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**Born:**

Dayton, Ohio  
 US Citizen

**Education:**

Earlham College	Richmond, IN	BA	Chemistry	1978
California Institute of Technology	Pasadena, CA	PhD	Chemistry	1984
University of California, Berkeley	Berkeley, CA	PD	Biochemistry	1984-1987

**Professional Experience:**

Harvard University, Department of Biological Chemistry:  
 1977 **Undergraduate Thesis Research**, (with Professor D. Bing)

California Institute of Technology, Department of Chemistry:  
 1979 - 1984 **Doctoral Thesis Research**, (with Professor S. Chan)  
 1982 - 1984 **Staff Spectroscopist**, Caltech Chemistry NMR Facility

University of California, Berkeley, Department of Biochemistry:  
 1985 - 1987 **NIH Postdoctoral Fellow**, (with Professor D. Koshland, Jr.)  
 1986 - 1987 **Manager and Spectroscopist**, Biochemistry Fluorescence Facility

University of Colorado, Boulder, Department of Chemistry and Biochemistry  
 1987 - **Professor - Assistant (1987), Associate (1994), Full (1999)**  
 1999 - **Director (1999-2023), Co-Director (2023-) - NIH/CU Biophysics Program**

**Selected Honors and Awards:**

1974 - 1978 National Merit Scholar  
 1978 Phi Beta Kappa Honor Society  
 1979 - 1982 NSF Predoctoral Fellow  
 1984 McKoy Award for Outstanding Caltech Ph. D. Thesis in Chemistry  
 1985 - 1987 NIH Postdoctoral Fellow  
 1997 - 2010 Editorial Boards: Protein Science, Journal of General Physiology  
 1997 - 2015 Board Member, Bacterial Locomotion & Signal Transduction Conferences  
 1999 - 2015 Co-Founder and Organizer, Annual Receptor Fest Conference  
 2001 Conference Chair, Annual Meeting of the Biophysical Society, Boston  
 2001 - 2002 Member, Executive Board, Biophysical Society  
 2003 Conference Chair, Keystone Conference on Membrane Proteins, Taos  
 2003 17th Annual Feigen Lecturer, Dept. Mol. Cell. Physiol., Stanford  
 2006 Conference Co-Chair, Ann. Meeting Soc. Gen. Physiologists, Woods Hole  
 2007 - 2008 President, Biophysical Society  
 2013 - 2020 Regular Member, NIH TWD-B Study Section (Maximum Term)  
 2014 - 2020 NIH Study Sections: TWD-B Regular Member; Ad Hoc CG-Q MIRA, BST-J  
 2015 Fellow of the Biophysical Society, Class of 2015  
 2018 CU Boulder, College Scholar Award  
 2018 Reviewer of Applications for DFG Excellence Centers, Bonn, Germany  
 2020 Symposium Chair and Speaker, Biophysical Society Annual Meeting  
 2014 - 2021 Editorial Board, Biophysical Journal (Maximum Term)  
 2023 **Invited Speaker, Single Molecule Biology Conference, Aspen Physics Ctr.**  
 2023 **Invited Speaker, MRC Laboratory of Molecular Biology, Cambridge UK**  
 2024 **Invited Speaker, Santa Fe International Membrane Biophysics Meeting**

Career To Date 130+ Publications (See Below)  
 Career To Date 150+ Presentations at Universities and Conferences (See Below)

**Professional Organizations:**

Biophysical Society, American Chemical Society, Phi Beta Kappa, Protein Society

**Publications in Peer-Reviewed Journals (130+; h-index = 65):**

1. Chloride binding to band 3 transport sites: A  $^{35}\text{Cl}$  NMR study. J.J. Falke, R.J. Pace and S.I. Chan. *J. Biol. Chem.* 259, 6472-6480 (1984).
2. Direct observation of transmembrane recruitment of band 3 transport sites by competitive inhibitors: A  $^{35}\text{Cl}$  NMR study. J.J. Falke, R.J. Pace and S.I. Chan. *J. Biol. Chem.* 259, 6481-6491 (1984)
3. Ion channels within ion transport proteins: Evidence in the band 3 system. J.J. Falke and S.I. Chan. *Biophys. J.* 45, 91-92 (1984).
4. Halide binding by the purified halorhodopsin chromoprotein. II. New chloride binding sites revealed by  $^{35}\text{Cl}$  NMR. J.J. Falke, S.I. Chan, M. Steiner, P. Oesterhelt, P. townner and J.K. Lanyi. *J. Biol. Chem.* 259, 2185-2189 (1984).
5. Evidence that anion transport by band 3 proceeds via a ping-pong mechanism: A  $^{35}\text{Cl}$  NMR study. J.J. Falke and S.I. Chan. *J. Biol. Chem.* 260, 9537-9544 (1985).
6. The kinetic equation for the band 3 anion chloride transport cycle: A  $^{35}\text{Cl}$  NMR study. J.J. Falke, K.J. Kanes and S.I. Chan. *J. Biol. Chem.* 260, 9545-9551 (1985).
7. The minimal structure containing the band 3 anion transport site: A  $^{35}\text{Cl}$  NMR study. J.J. Falke, K.J. Kanes and S.I. Chan. *J. Biol. Chem.* 260, 13294-13303 (1985).
8. A  $^1\text{H}$  NMR study of glucose binding to the glucose transporter of red cell membranes. J.F. Wang, J.J. Falke and S.I. Chan. *PNAS* 83, 3277-3281 (1986).
9. Inhibitors of band 3. I. Transport site inhibitors: A  $^{35}\text{Cl}$  NMR study. J.J. Falke and S.I. Chan. *Biochem.* 25, 7888-7894 (1986).
10. Inhibitors of band 3. II. Translocation inhibitors: A  $^{35}\text{Cl}$  NMR study. J.J. Falke and S.I. Chan. *Biochem.* 25, 7895-7898 (1986).
11. Inhibitors of band 3. III. Channel blockers: A  $^{35}\text{Cl}$  NMR study. J.J. Falke and S.I. Chan. *Biochem* 25, 7899-7906 (1986).
12. Global flexibility in a sensory receptor: A site-directed disulfide bond study. J.J. Falke and D.E. Koshland, Jr. *Science* 237, 1596-1600 (1987).
13. Structure of a bacterial sensory receptor: A site-directed sulfhydryl study. J.J. Falke, A.F. Dernburg, D.A. Sternberg, N. Zalkin and D.E. Koshland, Jr. *J. Biol. Chem.* 263, 14850-14858 (1988).
14. Calcium-site specificity: effect of size and charge on metal ion binding to an EF-hand-like site. E.E. Snyder, B.W. Buoscio and J.J. Falke. *Biochem.* 29, 3937-3943 (1990).

