| 13. | 5T32GM008320
National Institutes of Health
<i>Molecular Biophysics Training Grant</i>
Role: Mentor | J. Stacy (predoctoral)

07/01/22 – 06/30/24 |
| 12. | 2T32GM007628-36
National Institutes of Health
<i>Training Program in Pharmacological Sciences</i>
Role: Mentor | K.M. Morrison (predoctoral)

07/01/21 – 06/30/23 |
| 11. | 5T32EY007135
National Institutes of Health
<i>Training Grant in Vision Research</i>
Role: Mentor | H.E. Stubbs (predoctoral)

08/01/19 – 07/30/20 |
| 10. | 5T32GM008320-35
National Institutes of Health
<i>Molecular Biophysics Training Grant</i>
Role: Mentor | I. Perez (predoctoral)

07/01/19 – 06/30/20 |
| 9. | 5T32GM008320-35
National Institutes of Health
<i>Molecular Biophysics Training Grant</i>
Role: Mentor | H.E. Stubbs (predoctoral)

07/01/18 – 06/30/19 |
| 8. | 2T32GM007628-36
National Institutes of Health
<i>Training Program in Pharmacological Sciences</i>
Role: Mentor | N.A. Perry (predoctoral)

07/01/15 – 06/30/16 |
| 7. | 5T32HL007751-19
National Institutes of Health
<i>Training Grant in Mechanism of Vascular Disease</i>
Role: Mentor | K.M. McCulloch (postdoctoral)

06/01/12 – 05/31/15 |
| 6. | 5T32GM008320-30
National Institutes of Health
<i>Molecular Biophysics Training Grant</i>
Role: Mentor | C.A. Starbird (predoctoral)

06/01/12 – 05/31/13 |
| 5. | 5T32DK007569-23
National Institutes of Health
<i>Molecular Biophysics Training Grant</i>
Role: Mentor | N.C. Gilbert (postdoctoral)

01/01/12 – 12/31/13 |

National Institutes of Health
Renal Biology and Disease Training Program
 Role: Mentor

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|----|--|-----------------------------|---------------------|
| 4. | 5T32GM008320-30
National Institutes of Health
<i>Molecular Biophysics Training Grant</i>
Role: Mentor | K.R. Vann (predoctoral) | 06/01/11 – 05/31/13 |
| 3. | 5T32GM008320-25
National Institutes of Health
<i>Molecular Biophysics Training Grant</i>
Role: Mentor | T.M. Panosian (predoctoral) | 06/01/07 – 05/31/08 |
| 2. | 5T32NS007491-13
National Institutes of Health
<i>Training Program in Ion Channel and Transporter Biology</i>
Role: Mentor | T.M. Panosian (predoctoral) | 06/01/06 – 05/31/07 |
| 1. | 5T32GM065086-1
National Institutes of Health
<i>Chemistry-Biology Interface Training Grant</i>
Role: Mentor | T.M. Tomasiak (predoctoral) | 06/01/05 – 05/31/07 |

SERVICE

(a) International

Editorial Board Member

2014 – 2024 *The Journal of Biological Chemistry*

Review Panels – Standing member

2019 – 2021 Chair, National Institutes of Health MSFA - Macromolecular Structure and Function A
 2016 – 2021 National Institutes of Health study section MSFA - Macromolecular Structure and Function A
 2015 – 2024 Stanford Synchrotron Radiation Laboratories Proposal Review Panel (SSRL PRP) – Biology

<u>Journal Reviewer - Ad hoc</u>	<u>Impact factor (approx.)</u>
Nature	41.5
Nature microbiology	20.5
Science Advances	14.1
Nature Structural & Molecular Biology	13.3
Nature Chemical Biology	12.2
Nature Communications	12.1
Journal of the American Chemical Society	12.1
Proc Natl Acad Sci USA	9.7
PLoS Pathogens	8.1
Structure	5.6
Scientific Reports	5.6
FASEB Journal	5.0
Crystal Growth & Design	4.9
Biochimica et Biophysica Acta	4.8
Biomolecules	4.8
Biochemical Journal	4.4
Journal of Molecular Biology	4.3
FEBS Letters	4.1
PLoS ONE	3.5
Biochemistry	3.1
IUBMB Life	3.1

Journal of Structural Biology	3.0
Nature Microgravity	3.0
Protein Science	2.9
Acta Crystallographica	2.7
Proteins: Struct, Funct, and Bioinformatics	2.6
Analytical Biochemistry	2.2

Grant or Proposal Review Panels – Ad hoc

2025	National Institutes of Health Study section NIH ZRG1 MBBC-L - Limited Competition: NIGMS Mature Synchrotron Resources for Structural Biology (P30 - Clinical Trial Not Allowed)
2024	UK Research and Innovation (UKRI) OPP614: molecular and cellular medicine
2022 – 2023	Chair, National Institutes of Health Study Section ZRG-BCMB – Member conflicts in Biochemistry and Molecular Biology
2020 – 2021	Austrian Science Fund
2019 – 2020	American Heart Association Innovation Award
2018 – 2019	Vanderbilt DDRC Pilot Projects
2017 – 2018	Cancer Research UK Czech Science Foundation
2016 – 2017	National Institutes of Health Study Section MSFC - Macromolecular Structure and Function C Wellcome Trust India Alliance
2015 – 2016	National Institutes of Health Study Section MSFB - Macromolecular Structure and Function B
2014 – 2015	AHA Proteins & Crystallography 1 (PC1) National Institutes of Health Study Section MSFA - Macromolecular Structure and Function A
2013 – 2014	Center for the Advancement of Science in Space (CASIS) remote reviewer for crystallization proposals Polish National Science Center Ad hoc reviewer.
2012 – 2013	Portuguese Foundation for Science and Technology remote reviewer AHA Proteins & Crystallography 5 (PC5)
2011 – 2012	AHA Membranes Proteins & Crystallography 2 NIH Study section ZGM1 CBB-0–Consortia for High-throughput Enabled Structural Biology Partnerships (PSI: Biology)
2010 – 2011	AHA Membranes Proteins & Crystallography 2 NIH Study section ZGM1 CBB-0–Consortia for High-throughput Enabled Structural Biology Partnerships (PSI: Biology) NIH study section ZRG1 BCMB-D - Biological Chemistry and Macromolecular Biophysics NSF Division of Molecular and Cellular Biosciences
2009 – 2010	NIH Study section ZGM1 CBB-0–Consortia for High-throughput Enabled Structural Biology Partnerships (PSI: Biology)
2008 – 2009	North Carolina Biotechnology Institute Development Grants
2004 – 2005	EMBO Grants

International Awards Evaluation – Ad hoc

2020	Austrian Science Foundation Wittgenstein Award
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External PhD Thesis Examiner

2011	Quang Minh Tran, University of Alberta, Alberta, Canada
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(b) National and Regional

External Letter Writer for Tenure and Promotion

2023	University of California, San Francisco, Department of Biochemistry and Biophysics
2022	University of Washington (Bothell), Bothell WA, School of STEM
2021	Arizona State University, Tempe AZ, School of Molecular Sciences
2020	University of California, San Francisco, Department of Biochemistry and Biophysics
2018	University of California, San Francisco, Department of Medicine

2017 University of California, San Francisco, Department of Medicine
 2014 Northwestern University, Department of Molecular Biosciences

Presentations

2007 – 2009 Tennessee Women In Science, Technology, Engineering, and Research (TWISTER) program for high school girls (15-18). Adventure Science Center, Nashville, TN

(c) Intramural

(i) University leadership positions

2024 – Associate Dean for Faculty (**SoM**)
 2019 – 2022 Director, Quantitative and Chemical Biology Graduate Program (**BRET**)
 2006 – present Founder and Scientific Director, High-throughput biomolecular crystallization facility (**CSB**)
 2012 – 2016 Scientific Director, X-ray Crystallography (**CSB**)

(ii) University committees

2018 – present Chair, Vanderbilt Women in Basic Sciences
 2018 – 2021 Provost's WAVE (Women's Advancement and Equity) committee
 2018 – 2019 Faculty Advisory Committee - Science, Engineering, Research
 2018 – 2019 Lewis-Burke Working committee
 2016 – 2018 Vanderbilt University Research Council (VURC; Provost's office)
 2015 – 2016 Biomedical Sciences Committee (Chancellor's office)
 2015 Reviewer, Vanderbilt Trans-institutional Proposals (TIPs) initiative
 2015 – 2016 Vanderbilt International Scholars Program advisory committee

(iii) Departmental and Center Committees

2023 – present Pharmacology Executive Advisory Committee (**Pharmacology**)
 2021 – present Chair, Pharmacology Faculty Search Committee (**Pharmacology**)
 2019 – present Chemical & Physical Biology Executive Committee (**CPB**)
 2013 – 2018 Pharmacology Training Advisory Group (**Pharmacology**)
 2006 – present Chemical Biology Interface Training Grant Executive Committee (**CBI/VICB**)
 2014 – 2018 Molecular Biophysics Training Program Recruiting committee (**CSB**)
 2016 – 2016 Phase I qualifying examination committee (**Pharmacology**)
 2006 – 2014 Center for Structural Biology Executive Committee (**CSB**)
 2009 – 2013 Chair, Karpay Award Committee (**CSB**)
 2009 – 2011 Phase I qualifying examination committee (**Pharmacology**)
 2011 Chemistry Faculty Search Committee in Chemical Biology (**Chemistry**)
 2009 – 2010 Biochemistry Faculty Search Committee in DNA Repair (**Biochemistry**)
 2007 – 2008 Molecular Biophysics Training Grant Seminar coordinator (**CSB**)
 2006 – 2007 Liaison to the Pharmacology Graduate Student Association (**Pharmacology**)

(iv) Faculty Mentoring Committees

Years	PI	Department
1. 2019 –	Breann Brown	Biochemistry
2. 2023 –	Prashant Donthamsetti	Pharmacology
3. 2024 –	Benjamin Brown	Pharmacology

(v) Graduate Student Thesis Committees

Years	Student	Department	PI	Degree	Chair?
45. 2024 –	Alexis Campbell	Biochemistry	Ray Blind		
44. 2024 –	Alexia Angelos	Biochemistry	Yi Ren		
43. 2024 –	Sarah Comer	PMI	Maria Hadjifrangiskou		
42. 2023 –	Tara Hickmann	Biochemistry	Sun Peck		
41. 2023 –	Caleb Hayes	Cell and Dev. Biol.	Vivian Gama		
40. 2023 –	Emma Webb	Pharmacology	Heidi Hamm		