15.  $^{19}\text{F}$  NMR studies of the D-galactose chemosensory receptor. 1. Sugar binding yields a global structural change. L.A. Luck and J.J. Falke *Biochem. 30*, 4248-4256 (1991).
16.  $^{19}\text{F}$  NMR studies of the D-galactose chemosensory receptor. 2. Calcium binding yields a local structural change. L.A. Luck and J.J. Falke *Biochem. 30*, 4257-4261 (1991).
17. Open conformation of a substrate binding cleft:  $^{19}\text{F}$  NMR studies of cleft angle in the D-galactose chemoreceptor. L.A. Luck and J.J. Falke. *Biochem. 30*, 6484-6490 (1991).
18. Quantitating and engineering the ion specificity of an EF-hand-like calcium binding site. J.J. Falke, E.E. Snyder, K.C. Thatcher, and C.S. Voertler. *Biochem. 30*, 8690-8696 (1991).
19. Structure and dynamics of *E. coli* chemosensory receptors: Engineered sulfhydryl studies. C.L. Careaga and J.J. Falke. *Biophys. J. 62*, 209-220 (1992).
20.  $^{19}\text{F}$  NMR studies of aqueous and transmembrane receptors: Examples from the *E. coli* chemosensory pathway. J.J. Falke, L.A. Luck, and J. Scherrer. *Biophys. J. 62*, 82-87 (1992).
21. Thermal motions of surface  $\alpha$ -helices in the D-galactose chemosensory receptor: Detection by disulfide trapping. C.L. Careaga and J.J. Falke. *J. Mol. Biol. 226*, 1219-1235 (1992).
22. Novel ion specificity of a carboxylate cluster magnesium binding site in CheY: Strong charge selectivity and weak size selectivity. J.V. Needham, T.Y. Chen and J.J. Falke. *Biochem. 32*, 3363-3367 (1993).
23. Activation of the phosphosignaling protein CheY. I. Analysis of the phosphorylated conformation by  $^{19}\text{F}$  NMR and protein engineering. S.K. Drake, R.B. Bourret, L.A. Luck, M.I. Simon, and J.J. Falke. *J. Biol. Chem. 268*, 13081-13088 (1993).
24. Activation of the phosphosignaling protein CheY. II. Analysis of activated mutants by  $^{19}\text{F}$  NMR and protein engineering. R.B. Bourret, S.K. Drake, S.A. Chervitz, M.I. Simon, and J.J. Falke. *J. Biol. Chem. 268*, 13089-13096 (1993).
25. Kinetic control of calcium signaling: Tuning the ion dissociation rates of EF-hand calcium binding sites. M. Renner, M.A. Danielson, and J.J. Falke. *PNAS 90*, 6493-6497 (1993).
26. Ligand- and disulfide-induced conformational changes in the periplasmic domain of the chemotaxis aspartate receptor: A  $^{19}\text{F}$  NMR study. M.A. Danielson, H.-P. Biemann, D.E. Koshland, Jr., and J.J. Falke. *Biochemistry 33*, 6100-6109 (1994).
27. EF-hand calcium signaling sites: Tuning metal ion affinity, specificity and kinetics. S.K. Drake and J.J. Falke. *Quart. Rev. of Biophys. 34*, 219-290 (1994).
28. Thermal hinge-twisting motions of protein domains in the D-galactose chemosensory receptor: detection by disulfide trapping. C.L. Careaga, J. Sutherland, J. Sabeti, and J.J. Falke. *Biochemistry 34*, 3048-3055 (1995).
29. BLAST 1995: International conference on bacterial locomotion and signal transduction. J.J. Falke, D.F. Blair, T.J. Silhavy, and R. Schmitt. *Molecular Microbiology 16*, 1037-1050 (1995).

30. Transmembrane signaling by the aspartate receptor: Engineered disulfides reveal static regions of the subunit interface. S.A. Chervitz, C. Lin, and J.J. Falke. *Biochemistry* 34, 9722-9733 (1995).
31. Lock on/off disulfides identify the transmembrane signaling helix of the aspartate receptor. S.A. Chervitz and J.J. Falke. *J. Biol. Chem.* 270, 24043-24053 (1995).
32. Molecular mechanism of transmembrane signaling by the aspartate receptor: A model. S.A. Chervitz and J.J. Falke. *P.N.A.S.* 93, 2545-2550 (1996)
33. Kinetic tuning of the EF-hand calcium binding motif: The gateway residue independently adjusts barrier height and equilibrium. S.K. Drake and J.J. Falke. *Biochemistry* 35, 1753-1760 (1996).
34. Tuning the equilibrium ion affinity and selectivity of the EF-hand calcium binding motif: Substitutions at the gateway position. S.K. Drake, K.L. Lee, and J.J. Falke. *Biochemistry* 35, 6697-6705 (1996).
35. <sup>19</sup>F NMR as a tool for probing protein conformational changes. M.A. Danielson and J.J. Falke. *Annual Review of Biophysics and Biomolecular Structure* 25, 163-195 (1996).
36. Effect of protein stabilizing agents on thermal backbone motions: A disulfide trapping study. Scott L. Butler and J.J. Falke. *Biochemistry* 35, 10595-10600 (1996). (*Accelerated*).
37. The C2 domain calcium binding motif: structural and functional diversity. *Protein Science* 5, 2375-2390 (1996).
38. Intermolecular tuning of calmodulin by target peptides and proteins: Differential effects on Ca<sup>2+</sup> binding and implications for kinase activation. Olve Peersen, Travis Madsen, and J.J. Falke. *Protein Science* 6, 794-807 (1997).
39. Molecular tuning of the EF-hand calcium binding motif: contributions of the third EF-loop position. S.K. Drake, M.A. Zimmer, Craig Kundrot, and J.J. Falke. *J. Gen. Physiol.* 110, 173-184 (1997).
40. The EF-hand calcium binding motif: Effects of EF-loop torsion angle constraints on metal binding equilibria and kinetics. S.K. Drake, M.A. Zimmer, C.L. Miller, and J.J. Falke. *Biochemistry* 36: 9917-9926 (1997).
41. The Ca<sup>2+</sup>-signaling cycle of a membrane-docking C2 domain. E.A. Nalefski, M.M. Slazacs and J.J. Falke. *Biochemistry* 36, 12011-12018 (1997). (*Accelerated*).
42. The two-component signaling pathway of bacterial chemotaxis: A molecular view of signal transduction by receptors, kinases and adaptation enzymes. *Ann. Rev. Cell. Dev. Biol.* 13: 457-512 (1997).
43. Cysteine and disulfide scanning reveals a regulatory  $\alpha$ -helix in the cytoplasmic domain of the aspartate receptor. M.A. Danielson, R.B. Bass and J.J. Falke *J. Biol. Chem.* 272, 32878-32888 (1997).
44. Independent folding and ligand specificity of the C2 domain of cPLA<sub>2</sub>. E.A. Nalefski, T. McDonagh, W. Somers, J. Seehra, J.J. Falke, and J.D. Clark *J. Biol. Chem.* 273, 1365-1372 (1998).
45. Cysteine and disulfide scanning reveals two amphiphilic helices in the linker region of the aspartate chemoreceptor. S.B. Butler and J.J. Falke . *Biochemistry* 37, 10746-10756 (1998).

46. The kinetic cycle of cardiac troponin C: Calcium binding and dissociation at site II trigger slow conformational rearrangements. A.L. Hazard, S.C. Kohout, N.L. Stricker, J.A. Putkey, and J.J. Falke. *Protein Science* 7, 2451-1459 (1998).
47. Detection of a conserved  $\alpha$ -helix in the kinase docking region of the aspartate receptor by cysteine and disulfide scanning. R.B. Bass and J.J. Falke. *J. Biol. Chem.* 273, 25006-25014 (1998).
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52. Bornhorst, J.A. and J.J. Falke (2000) Attractant regulation of the aspartate receptor-kinase complex: limited cooperative interactions between receptors and effects of the receptor modification state. *Biochemistry* 39:9486-9493.
53. Bornhorst, J.A. and J.J. Falke (2000) Purification of proteins using polyhistidine affinity tags. *Methods in Enzymology* 326:245-254.
54. Falke, J.J. and S.H. Kim (2000) Structure of a conserved receptor domain that regulates kinase activity: the cytoplasmic domain of bacterial taxis receptors. *Curr. Opin. Struct. Biol.* 10:462-469.
55. Falke, J.J. and G.L. Hazelbauer (2001) Transmembrane signaling in bacterial chemoreceptors. *Trends Biochem. Sci.* 26: 257-265.
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58. Bornhorst JA, Falke JJ. (2001) Evidence that both ligand binding and covalent adaptation drive a two-state equilibrium in the aspartate receptor signaling complex. *J Gen Physiol.* 118:693-710.
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60. Falke, JJ. (2002) Enzymology. A moving story. *Science* 295:1480-1481.
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65. Bornhorst, J.A. and J.J. Falke (2003) Quantitative analysis of the two-state model for aspartate receptor signaling reveals additional signaling states. *J. Mol. Biol.* 326:1597-614.
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69. Malmberg, N.J., S. Varma, E. Jakobsson and J.J. Falke (2004) Ca<sup>2+</sup> activation of cPLA2 C2 domain: Ordered binding Ca<sup>2+</sup> ions with positive cooperativity. *Biochemistry* 43: 16320-8.
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71. Miller, A.F. and J.J. Falke (2004) Mammalian G protein-coupled receptors that direct cellular chemotaxis. *Advances in Protein Chemistry* 68:393-444.
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73. Malmberg, N.J. and J.J. Falke (2005) Use of EPR power saturation to analyze the membrane docking geometries of peripheral proteins: Applications to C2 domains. *Annual Review of Biophysics and Biomolecular Structure* 34:71-90.
74. Starrett , D. J. and J. J. Falke (2005) Adaptation mechanism of the aspartate receptor: Electrostatics of the adaptation subdomain play a key role in modulating kinase activity. *Biochemistry* 44: 1550-60.
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78. John H. Evans, Diana Murray, Christina C. Leslie, and Joseph J. Falke (2006) Translocation of protein kinase C alpha to the plasma membrane requires both Ca<sup>2+</sup> and PIP<sub>2</sub>. *Molecular Biology of the Cell* 17, 56-66.
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80. Simon Jaud, Douglas J. Tobias, Joseph J. Falke and Stephen H. White (2007) Self-induced docking site of a deeply embedded peripheral membrane protein. *Biophysical Journal* 92, 517-24. (Selected as **Editors Choice** "Dipped in Oil" by Gilbert Chin in *Science* 314 (17), 1050).
81. John A. Corbin, John H. Evans, Kyle E. Landgraf, and Joseph J. Falke (2007) Mechanism of Specific Membrane Targeting by C2 Domains: Localized Pools of Target Lipids Enhance Ca<sup>2+</sup> Affinity. *Biochemistry* 46:4322-36. (Selected as "**Hot Article**" by Biochemistry Editors).
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83. Randal B. Bass, Scott Butler, Stephen A. Chervitz, Susan L. Gloor and Joseph J. Falke (2007) Use of site-directed cysteine and disulfide chemistry to probe protein structure and dynamics: Applications to soluble and transmembrane receptors of bacterial chemotaxis. *Methods in Enzymology*, 423:25-51.
84. John H. Evans and Joseph J. Falke (2007) Ca<sup>2+</sup> influx is an essential component of the positive feedback loop that maintains leading edge structure and activity in macrophages. *PNAS USA*, 104:16176-81.
85. Robert G. Endres, Joseph J. Falke, and Ned S. Wingreen (2007) Chemotaxis receptor complexes: from signaling to assembly. *PLoS Comput Biol.*, 3(7):e150.
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88. Kyle E. Landgraf, Nathan J. Malmberg and Joseph J. Falke (2008). Effect of PIP<sub>2</sub> binding on the membrane docking geometry of PKC alpha C2 domain: an EPR site-directed spin-labeling and relaxation study. *Biochemistry* 47:8301-16.
89. Kyle E. Landgraf, Carissa Pilling and Joseph J. Falke (2008) Molecular mechanism of an oncogenic mutation that alters membrane targeting: Glu17Lys modifies the PIP lipid specificity of AKT1 PH domain. *Biochemistry*, 47:12260-12269. *Accelerated Publication*.
90. Jefferson D. Knight and Joseph J. Falke (2009) Single-molecule fluorescence studies of a PH domain: New insights into the membrane docking reaction. *Biophysical Journal*, 96:566-82.
91. Annette H. Erbse and Joseph J. Falke (2009) The core signaling proteins of bacterial chemotaxis assemble to form an ultra-stable enzyme complex. *Biochemistry*, 48:6975-87. (Selected for **Faculty of 1000 Biology** and **Nature Chemical Biology Research Highlights** (2009) 5:541).

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116. Li J, Ziemba BP, Falke JJ, Voth GA. (2014) Interactions of Protein Kinase C- $\alpha$  C1A and C1B Domains with Membranes: A Combined Computational and Experimental Study. *J Am Chem Soc.* 136:11757-66.
117. Piasta KN, Falke JJ. (2014) Increasing and Decreasing the Ultrastability of Bacterial Chemotaxis Core Signaling Complexes by Modifying Protein-Protein Contacts. *Biochemistry* Aug 25[Epub ahead of print]