39.	2022 – 2024	Juliana Quay	Chem & Phys Biol	Roger Colbran	MS, 2024	Yes
38.	2022 –	Mason Wilkinson	Biochemistry	Chuck Sanders		Yes
37.	2022 –	Jenny Tran	Chem & Phys Biol	Breann Brown		
36.	2022 –	Jennifer Wurm	Chem & Phys Biol	Brian Bachmann		
35.	2022 – 2022	Brennica Marlowe	Chem & Phys Biol	Jens Meiler	PhD, 2022	
34.	2022 –	Asher Hollenbeck	Chem & Phys Biol	Brian Bachmann		Yes
34.	2021 –	Minsoo Kim	Chem & Phys Biol	Lars Plate		Yes
33.	2020 – 2022	Kavya Sharman	Chem & Phys Biol	Richard Caprioli	PhD, 2022	
32.	2020 –	Anna Eitel	Biochemistry	Heidi Hamm		Yes
31.	2020 – 2024	Alexandra Schwartz	Chem & Phys Biol	Hassane Mchaourab	PhD, 2024	Yes
30.	2020 – 2024	Jessica Hill	Biochemistry	Breann Brown	PhD, 2024	
29.	2019 – 2022	Taylor Engdahl	MHI	Jim Crowe	PhD, 2022	
28.	2019 – 2022	Nate Chapman	MHI	Jim Crowe	PhD, 2022	
27.	2018 – 2021	Kelvin Luong	Pharmacology	Steve Fesik	MS, 2021	Yes
26.	2018 – 2021	Michael Doyle	PMI	Jim Crowe	PhD, 2021	
25.	2018 – 2021	Nicole Kendrick	Biochemistry	Adrian Olivares	MS, 2021	
24.	2018 – 2021	Manuel Castro	Biochemistry	Chuck Sanders	PhD, 2021	
23.	2017 – 2020	Corey Seacrist	Pharmacology	Ray Blind	PhD, 2020	Yes
22.	2017 – 2020	Kelsey Pilewski	PMI	Ivelin Georgiev	PhD, 2020	
21.	2017 – 2020	Diego de Alamo	Chem & Phys Biol	Jens Meiler	PhD, 2020	Yes
20.	2016 – 2020	Zach Lonergan	PMI	Eric Skaar	PhD, 2020	
19.	2015 – 2018	Brian Bender	Pharmacology	Jens Meiler	PhD, 2018	
18.	2014 – 2017	Erin Breland	Pharmacology	Maria Hadjifrangiskou	PhD, 2017	Yes
17.	2014 – 2017	Cassie Retzlaff	Neuroscience	Randy Blakely	PhD, 2017	
16.	2012 – 2015	Emilianne McCranie	Chemistry	Brian Bachmann	Ph.D. 2015	
15.	2012 – 2015	Kathleen Mittendorf	Biochemistry	Chuck Sanders	Ph.D. 2015	
14.	2011 – 2014	Cierra Spencer	Pharmacology	Alex Brown	Ph.D. 2014	Yes
13.	2010 – 2013	William Birmingham	Biochemistry	Brian Bachmann	Ph.D. 2013	
12.	2010 – 2014	Tara Archuleta	Chem. & Phys. Biol.	Ben Spiller	Ph.D. 2014	Yes
11.	2010 – 2014	Robert Lavieri	Pharmacology	Alex Brown	Ph.D. 2014	Yes
10.	2009 – 2009	Kelli Richardson	Pathology	Paul Bock	M.S. 2009	
9.	2008 – 2012	Ahmad Al-Mestarihi	Chemistry	Brian Bachmann	Ph.D. 2012	
8.	2008 – 2009	Kevin Oliver	Chemistry	Gary Sulikowski	M.S. 2009	
7.	2008 – 2012	Nathan Alexander	Chemistry	Jens Meiler	Ph.D. 2012	
6.	2007 – 2010	Yuxiang Zheng	Pharmacology	Alan Brash	Ph.D. 2010	Yes
5.	2007 – 2010	Scott Meier	Masters Lab. Invest.	Heidi Hamm	MS. 2010	
4.	2007 – 2011	Paige E. Selvy	Pharmacology	Alex Brown	Ph.D. 2011	
3.	2006 – 2009	Juan Xing	Pharmacology	Kevin Strange	Ph.D. 2009	
2.	2006 – 2011	Kyle Nordquist	Biochemistry	Walter Chazin	Ph.D. 2011	
1.	2005 – 2009	Anne Karpay	Biochemistry	Chuck Sanders	Ph.D. 2009	

(vi) Other Departmental and Center Service

2008 – 2009	Co-organizer, Karpay Memorial Symposium (CSB)
2005 – 2006	Pharmacology students club faculty liaison (Pharmacology)
2005 – 2006	Interface with several robotics companies to develop a strategic partnership (CSB)

(vii) Other University Service

Sept, 2023	Responsible Conduct in Research “Students in Distress) (CSB)
Jan 29, 2019	Responsible Conduct in Research “Why you should put your smartphone away, according to science”. (CSB)
Sep. 11, 2012	Responsible Conduct in Research “A discussion of responsible authorship”. Co-moderated with Melanie Ohi (CSB)
June 2, 2009	Small Group Discussion Leader: "Preparing Research Team Leaders." Directed a discussion of laboratory-oriented case studies (BRET)

CONSULTING

2017 – *DeNovX company*

TEACHING

(a) Graduate School Courses

2020 – present	CPB8306	Intro to Chem & Phys Biol	10 contact hours	Lecturer, Co-director
2020 – present	PHR	Fundamentals of Pharmacology	6 contact hours	Lecturer
2019 – 2022	CPBIMP	IMPACT	30 contact hour	Organizer
2015 – 2023	IGB300B	Membrane Protein Structure & Function	1 contact hour	Lecturer
2014 – present	PHR332B	Scientific Communications II	2 contact hours	Reader
2011 – 2020	IGP300B	Enzyme Kinetics & Receptor Theory	6 contact hours	CoOrganizer/Lecturer
2007 – 2011	PHR322A	Scientific Communications	46 contact hours	Moderator
2006 – 2010	PHR324	Receptor Theory & Signal Transduction	8 contact hours	Developed section
2006 – 2007	BCHM303	Biomolecular x-ray crystallography	6 contact hours	Developed section

(b) Journal Club Supervision

2014 – 2016		Pharmacology Journal Club	20 contact hours
2006 – present	BCHM349	Structural Biology Journal Club	2 contact hours
2006, -08, -09	IGP300A	IGP Flex time	4 contact hours

(c) Training and Supervision of Laboratory Personnel

(i) High School students

The Iverson laboratory has hosted 3 high school researchers. Details upon request.