118. Falke JJ. (2014) Piston versus Scissors: Chemotaxis Receptors versus Sensor His-Kinase Receptors in Two-Component Signaling Pathways. *Structure* 22:1219-20.
119. Falke JJ, Piasta KN (2014) Architecture and Signal Transduction Mechanism of the Bacterial Chemosensory Array: Progress, Controversies, & Challenges. *Curr Opin Struct Biol*, 29:85-94.
120. Parkinson JS, Hazelbauer GL, Falke JJ (2015) Signaling and Sensory Adaptation in *E. coli* Chemoreceptors: 2015 Update. *Trends in Microbiol Sci.*, 23:257-66.
121. Ziemba BP, Burke JE, Masson G, Williams RL, Falke JJ (2016) Regulation of PI3K by PKC & MARCKS: Single Molecule Analysis of a Reconstituted Signaling Pathway. *Biophys. J*, 110:1811-1825. (Selected by BJ as *New & Notable*, and for its *Single Molecule Biophysics Collection - Top 12 Articles of 2016*).
122. Ziemba BP, Burke JE, Masson G, Williams RL, Falke JJ (2016) Regulation of a Coupled MARCKS-PI3K Lipid Kinase Circuit by Calmodulin: Single Molecule Analysis of a Membrane-Bound Signaling Module. *Biochemistry*, 55:6395-6405.
123. Buckles TC, Ziemba BP, Masson GR, Williams RL, Falke JJ (2017) Single-Molecule Study Reveals How Receptor and Ras Synergistically Activate PI3K $\alpha$  and PIP3 Signaling. *Biophys J*, 113:2396-2405.
124. Ziemba BP, Falke JJ (2018) A PKC-MARCKS-PI3K Regulatory Module Links Ca<sup>2+</sup> and PIP3 signals at the leading edge of polarized macrophages. *PLoS One*, 13(5):e0196678 (20 pgs)
125. Thomas Buckles, Brian P. Ziemba, Daniel Djukovic, and Joseph J. Falke (2020) Rapid Exposure of Macrophages to Drugs Resolves Four Classes of Effects on the Leading Edge Sensory Pseudopod: Non-Perturbing, Adaptive, Disruptive, and Activating. *PLoS One*. 15(5):e0233012. PMID: 32469878; PMCID:PMC7259666.
126. Buckles TC, Ohashi Y, Tremel S, McLaughlin SH, Pardon E, Steyaert J, Gordon MT, Williams RL, Falke JJ. (2020) The G-Protein Rab5A Activates Class 3 PI3-Kinase Complex II (VPS34 Complex II) and PI3P signaling by a Dual Regulatory Mechanism. *Biophys J*. 119(11):2205-2218. PMID: 33137306; PMCID: PMC7732812
127. Swisher GH, Hannan JP, Cordaro NJ, Erbse AH, Falke JJ (2021) Ras-guanine nucleotide complexes: A UV spectral deconvolution method to analyze protein concentration, nucleotide stoichiometry, and purity. *Anal Biochem* 618:114066. PMID 33485819.
128. Hannan JP, Swisher GH, Martyr JG, Cordaro NJ, Erbse AH, Falke JJ. (2021) HPLC method to resolve, identify and quantify guanine nucleotides bound to recombinant Ras GTPase. *Anal Biochem*. 631:114338. PMID: 34433016; PMCID: PMC8511091.
129. Gordon MT, Ziemba BP, Falke JJ. (2021) Single-molecule studies reveal regulatory interactions between master kinases PDK1, AKT1, and PKC. *Biophys J*. 120(24):5657-5673. PMID: 34673053; PMCID: PMC8715220. (Selected by BJ as *New & Notable*)
130. **\*Fleming I, \*Hannan JP, \*Swisher GH, \*Tesdaahl C, Martyr JG, Cordaro NJ, Erbse AH, Falke JJ (2023) Binding of active Ras and its mutants to the Ras binding domain of PI-3-Kinase: A quantitative approach to K<sub>D</sub> measurements. *Anal Biochem*. 663:115019-115030. PMID: 36526022; PMCID: PMC9884175.**

131. **Gordon MT, Ziemba BP, Falke JJ. (2023) PDK1:PKC $\alpha$  heterodimer association-dissociation dynamics in single molecule diffusion tracks on a target membrane. *Biophys J.* 122:2301-2310. PMID:36733254; PMCID:PMC10257113.**

**Patent Applications Filed**

Provisional US Patent Application "Compositions and Methods for One-Sample FRET"  
Invention Disclosure CU2652B-PPA1

**Invited Formal Seminars at Universities, Conferences, and Corporations (selected from 150+ total)**

**A. "Molecular Mechanisms of Receptor-Kinase Signaling in Bacterial Chemotaxis"**

Gordon Conference on Sensory Transduction in Microorganisms, Ventura, January 1996

University of Wyoming, Department of Molecular Biology, February 1996

FASEB Meeting on Receptors & Signal Transduction, Copper Mountain, July 1996

International Conference on Magnetic Resonance in Biological Systems, Keystone, August 1996

Chan Symposium, Department of Chemistry, Caltech, September 1996

University of Nagoya, Department of Microbiology and Biophysics, Japan, November 1996

Brandeis University, Department of Biochemistry, December 1996

Massachusetts Institute of Technology, Department of Chemistry, December 1996

Harvard Medical School, Department of Microbiology and Molecular Genetics, January 1997

Chair, International Symposium on Bacterial Signal Transduction, Cuernavaca, January 1997

Baxter Biotech-Hyland, Inc., Los Angeles, February 1997

Annual Symposium of the Biophysical Society, New Orleans, March 1997

Genentech, Inc., South San Francisco, April 1997

UC Berkeley, Department of Molecular and Cellular Biology, April 1997

Annual Symposium of the American Society of Microbiologists, Miami, May 1997

Gordon Conference on Molecular Recognition & TM Signaling, Plymouth, June 1997

Purdue University, Department of Biological Sciences, September 1997

Colorado State University, Department of Biochemistry, December 1997

Gordon Conference on Sensory Transduction, Ventura, January 1998

University of Oregon Medical School, Department of Biochemistry, May 1998

FASEB Conference on Membrane Biophysics, Saxtons River, August 1998

International Symposium on Bacterial Signal Transduction, Cuernavaca, January 1999

University of California at Berkeley Department of Chemistry, April 1999  
Texas A&M Department of Biology, September 1999  
Princeton University Department of Molecular Biology, December 1999  
Gordon Conference on Sensory Transduction, Ventura, January 2000  
International Symposium on Bacterial Signal Transduction, Cuernavaca, January 2001  
Keystone Conference on Transmembrane Proteins, Tahoe, March 2001  
ReceptorFest 2001, Boulder CO, August 2001  
Gordon Conference on Sensory Transduction, Ventura CA, January 2002  
Biophysical Society Annual Meeting, San Francisco CA, February 2002  
FASEB Conference on Membrane Biophysics, Saxtons River VT, July 2002  
Keystone Conference on Membrane Proteins, Taos NM, February 2003  
Stanford University, Department of Cellular & Molecular Physiology, April 2003  
ReceptorFest Conference on Bacterial Chemotaxis, Boulder CO, August 2003  
Academia Sinica Department of Structural Biology, Taipei, Taiwan, September 2003  
University of Nagoya, Department of Biology, Japan, November 2003  
University of Osaka, Panasonic Research Division, Keihanna, Japan, November 2003  
Gordon Conference on Sensory Transduction, Ventura CA, January 2004  
Johns Hopkins University, Department of Cell Biology, April 2004  
Stockholm University, Department of Biochemistry, Sweden, November 2004  
Bacterial Locomotion and Signal Transduction Conference, Miami FL, January 2005  
ReceptorFest Annual Meeting, Boulder CO, August 2005  
University of California, Los Angeles, Dept. of Biology, January 2006  
Gordon Conference on Sensory Transduction, Ventura CA, January 2006  
ReceptorFest Annual Meeting, University of Utah, Salt Lake City, July 2006  
Annual Meeting of Society General Physiologists, Woods Hole MA, September 2006  
Membrane Symposium, Biophysical Society Annual Meeting, Baltimore MD, March 2007  
ReceptorFest Annual Meeting, University of Colorado, Boulder, July 2007  
Univ, Penn. School Medicine, Dept. Biochem. & Biophys., Philadelphia, October 2007