(ii) Undergraduates

The Iverson laboratory has hosted >20 undergraduate researchers. Most have gone on graduate school or medical school. One is currently an associate editor at *Science*. Details upon request.

(iii) Postbaccalaureate

Dates	Student	Program/University	Subsequent position
2. 2022 – 2023	Kole Martin	Vertices PREP program	Grad school, Vandy, PhD
1. Summ 2009	Gabriel Valle	Case Western Reserve University	MD

(iv) Staff

Dates	Staff	Position	Subsequent position
10. 2022 –	Brandon Butler	Research Assistant I	
9. 2020 – 2022	Laura Frigo	Research Assistant I	Patent Office
8. 2017 –	Prashant Singh	Senior Research Associate	
7. 2014 – 2019	Izumi Yamakawa	Research Assistant I-II	Nursing Schl, Belmont
6. 2014 – 2020	Lioudmila Loukachevitch	Laboratory Manager	Retired
5. 2011 – 2014	Maruf Sarwar	Research Assistant I	Med Schl, Georgetown
4. 2010 – 2013	Beth Thorneycroft	Research Assistant II	NashTrash manager
3. 2009 – 2013	Prashant Singh	Research Assistant I	Facilities manager, CSB
2. 2005 – 2011	Tasia Pyburn	Research Assistant I-III	Grad school, Vandy, PhD
1. 2005 – 2005	Richard Kephart	Research Assistant I	Unknown

(v) Rotation Students

Dates	Student	Program
46. Winter 2025	Andrew Feld	Interdisciplinary Graduate Program, Vanderbilt University
45. Spring 2024	Abby Rose	Interdisciplinary Graduate Program, Vanderbilt University
44. Spring 2023	Montana Young	Interdisciplinary Graduate Program, Vanderbilt University
43. Spring 2022	Muna Mohammed	Department of Biomedical Science, Meharry Medical College
42. Winter 2021	Boden Vanderloop	Interdisciplinary Graduate Program, Vanderbilt University
41. Fall 2020	Mason Wilkinson	Quantitative and Chemical Biology, Vanderbilt University
40. Summ. 2020	Deveena Banerjee	Quantitative and Chemical Biology, Vanderbilt University
39. Spring 2020	Eden Faneuff	Interdisciplinary Graduate Program, Vanderbilt University
38. Fall 2019	Nicolas Shealy	Interdisciplinary Graduate Program, Vanderbilt University
37. Winter 2018	Melaine Sebastian	Interdisciplinary Graduate Program, Vanderbilt University
36. Fall 2017	Katherine Amidon	Interdisciplinary Graduate Program, Vanderbilt University
34. Winter 2017	Kelvin Luong	Interdisciplinary Graduate Program, Vanderbilt University
33. Winter 2017	Manuel (Mac) Castro	Interdisciplinary Graduate Program, Vanderbilt University
32. Fall 2016	Azadeh Hadidanpour	Interdisciplinary Graduate Program, Vanderbilt University
31. Fall 2016	Nicole Kendrick	Interdisciplinary Graduate Program, Vanderbilt University
30. Winter 2015	David Marcus	Interdisciplinary Graduate Program, Vanderbilt University
29. Fall 2014	Susan Qualls	Interdisciplinary Graduate Program, Vanderbilt University
28. Fall 2014	Bryan Gitschlag	Interdisciplinary Graduate Program, Vanderbilt University
27. Spring 2014	Nora Foegeding	Interdisciplinary Graduate Program, Vanderbilt University
26. Winter 2012	Andrea Belovich	Interdisciplinary Graduate Program, Vanderbilt University
25. Fall 2011	Dennis Kuo	Chemical & Physical Biology, Vanderbilt University
24. Winter 2011	Shalanda Satchell	Pharmacology direct admit, VUMC
23. Winter 2010	Rebecca McRae	Interdisciplinary Graduate Program, Vanderbilt University
22. Fall 2010	Kathleen Mittendorf	Interdisciplinary Graduate Program, Vanderbilt University
21. Spring 2010	Allyson McLeod	Interdisciplinary Graduate Program, Vanderbilt University
20. Winter 2010	Qi Sun	Interdisciplinary Graduate Program, Vanderbilt University
19. Winter 2009	Dan Goetheus	Interdisciplinary Graduate Program, Vanderbilt University
18. Fall 2009	Nicholas Ward	Interdisciplinary Graduate Program, Vanderbilt University
17. Spring 2009	Odaïne Gordon	Initiative for Minority Student Diversity, Vanderbilt University
16. Winter 2009	Tara Archuleta	Interdisciplinary Graduate Program, Vanderbilt University
15. Fall 2008	Scott Collier	Chemical & Physical Biology, Vanderbilt University
14. Fall 2007	Suraj Adhikary	Interdisciplinary Graduate Program, Vanderbilt University
13. Summ 2007	Chris Cummings	Interdisciplinary Graduate Program, Vanderbilt University
12. Winter 2007	Don Becker	Chemical & Physical Biology, Vanderbilt University
11. Winter 2007	Chris Browne	Interdisciplinary Graduate Program, Vanderbilt University
10. Fall 2006	Rhonda Richmond	Chemical & Physical Biology, Vanderbilt University
9. Fall 2006	Kelsey Duggan	Interdisciplinary Graduate Program, Vanderbilt University
8. Summ 2005	Heidi Wenger	Chemical & Physical Biology, Vanderbilt University
7. Spring 2005	Matthew Mazalouskas	Interdisciplinary Graduate Program, Vanderbilt University
6. Fall 2003	Karim Maghlaoui	Biochemistry, Imperial College, London
5. Winter 2002	Tim Vogels	Neurobiology, Brandeis University
4. Fall 2001	James Foti	Molecular and Cell Biology, Brandeis University
3. Fall 2000	Eun Jung Choi	Biology, California Institute of Technology
2. Fall 1999	Laura R. Croal	Biochemistry, California Institute of Technology
1. Spring 1999	Anthony Gianetti	Biochemistry, California Institute of Technology

(vi) PhD Students

Dates	Student	Degree
13. 2024 –	Andrew Feld PhD Program: Pharmacology, Vanderbilt University	
13. 2024 –	Carolina (Caro) Icardi PhD Program: Chemical & Physical Biology, Vanderbilt University	

12. 2023 – Margo Goldfarb
PhD Program: Pharmacology, Vanderbilt University
11. 2022 – Jordan Stacy
PhD Program: Biochemistry, Vanderbilt University
10. 2021 – KeAndreya Morrison
PhD Program: Biomedical Science, Meharry Medical College
9. 2019 – 2024 Ivette Perez PhD, May 2023
PhD Program: Biochemistry, Vanderbilt University
Current position: Postdoctoral Associate with Erica Safire, La Jolla Institute for Immunology, CA
8. 2018 – 2023 Haley E. Stubbs PhD, July 2023
PhD Program: Chemical & Physical Biology, Vanderbilt University
Current position: None
7. 2015 – 2019 Nicole A. Perry PhD, Mar. 4, 2019
PhD Program: Pharmacology, Vanderbilt University
Subsequent position: Postdoctoral associate with Alex R.B. Thomsen, Columbia University, NY
Subsequent position: Postdoctoral associate with Jonathan Javitch, Columbia University, NY
Current position: Lecturer, University of Glasgow, Scotland
6. 2012 – 2017 Chrystal A. Starbird PhD Jul 17, 2017
PhD Program: Chemical & Physical Biology, Vanderbilt University
Subsequent position: Postdoctoral associate with Katherine Ferguson, Yale University, New Haven, CT
Current position: Assistant professor (tenure track), Department of Biochemistry and Biophysics, School of Medicine, University of North Carolina, Chapel Hill, NC
5. 2011 – 2016 Qiuyan Chen PhD Oct. 1, 2015
PhD Program: Pharmacology, Vanderbilt University
Subsequent position: Postdoctoral associate with John Tesmer, Purdue University, West Lafayette IN
Current position: Assistant professor (tenure track), Department of Biochemistry and Molecular Biology, Indiana University School of Medicine, Indianapolis, IN
4. 2010 – 2013 Kendra Vann PhD Mar 11, 2016
PhD Program: Biochemistry, Vanderbilt University
Subsequent position: Graduate studies in Neil Osherhoff laboratory.
Subsequent position: Postdoctoral associate University of Colorado
Current position: Scientific Advisor, Eli Lilly and Company, Indianapolis, IN
3. 2008 – 2013 Tarjani M. Thaker PhD Aug. 23, 2013
PhD Program: Biochemistry, Vanderbilt University
Subsequent position: Postdoctoral associate with Natalia Jura, UCSF
Subsequent position: Staff scientist, Department of Chemistry and Biochemistry, University of Arizona, Tucson, AZ

Current position: Assistant professor (tenure track), Department of Chemistry and Biochemistry, University of Arizona, Tucson, AZ

2. 2006 – 2011 Timothy D. Panosian PhD Nov. 12, 2010
PhD Program: Pharmacology, Vanderbilt University
Subsequent position: Research scientist, Monsanto Company, St. Louis, MO.
Current position: Engagement manager, CiBO Technologies, MA.
1. 2005 – 2010 Thomas M. Tomasiak PhD Nov. 23, 2010
PhD Program: Pharmacology, Vanderbilt University
Subsequent position: Postdoctoral associate with Bob Stroud, UCSF
Subsequent position: Assistant Professor (tenure-track), Department of Chemistry and Biochemistry, University of Arizona, Tucson, AZ.
Current position: Associate Professor with tenure, Department of Chemistry and Biochemistry, University of Arizona, Tucson, AZ.