Gordon Conference on Sensory Transduction, Ventura CA, January 2008

ReceptorFest Annual Meeting, University of Utah, Salt Lake City, August 2008

National Institutes of Health, December 2008

ReceptorFest Annual Meeting, University of Colorado, Boulder, August 2009

Oxford University, UK, Department of Biochemistry, October 2009

Gordon Conference on Sensory Transduction, Ventura CA, January 2010

Brandeis University, Department of Biochemistry, May 2010

ReceptorFest Annual Meeting, UC Santa Barbara, August 2010

Massachusetts Institute of Technology, Dept. of Biology, November 2010

California Institute of Technology, Dept. of Chemistry, April 2011

ReceptorFest Annual Meeting, Salt Lake City, August 2011

Methods & Applications of Fluorescence, Strasbourg, September 2011

Gordon Conference on Sensory Transduction, Ventura, January 2012

University of Bristol, Dept of Biochemistry, UK March 2012

ReceptorFest Annual Meeting, Boulder, August 2012

ReceptorFest Annual Meeting, UC Santa Barbara, August 2013

Gordon Conference on Sensory Transduction, Ventura, January 2014

ReceptorFest Annual Meeting, U. Utah, July 2014

University of Illinois Champaign-Urbana, Dept of Computational Biology, March 2015

ReceptorFest Annual Meeting, Boulder, August 2015

**B. "Tales of Two Pathways: Prokaryotic and Eukaryotic Chemotaxis"**

University of Florence, Italy, Department of Cell Physiology, May 2006

University of Perugia, Italy, Department of Biochemistry, May 2006

University of Chicago, Department of Biochemistry, September 2006

**C. "Eukaryotic Chemotaxis – Membrane-Targeting and Surface Signaling Reactions"**

Gordon Conference on Metals in Biology, Ventura, January 1996

Case Western Reserve University, Department of Physiology and Biophysics, April 1996

American Chemical Society, Denver, June 1997

Stanford Medical School, Department of Molecular & Cellular Biology, April 1997

Tenth International Symposium on Calcium Binding and Function, Lund, Sweden, June 1997

Purdue University, Department of Biological Sciences, September 1997

Stanford University, Department of Biological Sciences, November 1997

University of Colorado Health Sciences Center, Dept. of Pharmacology, March 1998

University of Illinois at Chicago, Department of Biochemistry, March 1998

Biophysical Society Meeting, Baltimore, February 1999 (Symposium Chair, Speaker)

International Conference on Phospholipase A2, Berlin Germany, May 1999

International Symposium on Calcium Binding Proteins, Kisarazu Japan, October 1999

University of Colorado Health Sciences Center Department of Biochemistry, November 1999

University of Murcia, Department of Structural Biology, Spain, May 2000

University of Utah, Department of Biology, September 2000

Univ. Texas, San Antonio, Neurosciences Program. October 2001

Trinity College, Department of Chemistry San Antonio TX. October 2001

University of Colorado, Boulder, Neurosciences Program, November 2001

Earlham College, Departments of Chemistry and Biology, Richmond IN, November 2001

Colorado State University, Neurosciences Program, Fort Collins CO, February 2002

Brandeis University, Department of Biochemistry, Boston MA, March 2002

University Camerino, Department of Biology, Camerino Italy, May 2002

University of Illinois, Department of Biochemistry, October 2002

Colorado State University, Department of Biochemistry, October 2002

Stanford University, Dept. Cellular & Molecular Physiology, April 2003

Academia Sinica Department of Chemistry, Taipei, Taiwan, September 2003

University of Nagoya, Department of Biology, Japan, November 2003

California Institute of Technology, Biophysics Program, January 2004

Carlsberg Research Institute, Division of Biochemistry, Copenhagen, November 2004

University of California Irvine, Department of Biophysics, December 2004

University of Milano, Inst. Cell. & Mol. Pharmacol., Milano Italy, May 2005

Georgia Institute of Technology, Department of Biochemistry, November 2005

Iowa State University, Department of Biochemistry, December 2005  
California State University, Los Angeles, Department of Chemistry, January 2006  
Gordon Conference on Gradient Sensing and Directed Migration, Ventura CA, January 2007  
University Padova, Italy, Department of Cell Physiology, May 2007  
Park City Membranes Meeting, Park City UT, June 2007  
University of Pittsburgh Medical School, Department of Biophysics, December 2007  
University of Siena, Siena, Italy, September 2008  
University of Colorado Health Sciences Center, Denver, November 2008  
American Chemical Society National Meeting, Salt Lake City, March 2009  
Univ Kansas, Department of Biochemistry, September 2009  
Babraham Cell Signaling Institute, Cambridge Univ., UK October 2009  
Annual Meeting of the Biophysical Society, San Francisco, February 2010  
Conference on New Horizons in Calcium Signaling, Beijing Univ. PRC, October 2010  
Snowmass Membrane Conference, Snowmass, June 2011  
Methods & Applications of Fluorescence, Strasbourg, September 2011  
Colorado Single Molecule Membrane Meeting, Boulder, December 2011  
Cutting Edge Biophysics Conference, University of Denver, April 2012  
Univ Washington Seattle, Department of Physiology and Biophysics, October, 2012  
Univ North Carolina, Chapel Hill, Dept Biochemistry & Biophysics, November 2012  
Colorado Single Molecule Membrane Meeting, Fort Collins, December 2012  
Aspen Meeting on Single Molecule Biology, Aspen, January 2013  
Snowmass Conference on Membrane Biophysics, Aspen, July 2013  
Worcester Polytechnic Inst, Dept Chemistry & Biochemistry, September 2013  
Univ Pennsylvania, Dept Chemistry, October 2013  
Univ Cambridge UK, MRC Laboratory of Molecular Biology, November 2013  
Colorado Single Molecule Membrane Meeting, Denver, January 2014  
UC Berkeley, Dept of Molecular & Cell Biology, September 2014  
University of Camerino, Italy, Department of Biology, October 2014

Colorado Single Molecule Membrane Meeting, Denver, January 2015  
Aspen Center for Physics Meeting on Single Molecule Biology, January 2015  
Telluride Membrane Meeting, Telluride Science Research Center, July 2015  
San Francisco State University, Depts. of Biology & Chemistry, October 2015  
Cornell University, Biophysics Colloquium, April 2016  
FASEB Membrane Biophysics Conference, Snowmass, July 2016  
Cambridge University / MRC-Laboratory of Molecular Biology, November 2016  
Santa Fe Biophysics of Membranes Conference, Santa Fe, June 2017  
UC Denver, Biochemistry/Biophysics Seminar, September 2017  
U Wyoming, Biochemistry Seminar, September 2017  
CSMMM Single Molecule Conference, Denver, January 2018  
Relay Therapeutics, Boston, May 2018  
FASEB Phospholipid Meeting, Steamboat Springs, July 2018  
San Francisco State University, Undergraduate Research Seminar, September 2018  
Brandeis University, Biophysics/Biochemistry Seminar, October 2018  
Single Molecule Biology Conference, Aspen Physics Center, January 2019  
Santa Fe Biophysics of Membranes Conference, Santa Fe, June 2019  
Membrane Signaling Unit, MRC / LMB, Cambridge Univ, November 2019  
CSMMM Single Molecule Conference, Co-Organizer and Speaker, Denver, Jan 2020  
Biophysical Society Annual Meeting, Symposium Chair and Speaker, San Diego, Jan 2020  
Conference on Biomembranes - Theory & Experiment, Santa Fe, Jun 2022  
CSMMM Single Molecule Conference, Denver, Dec 2022  
**International Single Molecule Biology Meeting, Aspen Physics Center, Jan 2023**  
**MRC / Cambridge University, Laboratory of Molecular Biology Seminar, Nov 2023**  
**Santa Fe Biophysics of Membranes Conference, Santa Fe, June 2024**