(vii) Postdoctoral Associates

Dates	Postdoc	PhD institution
9 2016 – 2021	Pankaj Sharma, PhD 2015 Promoted to Research Faculty, Vanderbilt	Inst Microbial Tech
8. 2015 – 2020	Sandra Berndt, PhD, 2013 Current position: Lecturer, Rudolf Schönheimer Institute of Biochemistry University of Leipzig, Germany	Univ of Leipzig
7. 2010 – 2016	Kathryn McCulloch, PhD, 2010 Subsequent position: Assistant Professor (tenure-track), Department of Chemistry & Biochemistry, California State Polytechnic University, Pomona, CA. Current position: Associate Professor (with tenure) and Associate Chair, Department of Chemistry & Biochemistry, California State Polytechnic University, Pomona, CA.	Cornell Univ
6. 2012 – 2015	Nathan Gilbert, PhD, 2011, Subsequent position: Applied Research Scientist, Molecular Sensing, Inc., Nashville, TN Subsequent position: X-ray facilities manager, Louisiana State University Current position: Assistant Professor, Department of Biological Sciences, Louisiana State University	LSU
5. 2011 – 2012	Seoungmin Bong, PhD 2011 Subsequent position: Postdoctoral researcher, South Korea.	Korea Univ
4. 2008 – 2011	Jessica L. Vey, PhD 2007 Subsequent position: Assistant professor, Department of Chemistry & Biochemistry, California State University, Northridge (Northridge, CA). Current position: Associate professor (with tenure), Department of Chemistry & Biochemistry, California State University, Northridge (Northridge, CA).	MIT
3. 2009 – 2010	César Luna-Chavez, PhD, 2009 Subsequent position: Postdoctoral researcher, Vanderbilt	UIUC

Subsequent position: Staff scientist, Arizona State University, Phoenix, AZ.

Current position: President/founder of STAR Academy of Sciences

2. 2006 – 2009 Mikio Tanabe, PhD 2006 Imperial College

Subsequent position: Junior group leader HaloMEM, Martin Luther Universität, Institut für Biochemie und Biotechnologie, Halle (Saale) Germany.

Current position: Associate Professor, Institute of Materials Structure Science, KEK Photon Factory, Japan.

1. 2005 – 2006 Yi-Lun Lin, PhD 2005 UIUC

Subsequent position: Postdoctoral researcher, Vanderbilt

(vii) Research faculty

Dates	Faculty, Title	Degree & Institution
2. 2021 –	Pankaj Sharma	PhD, 2015, Institute of Microbial Tech, Chandigarh, India
	2021 – 2024 Research Instructor	
	2024 – Research Asst Professor	
1. 2017 – 2019	Ali Kaya, Research Asst Prof.	PhD, 2009, Ankara University Biotechnology Institute
	Current position: Staff scientist, NE-CAT, Advanced Photon Source, Argonne, IL	

INVITED PRESENTATIONS

****34 of these 85 invited presentations were at international conferences or international universities.***

85. Nov. 20, 2024 A structural-systems biology approach to mammalian signal transduction. Cold Spring Harbor Laboratories, NY.
85. Nov. 14, 2024 A structural basis for Bacterial Chemotaxis. Meharry Medical College, Nashville, TN.
83. Nov. 6, 2023 A structural basis for Bacterial Chemotaxis. Rees Group Alumni Symposium, California Institution of Technology, Pasadena, CA.
82. May 11, 2023 Engineered Probes for Sialoglycan Detection: From Basic Science to Patentable Technology. Nationwide Children's Hospital and Ohio State University, Columbus OH.
81. Aug. 21, 2022 Arrestin-dependent effector activation. FASEB Meeting on GRKs and Arrestins. Jupiter, FL.
80. Jan. 4, 2022 Mechanisms of covalent flavinylation. Enzyme Mechanisms Conference (EMC 2021). Tucson, AZ.
79. Nov. 18, 2021 Engineered Probes for Sialoglycan Detection: From Basic Science to Patentable Technology. Texas Tech University Health Science Center, Department of Molecular Physiology and Molecular Biophysics, Lubbock, TX.
78. Nov. 6, 2021 Engineered Probes for Sialoglycan Detection: From Basic Science to Patentable Technology. St. John's University, Department of Chemistry, 100th Anniversary Celebration. Jamaica, NY.

77. July 15, 2021 Engineered Probes for Sialoglycan Detection: From Basic Science to Patentable Technology. Case Western Reserve University, Department of Pharmacology, Cleveland, OH.
76. Nov. 20, 2020 Phospho-barcode dependent GPCR signaling, Department of Chemical Biology, University of Florida, Gainesville, FL (via Zoom).
75. Dec. 16, 2019 Phospho-barcode dependent GPCR signaling, Center for Molecular Biophysics, Oak Ridge National Laboratories, Oak Ridge, TN.
74. Nov. 12, 2018 Structure and assembly of complex II: new insights on an ancient respiratory enzyme, Department of Biochemistry and Molecular Biology, Eberly College of Science, Pennsylvania State University, College Park, PA.
73. June 18, 2018 Engineering the sialoglycan-binding spectrum in serine-rich repeat adhesins, FASEB meeting in Microbial Glycobiology, Scottsdale, AZ
72. May 16, 2018 Arrestin-dependent signaling: a matter of life and death. Department of Pharmacology. Case Western University, Cleveland, OH.
71. Nov. 14, 2017 Understanding how proteins encode information: a matter of life and death. Biochemistry and Molecular Biology, Belmont University, Nashville, TN.
70. April, 4 2017 Identifying new interaction partners for an ancient respiratory protein. Redox biology center. University of Nebraska, Lincoln, NE.
69. Mar 3, 2017 Protein conformations in arrestin-dependent signaling: a matter of life and death. Department of Chemistry. Tennessee Tech University, Cookeville, TN.
68. Feb. 21, 2017 Protein conformations in arrestin-dependent signaling: a matter of life and death. Department of Chemistry and Biochemistry. University of Arizona, Tucson, AZ.
67. Aug. 12, 2015 Understanding the role of arrestin in G protein coupled receptor signaling. Department of Pharmaceutical and Biomedical Sciences. University of Georgia, Athens, GA.
66. May 4, 2014 Membrane Protein Structures are Getting a Little More Complex. NIH Roadmap meeting "Biomolecular Structure, Dynamics, and Function: Membrane Proteins." Nashville, TN.
65. May 3, 2014 Structure-Facilitated Bioengineering of Antivirals and Antibiotics to Combat Global Health Threats. **Keynote Speaker.** New York American Chemical Society Undergraduate Research Symposium. Queens, NY.
64. May 2, 2014 Time Management and Strategies for Work-Life Balance: Applying the Theory of Marginal Gains to the Particular Challenges of Women in Science. St. John's University Women in Science Society. Queens, NY.
63. Oct. 19, 2012 Mechanisms of Pathogen-Host Recognition. Rees Group Alumni Symposium, California Institution of Technology, Pasadena, CA.
62. Oct 28, 2011 Structure- and Biochemistry-Based Identification of Drug Targets: Case Studies of Pathogen-Host Interactions. Department of Pharmacy, Lipscomb University, Nashville, TN.
61. Jul 26, 2011 The Outer Membrane Protein PorB from *Neisseria meningitidis*: from Structure to Function to Disease. Department of Biochemistry, University of Alberta, Alberta, Canada.

60. Mar 8, 2011 The Outer Membrane Protein PorB from *Neisseria meningitidis*: from Structure to Function to Disease. **Symposium:** "25 Years of Membrane Protein Structure." Biophysical Society Annual Meeting, Baltimore, MD.
59. Feb 25, 2011 An Engineered Biosynthetic Pathway for the Production of the HIV-I Reverse Transcriptase Inhibitor Didanosine. Department of Chemistry and Biochemistry, Arizona State University, Tempe, AZ.
58. Jun 7, 2010 The Outer Membrane Protein PorB from *Neisseria meningitidis*: from Structure to Function to Disease. Department of Physiology, Biophysics, and Systems Biology (PBSB), Weill Cornell Medical College, NY, NY.
57. May 10, 2010 The Outer Membrane Protein PorB from *Neisseria meningitidis*: from Structure to Function to Disease. Joint Seminar, Center for Women's Infectious Disease Research and Center for the Investigation of Membrane Excitability Disorders, Washington University in St. Louis School of Medicine, St. Louis, MO.
56. Apr 21, 2010 The Outer Membrane Protein PorB from *Neisseria meningitidis*: from Structure to Function to Disease. Department of Biochemistry & Biophysics, School of Medicine & Dentistry, University of Rochester, Rochester, NY.
55. Mar 23, 2010 Methods in β -barrel Membrane Protein Crystallization and the Structure of PorB from *Neisseria meningitidis*. BIT Life Sciences 3rd Annual Protein and Peptide Conference, March 21 - 23, 2010, Beijing, China.
54. Mar 20, 2010 The Outer Membrane Protein PorB from *Neisseria meningitidis*: from Structure to Function to Disease. School of Life Sciences, University of Science and Technology of China (USTC), Hefei, Anhui province, China.
53. Mar 19, 2010 The Outer Membrane Protein PorB from *Neisseria meningitidis*: from Structure to Function to Disease. School of Life Sciences, Nankai University, Tianjin, China.
52. Mar 18, 2010 The Outer Membrane Protein PorB from *Neisseria meningitidis*: from Structure to Function to Disease. Institute of Biophysics, Chinese Academy of Sciences, Beijing, China.
51. Mar 17, 2010 The Outer Membrane Protein PorB from *Neisseria meningitidis*: from Structure to Function to Disease. School of Life Sciences, Tsinghua University, Beijing, China.
50. Mar 8, 2010 The Outer Membrane Protein PorB from *Neisseria meningitidis*: from Structure to Function to Disease. Immune Disease Institute, Children's Hospital, Boston, and Department of Biochemistry and Molecular Pharmacology, Harvard Medical School, Boston, MA.
49. Apr 27, 2009 The Outer Membrane Protein PorB from *Neisseria meningitidis*: from Structure to Function to Disease. Department of Chemistry, Massachusetts Institute of Technology, Cambridge, MA.
48. Apr 19, 2009 Structural Studies of the *Neisseria meningitidis* PorB and the Mechanism of Recognition by Toll-like Receptor 2. American Society for Biochemistry and Molecular Biology. New Orleans, LA.
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46. Mar 27, 2009 Methods in OMP Crystallization and the Structure of PorB from *Neisseria meningitidis*. NIH Roadmap meeting for High Resolution Structures of Membrane Proteins. University of California, San Francisco, UCSF Mission Bay Conference Center, San Francisco, CA.