## Research Grants Awarded and Pending:

### Principal Investigator – Current Awards

**National Institutes of Health, “Mechanisms of Signaling on Membrane Surfaces”, NIH R35GM144346 01-05 MIRA, Jan 2022 - Dec 2026 TC \$1,958,119. ADC \$321,115 (year 1).**

**National Institute of General Medical Sciences, Institutional Graduate Training Program in Biophysics, T32 GM145437 01-05, Jul 2022 – Jun 2027, TC \$2,584,634. ADC \$420,440 (year 1, increases 20% subsequent years)**

### Principal Investigator – Completed Awards

National Institutes of Health, “Mechanisms of Signaling on Membrane Surfaces”, NIH R01 GM063235 17-21, TDC \$900,000, May 2018 - Mar 2022, ADC \$225,000

National Institutes of Health, “Equipment Supplement for Above Grant”, NIH R01 GM063235 17A1S1, TDC \$73,900 (one payment) May 2018 - Mar 2022

National Institute of General Medical Sciences, Institutional Graduate Training Program in Biophysics, T32 GM065103-06, \$1,001,230 TDC, Jul 2017 – Jun 2022, ADC \$218,734

National Institutes of Health, “Activation and Dynamics of Receptors and Signaling Proteins”, NIH R01 GM040731, TDC \$693,000, April 2010-March 2014.

National Institutes of Health, “Mechanisms of Signaling on Membrane Surfaces”, NIH R01 GM063235, funded \$814,000 TDC, April 2009 - March 2013.

National Institutes of Health, Request for a Shared CW X-Band EPR Spectrometer”, NIH S10 RR024539, \$313,077 TDC, March 2008 – April 2010.

National Institutes of Health, “Activation and Dynamics of Receptors and Signaling Proteins”, NIH R01 GM040731, funded TDC \$725,000, April 2006 - March 2010.

National Institutes of Health, “Mechanisms of Membrane Targeting by C2 and PH Domains”, NIH R01 GM063235, funded \$814,000 TDC, April 2005 - March 2009.

National Institutes of Health, “Annual SGP Woods Hole Conference” Funding for the 2006 Annual Meeting of the Society of General Physiologists, \$5,000 TDC, September 2006.

National Institute of General Medical Sciences, Institutional Graduate Training Program in Molecular Biophysics, T32 GM65103-01, \$736,766 TDC, July 2002 – June 2007

CRCW Faculty Fellowship for Sabbatical Leave 2003-2004

National Institute of General Medical Sciences, Conference Support for Keystone Meeting on Membrane Proteins, \$10,000 TDC, February 2003

National Institutes of Health, “Calcium-Activated Targeting by C2 Domains”, R01 GM63235, \$850,000 TDC, April 2001 - March 2005.

National Institutes of Health, “Activation and Dynamics of Receptors and Kinases”, R01 GM40731, \$670,000, July 2001 - June 2005.

National Institutes of Health, “Activation and Dynamics of Receptors and Kinases”, R01 GM40731, \$556,286 TDC, July 1997 - June 2001

National Institutes of Health, Physical Biochemistry Study Section, R01 GM48203,  
\$416,895 TDC, April 1997 - March 2001

National Institutes of Health, Scientific Meeting: BLAST IV, NIAID R13 AI/GM 41086,  
\$4,500 TDC, March 1997 - Feb. 1998

National Science Foundation, Scientific Meeting: BLAST IV, Cell Biology 9603198,  
\$5,000 TDC, Jan. - June, 1997

National Institutes of Health, Biophysical Chemistry Study Section, R01 GM40731,  
\$417,504 TDC, July 1993 - June 1997

### **Co-Investigator – Completed Awards**

National Institutes of Health, Shared 600 MHz NMR & NMR Upgrade Grant, RR-11969,  
\$400,000, 1998

### **Group Members (2023-24)**

PhD Students (1):

Joy Armendariz

Professional Research Assistants (3):

Anne Marie McCombs

Shea O'Connor

Leana Radzik

Undergraduate Honors Students (5):

Ian Fleming

Corey Tesdahl

Kaeden Batz

Elizabeth Mead

Kuo-Hsien Shih

### **Past Postdoctoral Associates (13 Total)**

Dr. Linda Luck	(Professor, SUNY Plattsburgh)
Dr. Eric Nalefski	(Senior Scientist, US Genomics, Inc., Woburn MA)
Dr. Olve Peersen	(Professor, Department of Biochemistry, Col. State Univ.)
Dr. John Corbin	(Senior Scientist, XOMA Inc., Berkeley CA)
Dr. John Evans	(Senior Scientist, National Renewable Energy Lab, Golden, CO)
Dr. Jeff Knight	(Assistant Professor, CU Denver)
Dr. Huai-Chun Chen	(Professional Research Associate, University of Tennessee, Nashville)
Dr. Annette Erbse	(Staff Scientist, Biochemistry Program, CU Boulder)
Dr. Kene Piasta	(Instructor and PRA, Brandeis Univ., Boston)
Dr. Brian Ziemba	(Senior Research Associate, CU Boulder)
Dr. Tom Buckles	(Senior Scientist, Loxo Oncology Inc, Denver)
Dr. Hayden Swisher	(Instructor, Metro State University Denver)
Dr. Johnny Hannan	(Instructor, University of Denver)

**Past Doctoral Students (16 Total)**

Dr. Randal Bass	(PD Caltech; Vice President Process Design, Evotec, Seattle, WA)
Dr. Joshua Bornhorst	(PD U Utah; Dept. of Laboratory Medicine & Pathology, Mayo Clinic)
Dr. Thomas Buckles	(Assay Development, Loxo, Denver CO)
Dr. Scott Butler	(PD Scripps; Senior Director, Takeda, Boston, MA)
Dr. Claire Careaga	(Prof Chemistry, Linfield College; Owner, Better Way Nutrition, OR)
Dr. Stephen Chervitz	(PD Stanford U; Senior Scientist, Personalis Inc., Menlo Park CA)
Dr. Steven Drake	(PD NIH; Senior Scientist, Celera, Inc., Rockville MD)
Dr. Mark Danielson	(PD U Wisconsin; Scientist, Mayo Clinic)
Dr. Susan Kohout	(PD UC Berkeley; Assoc. Prof. of Immunology, Montana State U.)
Dr. Kyle Landgraf	(PD Genentech; Senior Scientist, Reflexion Inc., San Francisco, CA)
Dr. Nathan Malmberg	(Assoc. Prof. Chemistry, Oklahoma Baptist University)
Dr. Aaron Miller	(PD Genentech; Principal Scientist, BioMarin Pharma, Novato, CA)
Dr. Peter Slivka	(PD U Pittsburgh; Director Translational Biology, Auron Therapeutics, MA)
Dr. Ka Lin Swain	(PD UC Anschutz Medical School; Scientist, Univ Tuebingen, Germany)
Dr. Hayden Swisher	(Senior Instructor, Metro State University, Denver, CO)
Dr. Moshe Gordon	(PD U Washington, Seattle)

**Past Masters Students (3 Total)**

Marie Balboa	(Ultra Athlete)
Diane Starrett	(Research Assistant, University Munster, Germany)
Stefan Dalecki	(Programmer for an Energy Monitoring Software Company)

**Past Undergraduate Students (33 Total)**

Stephanie Boehme	(PhD Program in Biochemistry, University of Regensburg, Germany)
Adam Berlinberg	(Medical School, U Colorado Health Sciences)
Devin Brandt	(PhD Program in Chemistry, Penn State University)
Brian Buosco	(Medical School, University of Indiana)
Duncan Chadley	(Research Assistant in Neurology, Northwestern U)
Anna Chase	(PhD Program in Biophysics, Yale University)
Theodore Chen	(Senior Programmer, Sun Microsystems, Boulder)
Matthew Coleman	(Medical School, University of Utah, Salt Lake City)
Nick Cordaro	(Arpeggio Therapeutics, Denver, CO)
Jane Duplantis	(MD-PhD Program, U Iowa)
Kaye Grandbois	(Medical School, Loyola Strich, Chicago)
Nicole Gill	(Laboratory Technician, Nexagen Incorporated, Boulder)
Louise Ingalls	(School of Veterinary Medicine, Colorado State University)
Brooke Kennedy	(NIH Research Internship, NIH Intramural Research Training Awardee)
Keith Lee	(Medical School, University of California, San Francisco)
Christina Lin	(Laboratory Technician, Gasgoine Lab, Scripps Inst., La Jolla)
Travis Madsen	(PhD Program in Biophysics, Stanford University)
Justin Martyr	(PhD Program in Biochemistry, University of North Carolina)
Iain Miller	(Laboratory Technician, Spencer Lab, University of Colorado, Boulder)
Grant Morgan	(PhD Program in Public Health, University TBD / after public service year)
Andrew Natale	(PhD Program in iPQB, UCSF)
John Needham	(PhD Program in Biochemistry, Harvard University)
Carissa Pilling	(NSF Fellow & PhD Program in Biomedicine, University of Washington)
Katrina Robida	(PhD Program in Biochemistry, University Colorado Boulder)

Eric Snyder	(PhD Program in MCD Biology, University of Colorado)
Jesse Sutherland	(Laboratory Technician, Genentech Incorporated, San Francisco)
Nicole Stricker	(PhD Program in Neurobiology, Johns Hopkins University, Baltimore)
Corey Tesdahl	(M.D. Program, University of South Florida)
Ashesh Thaker	(M.D./Ph.D. Program, National Institutes of Health)
Matthew Trammel	(PhD Program in Biophysics, Univ. of California at San Francisco)
Caleb Ulliman	(High School Teacher, JF Kennedy American School, Queretaro, Mexico)
Stephan Voertler	(PhD Program in Biochemistry, University of Regensburg, Germany)
Gina Westhoff	(Medical School, Johns Hopkins University)
Michael Zimmer	(PhD Program in Biochemistry, University of Illinois, Champaign)

### Formal Courses Taught:

1987-1988

CHEM 486: Biochemistry Laboratory  
CHEM 588: Protein Structure, Folding and Dynamics

1988-1989

CHEM 4431: **Physical Chemistry with Biological Applications II** (New)  
CHEM 5781: Protein Structure, Folding and Dynamics  
CHEM 7691: Seminar: Protein Dynamics and the Mechanism of Sensory Proteins

1989-1990

CHEM 4431: Physical Chemistry with Biological Applications II  
CHEM 5781: Biochemistry CORE, Protein Section  
CHEM 7691: Seminar: Protein Dynamics and the Mechanism of Sensory Proteins

1990-1991

CHEM 4431: Physical Chemistry with Biological Applications II  
CHEM 5781: Biochemistry CORE, Protein Section  
CHEM 7691: Seminar: Protein Dynamics and the Mechanism of Sensory Proteins

1991-1992

CHEM 4431: Physical Chemistry with Biological Applications II  
CHEM 5561: Biophysical Methods  
CHEM 7691: Seminar: Protein Dynamics and the Mechanism of Sensory Proteins

1992-1993

CHEM 4431: Physical Chemistry with Biological Applications II  
CHEM 7691: Seminar: Protein Dynamics and the Mechanism of Sensory Proteins

1993-1994

CHEM 4411: Physical Chemistry with Biological Applications I  
CHEM 7691: Seminar: Protein Dynamics and the Mechanism of Sensory Proteins

1994-1995

CHEM 4411: Physical Chemistry with Biological Applications I  
CHEM 6731: Molecular Mechanisms of Cellular Signaling  
CHEM 7691: Seminar: Protein Dynamics and the Mechanism of Sensory Proteins

1995-1996

CHEM 4411: Physical Chemistry with Biological Applications I  
CHEM 7691: Seminar: Protein Dynamics and the Mechanism of Sensory Proteins  
Sabbatical Leave Spring

1997-1998

CHEM 4431: Physical Chemistry with Biological Applications II  
CHEM 5561: **Molecular Biophysical Techniques** (New)  
CHEM 7691: Seminar: Protein Dynamics and the Mechanism of Sensory Proteins

1998-1999

CHEM 4431: Physical Chemistry with Biological Applications II  
CHEM 5661: **Advances in Molecular Biophysics** (New)  
CHEM 7691: Seminar: Protein Dynamics and the Mechanism of Sensory Proteins

1999-2000

CHEM 1171: Honors General Chemistry II  
CHEM 5561: Molecular Biophysical Techniques  
CHEM 7691: Seminar: Protein Dynamics and the Mechanism of Sensory Proteins

2000-2001

CHEM 4431: Physical Chemistry with Biological Applications II  
CHEM 7691: Seminar: Protein Dynamics and the Mechanism of Sensory Proteins

2001-2002

CHEM 4431: Physical Chemistry with Biological Applications II  
CHEM 5661: Advances in Molecular Biophysics (team)  
CHEM 7691: Seminar: Protein Dynamics and the Mechanism of Sensory Proteins

2002-2003

CHEM 4431: Physical Chemistry with Biological Applications II  
CHEM 5561: Molecular Biophysical Techniques  
CHEM 7691: Seminar: Protein Dynamics and the Mechanism of Sensory Proteins

2003-2004

CHEM 5561: Molecular Biophysical Techniques  
Sabbatical Leave

2004-2005

CHEM 5561: Molecular Biophysical Techniques  
CHEM 5781: Biochemistry CORE

2005-2006

CHEM 6601: **Biophysical Queries** (New)  
CHEM 5781: Biochemistry CORE (Developed curriculum for this new course)

Spring-Fall 2007

CHEM 6601: Biophysical Queries  
CHEM 4431: Physical Chemistry with Biological Applications II

Spring-Fall 2008

CHEM 6601: Biophysical Queries  
CHEM 4431: Physical Chemistry with Biological Applications II

Spring-Fall 2009

CHEM 6601: Biophysical Queries  
CHEM 4431: Physical Chemistry with Biological Applications II

Spring-Fall 2010

CHEM 6601: Biophysical Queries  
CHEM 4431: Physical Chemistry with Biological Applications II  
CHEM 5561: Methods of Molecular Biophysics (Organizer of team-taught course)

Spring-Fall 2011

CHEM 6601: Biophysical Queries (both semesters)  
CHEM 4431: Physical Chemistry with Biological Applications II (Spring)  
Fall 2011: Sabbatical

Spring-Fall 2012

CHEM 5561: Methods of Molecular Biophysics (Spring)  
CHEM 6601: Biophysical Queries (both semesters)