45. Feb 2, 2009 Complexities in Complex II: A Versatile Architecture for Respiration. Center for Structural Biology, Wake Forest University, Wake Forest, NC.
44. May 23, 2008 Methods in Membrane Protein Crystallography: from Choice of Target to Refinement. Department of Chemical and Environmental Sciences, Membrane Structural Biology Group, University of Limerick, Limerick, Ireland.
43. Mar 14, 2008 Shedding Light on Photosynthesis with the Structure of Photosystem II. 4th Annual Research Initiative for Scientific Enhancement, University of Puerto Rico, Rio Piedres Campus, San Juan, PR.
42. May 11, 2007 Shedding Light on Photosynthesis with the Structure of Photosystem II. Department of Biochemistry, Ohio State University, Columbus, OH.
41. Aug 1, 2006 Methods in Membrane Protein Crystallography: from Choice of Target to Refinement. Glaxo Smith Klein, Research Triangle Park, NC.
40. Aug 1, 2006 Domain Motions in Membrane Proteins: the Case of the *E. coli* Quinol-Fumarate Reductase. Glaxo Smith Klein, Research Triangle Park, NC.
39. May 9, 2006 Domain Motions in Membrane Proteins: the Case of the *E. coli* Quinol-Fumarate Reductase. Membrane Protein Interest Group. National Institutes of Health, Bethesda, MD.
38. May 2, 2005 Shedding Light on Photosynthesis with the Structure of Photosystem II. Membrane Proteins: Folding, Assembly and Function. VIth European Symposium of the Protein Society, Barcelona, Spain.
37. May 3, 2005 Shedding Light on Photosynthesis with the Structure of Photosystem II. Parc Científic de Barcelona, Universidad de Barcelona, Barcelona, Spain.
36. Feb 16, 2005 Shedding Light on Photosynthesis with the Structure of Photosystem II. Joint seminar, Departments of Biology and Chemistry, St. John's University, Jamaica, NY.
35. Nov 4, 2004 Structure-function Relationships in Bioenergetic Membrane Proteins. Biosciences Division, Argonne National Laboratory, Argonne, IL.
34. Sep 20, 2004 Shedding Light on Photosynthesis with the Structure of Photosystem II. Department of Chemistry, Massachusetts Institute of Technology, Cambridge, MA.
33. Aug 31, 2004 Determination of the Structures of Membrane Proteins: the Case of Photosystem II. Department of Pharmacology, Vanderbilt University, Nashville, TN.
32. Aug 24, 2004 Bioenergetic Proteins in Respiratory Processes. Department of Biochemistry and Redox Biology Center, University of Nebraska at Lincoln, Lincoln, NE.
31. Aug 17, 2004 Themes in Respiratory Processes Revealed by the Structures of Complex II and Photosystem II. Department of Biochemistry, University of Toronto, Toronto, ON, Canada.
30. Jul 27, 2004 Crystal Structures of Integral Membrane Proteins in Bioenergetic Processes: Complex II and Photosystem II. Department of Biochemistry, University of Illinois Urbana-Champaign, Urbana, IL.
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26. May 13, 2004 The Crystal Structure of Cyanobacterial Photosystem II Reveals the Architecture of the Mn_3CaO_4 -Mn Active Site Cluster. International SFB Symposium on Protein Cofactor Interactions in Biological Processes (498), Caputh, Germany.
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24. Apr 22, 2004 Crystal Structure of Cyanobacterial Photosystem II Reveals the Architecture of the Mn_3CaO_4 -Mn Active Site Cluster. Department of Chemistry, University of Michigan, Ann Arbor, MI.
23. Apr 7, 2004 Crystal Structures of Integral Membrane Bioenergetic Processes. Department of Biomedical Sciences, University College, London, London, England.
22. Apr 1, 2004 Crystallographic Lessons from Membrane Proteins: Complex II and Photosystem II. London Structural Biology Club, Birkbeck College, London, England.
21. Feb 26, 2004 Crystal Structure of Cyanobacterial Photosystem II. European Molecular Biology Laboratories (EMBL) Heidelberg, Germany.
20. Feb 23, 2004 Crystal Structure of Photosystem II from *Thermosynechococcus elongatus*. SFB Molecular Bioenergetics Colloquium, Naurod, Germany.
19. Jan 27, 2004 Integral Membrane Proteins in Bioenergetic Processes: Complex II and Photosystem II. Department of Molecular Biophysics and Biochemistry, Yale University, New Haven, CT.
18. Jan 16, 2004 Integral Membrane Proteins in Bioenergetic Processes: Complex II and Photosystem II. Department of Biophysics, University of Michigan, Ann Arbor, MI.
17. Dec 12, 2003 The Structure of Photosystem II from a Thermophilic Cyanobacterium. University of Lund, Lund, Sweden.
16. Dec 3, 2003 Integral Membrane Proteins in Respiratory Processes: Complex II and Photosystem II. Department of Chemistry and Biochemistry, University of California, San Diego, San Diego, CA.
15. Nov 7, 2003 The Structure of Photosystem II from *Thermosynechococcus elongatus*. Molecular Mechanisms and Machines, The Bunty Plot, Imperial College, London, England.
14. Nov 3, 2003 Integral Membrane Proteins in Respiratory Processes: Complex II and Photosystem II. Cambridge MRC-LMB, Cambridge, England.
13. Dec 18, 2003 The Structure of Photosystem II from *Thermosynechococcus elongatus*. Biochemical Society Christmas Photosynthesis Meeting, University of Cambridge, Cambridge, England.
12. Oct 6, 2003 The Structure of Photosystem II from *Thermosynechococcus elongatus*. ICCG, Imperial College, London, England.
11. Sep 11, 2003 The Structure of Respiratory Complex II: Fumarate Reductase from *E. coli*. RIKEN-BBSRC Joint Symposium, Japan-UK Membrane Protein Structural Biology. Spring-8, Japan.

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9. Jun 24, 2000 Crystallographic Lessons from the Structure of the *E. coli* Fumarate Reductase. Current Methods in Membrane Protein Research, EMBL Heidelberg, Germany.
8. May 22, 2000 The Structure of γ -class Carbonic Anhydrases and Implications for the Proton Shuttle Mechanism. 5th International Conference on the Carbonic Anhydrases, Port Townsend, WA.
7. Dec 18, 1999 The Structure of Respiratory Complex II. Department of Chemistry, Massachusetts Institute of Technology, Cambridge, MA.
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4. Aug 20, 1999 The Structure of Respiratory Complex II: Fumarate Reductase from *E. coli*. Penn State University, State College, PA.
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