Spring-Fall 2013

CHEM 4431: Physical Chemistry with Biological Applications II (Spring)  
CHEM 6601: Biophysical Queries (both semesters)

Spring-Fall 2014

CHEM 4431: Physical Chemistry with Biological Applications II (Spring)  
CHEM 6601: Biophysical Queries (both semesters)

Spring-Fall 2015

CHEM 4431: Physical Chemistry with Biological Applications II (Spring)  
CHEM 6601: Biophysical Queries (both semesters)

Spring-Fall 2016

CHEM 6601: Biophysical Queries (both semesters)  
CHEM 4761: Biochemistry Laboratory (Spring)  
CHEM 5491: **Biophysical Methods** (New Course, Fall)

Spring-Fall 2017

CHEM 6601: Biophysical Queries (both semesters)  
CHEM 4400: Physical Chemistry for Biochemists (New Course for this Instructor, Fall)

Spring-Fall 2018

CHEM 6601: Biophysical Queries (both semesters)  
Sabbatical (Spring)  
College Scholar Award (Fall)

Spring-Fall 2019

CHEM 6601: Biophysical Queries (Spring)  
CHEM 6601: Biophysical Queries (Fall)

Spring-Fall 2020

CHEM 6601: Biophysical Queries (both semesters)  
CHEM 4400: Physical Chemistry for Biochemists (Spring)  
CHEM 5491: Methods of Molecular Biophysics (Fall)

Spring-Fall 2021

CHEM 6601: Biophysical Queries (both semesters)

Spring 2022

CHEM 6601: Biophysical Queries (both semesters)  
CHEM 4400: Physical Chemistry for Biochemists (Spring)

**2022-2023 AY**

**CHEM 6601: Biophysical Queries (Fall 2022, Spring 2023)**  
**CHEM 5491: Methods of Molecular Biophysics (Fall, 2022)**

**2023-2024 AY**

**CHEM 6601: Biophysical Queries (Fall, 2023)**  
**CHEM 4400: Physical Chemistry for Biochemists (Spring, 2024)**

**Service to University and Professional Organizations**

**Departmental Service:**

**Director, Molecular Biophysics Training Program, 1998-2023; Co-Director 2023-present**

**Author of NIH Molecular Biophysics T32 Grants and Annual Progress Reports, 2002-present**

**Chair, Departmental Awards Committee, 2023-present, 1998-2003**

**Member, Departmental Orals Committee, 2022-present**

**Member, Conflict Resolution Committee, 2021-present**

**Reviewer, Biochemistry Internal NIH Study Section, 2007-present**

**Supervisor, Departmental EPR Facility, 2008-present**

Chair, Departmental Undergraduate Honors Committee, 2019-2021

Member, Departmental Executive Committee, 2019-2021, 1998-2000

Submitted Successful NIH Shared Equipment Grant for Departmental EPR, funded 2008

Voluntarily waived paternity leave while teaching CHEM 4431/5431 in Spring 2008

Chair, Successful Biochemistry Senior Search Committee (Charles McHenry), 2005-2006

Chair, Successful Biochemistry Junior Search Comm. (Jim Goodrich, Deb Wuttke), 1996

Chair, Departmental Instructional Improvement Committee, 1994-1996

Supervisor, Departmental Fluorescence Spectroscopy Facility, 1989-2013

**University Service:**

**Director, Molecular Biophysics Training Program, 1998-2022; Co-Director 2023-present**

**PI / Author of Successful NIH Molecular Biophysics T32 Grants, May 2001, 2006, 2011, 2016, 2021**

**Author of NIH Molecular Biophysics T32 Annual Progress Reports, 2002-present**

**CU Calculus Pedagogy Working Group , 2023-Present**

**Campus Nominator, HHMI Gilliam Diversity Fellowship Program, 2016-2023**

Reviewer of Proposals, Undergraduate Research Opportunities Program, 1992-present

CU Committee on NIH RCR Course Planning, 2017-2018

Co-Organized NIH Responsible Conduct of Research Refresher Training, 2013, 2015

Member, Council on Research & Creative Work, 2000 – 2003

**Service to Other Professional Organizations:**

**Reviewer of Manuscripts for Journals including those below, 1988-present**

**Biochemistry**

**Journal of the American Chemical Society**

**Journal of Biological Chemistry**

**Proceedings of the National Academy of Sciences**

**Nature**

**Structure**

**Science**

**Biophysical Journal**

**Protein Science**

**Journal of General Physiology**

**Biotechnology & Applied Science**

**Journal of Molecular Biology**

Editorial Board Member, *Biophysical Journal*, July 2014 – 2021

Regular Member/Reviewer, NIH Study Section TWD-B, 2013-2020

Reviewer, DFG German Excellence Strategy, Bonn Germany, June 2018

Board of Directors, Bacterial Locomotion & Signal Transduction, Inc., 1993-2016

Chair, 1997 Int. Conference on Bacterial Locomotion & Signal Transduction, Cuernavaca

Symposium Chair, 1999 Biophysical Society Annual Meeting, Baltimore

Editorial Board, *Journal of General Physiology*, 1996-2011

Editorial Board, *Biotechnology and Applied Biochemistry*, 1997-2011

Editorial Board, *Protein Science*, 1998-2003

Elected Member, Advisory Council, Biophysical Society, 1998-2001

Chair, 2001 Annual Meeting of the Biophysical Society, Boston (set attendance record for BPS)

Appointed Member, Executive Board, Biophysical Society, 2001-2002

Symposium Chair, 2001 Keystone Symposium on Membrane Proteins, Tahoe

Chair, 2003 Keystone Conference on Membrane Protein Structure & Function (attendance at meeting 50% higher than previous meeting held 2 years earlier at Lake Tahoe)

Member, NIH Study Section on Biophysics and Biochemistry (BBCB), 2003- 2004

Member, NIH Study Section on Biophysics and Biochemistry of Membranes (BBM), 2005-2007

Conference Co-Chair, 2006 Ann. Meeting of Gen. Physiologists, Woods Hole MA

Biophysical Society President-elect 2006, President 2007, Past-president 2008

Highlights of BPS Presidency 2007:

- 1) Presided over evaluation and negotiation of new agreement with Cell Press to publish the society journal, Biophysical Journal, thereby enhancing the future quality, status, readership and impact of this strong journal
- 2) Presided over council and board meetings where the Cell Press agreement was approved
- 3) Recruited over 2000 volunteers for NIH study section membership, most of any society
- 4) Provided suggestions to NIH in response to request for feedback on its scientific review and funding processes, some of which were included in the current official NIH draft report recommending changes at CSR

Chair, Carbon Mitigation Committee, Biophysical Society 2009-2012

Symposium Chair "Signaling at the Leading Edge", 2010 Annual Meeting of Biophysical Society, San Francisco

Reviewed grant proposals for:

National Institutes of Health, National Science Foundation

#### **Public Outreach and Service:**

**Mentor, Longmont High SMART Science Club, 2015-present  
(Help them develop molecular models of proteins (in silico and 3D printed) and poster/slide presentations on their structures and functions, for presentation locally and at the ASBMB national meeting)**

Volunteer Raptor Monitor, Boulder County Open Space, 2018-2022

Chair, Travel Carbon Mitigation Committee, Biophysical Society, 2009-2012