Deborah S. Wuttke

University of Colorado
Department of Biochemistry
Jenny Smoly Caruthers Biotechnology Building
596 UCB
Boulder, Colorado 80309-0596
Office: (303) 492-4576

deborah.wuttke@colorado.edu
http://chem.colorado.edu/wuttkegroup/
Orcid ID: 0000-0002-8158-8795
Cell: 303-250-3931

Employment

Assistant Professor — August 1996 – August 2003
Department of Chemistry and Biochemistry
University of Colorado, Boulder

Associate Professor (with tenure) — August 2003 – April 2008
Department of Chemistry and Biochemistry
University of Colorado, Boulder

Professor (with tenure) — April 2008 – July 2018
Department of Chemistry and Biochemistry
University of Colorado, Boulder

Professor (with tenure) — July 2018 – present
Department of Biochemistry
University of Colorado, Boulder

Education

Ph.D., Chemistry — October 1993
California Institute of Technology
Thesis Advisor: Harry B. Gray
Thesis Title: Preparation, Characterization and Intramolecular Electron-Transfer Studies of Ruthenium-Modified Cytochromes *c*

B.S., Chemistry *Summa cum laude* — May 1988
University of Rochester
Undergraduate Advisor: George L. McLendon

Research Experience

Visiting Scientist — Spring 2005
The Salk Institute

Research Associate — November 1995 to May 1996
The Scripps Research Institute

National Science Foundation Postdoctoral Fellow
The Scripps Research Institute — November 1993 to Nov. 1995

Parsons Foundation Fellow — September 1991 to Sept. 1993
California Institute of Technology

National Science Foundation Graduate Research Fellow — September 1988 to September 1991
California Institute of Technology

Research Assistant May 1988 to September 1988
Eastman Kodak Company
Magnetic Materials Laboratory of the Diversified Technology Group
Advisor: Robert James

Undergraduate Research Assistant August 1987 to May 1988
University of Rochester
Department of Chemistry
Advisor: George L. McLendon

Research Assistant May 1987 to August 1987
Ecole Polytechnique Federale de Lausanne, Advisor: André Braun
Department of Chemistry and Chem. Engineering
Lausanne, Switzerland

Undergraduate Research Assistant May 1986 to December 1986
University of Rochester Advisor: Robert Knox
Department of Physics, Biological Physics Research Group

Honors and Fellowships

College of Arts and Sciences Faculty Fellowship to address diversity	2018 - 2020
Marinus Smith Award (for support of students at CU)	2017
University of Colorado College Scholar Award	2013
Butcher Fellow, University of Colorado	2003, 2005, 2009
University of Colorado Innovation Award	2007 & 2013
Beckman Young Investigator Award	1999
Army Breast Cancer Idea Award	1998
NSF Career Development Award	1998
Research Corporation Young Investigator Award	1997
Petroleum Research Fund Starter Award	1997
Junior Faculty Development Award, University of Colorado	1997
National Science Foundation Postdoctoral Fellow	1993 to 1995
Herbert Newby McCoy Award in Chemistry (awarded for outstanding thesis research at Caltech)	1992
Parsons Foundation Fellowship, California Institute of Technology	1991 to 1993
National Science Foundation Predoctoral Fellowship	1988 to 1991
Earle Anthony Fellowship, California Institute of Technology	1988 to 1989
Janet Howell Clark Prize (outstanding woman in the sciences)	1988
Phi Beta Kappa and Iota Sigma Pi	1988
Catherine Block Memorial Award (outstanding woman in the sciences)	1987
University of Rochester Alumni Fellowship	1984 to 1988

Publications

Graduate and postdoctoral publications:

1. D. S. Wuttke, M. J. Bjerrum, I-J. Chang, J. R. Winkler and H. B. Gray, "Electron Tunneling in Ruthenium-Modified Cytochrome *c*," *Biochimica Biophysica Acta,* **1992**, *1101*, 168-170.

2. D. S. Wuttke, M. J. Bjerrum, J. R. Winkler and H. B. Gray, "Electron-Tunneling Pathways in Cytochrome *c*," *Science,* **1992**, *256*, 1007-1009.

3. D. S. Wuttke and H. B. Gray, "Protein engineering as a tool for understanding electron transfer," *Curr. Opin. Struct. Biol.*, **1993**, *3*, 555-563.

4. D. S. Wuttke, H. B. Gray, S. L. Fisher and B. Imperiali, “Semisynthesis of Bipyridyl-Alanine Cytochrome *c* Mutants: Novel Proteins with Enhanced Electron-Transfer Properties,” *J. Am. Chem. Soc.*, **1993**, *115*, 8455-8456.

5. M. Meier, R. van Eldik, I-J. Chang, G. A. Mines, D. S. Wuttke, J. R. Winkler and H. B. Gray, "Pressure Effects on the Rates of Intramolecular Electron Transfer in Ruthenium-Modified Cytochrome *c*. Role of the Intervening Medium in Tuning Distant Fe^{2+}:Ru^{3+} Electronic Couplings,” *J. Am. Chem. Soc.*, **1994**, *116*, 1577-1578.

6. M. J. Bjerrum, D. R. Casimiro, I-J. Chang, A. J. Dibilio, H. B. Gray, M. G. Hill, R. Langen, G. Mines, L. K. Skov, J. R. Winkler and D. S. Wuttke, “Electron Transfer in Ruthenium-Modified Proteins,” *J. Bioeng. Biomem.*, **1995**, *3*, 295 - 302.

7. M. P. Foster, D. S. Wuttke, D. A. Case, J. M. Gottesfeld and P. E. Wright, “Domain Packing and Dynamics in the DNA Complex of the Amino-Terminal Zinc Fingers of Transcription Factor IIIA,” *Nature Struct. Biol.*, **1997**, *4*, 605-608.

8. D. S. Wuttke, M. P. Foster, D. A. Case, J. M. Gottesfeld and P. E. Wright, “Solution Structure of the First Three Zinc Fingers of TFIIIA Bound to the Cognate DNA Sequence: Determinants of Affinity and Sequence Specificity,” *J. Mol. Biol.*, **1997**, *273*, 183-206.

9. M. P. Foster, D. S. Wuttke, K. R. Clemens, W. Jahnke, I. Radhakrishnan, L. Tennant, M. Reymond, J. Chung and P. E. Wright, “Chemical Shift as a Probe of Molecular Interfaces: NMR Studies of DNA Binding by the Three Amino Terminal Zinc Finger Domains from Transcription Factor IIIA,” *J. Biomol. NMR,* **1998**, *12*, 51-71.

Publications as an independent investigator:

10. D. D. Ojennus, R. M. Mitton-Fry and D. S. Wuttke, “Induced Alignment and Measurement of Dipolar Couplings in an SH2 Domain Through Direct Binding with Filamentous Phage,” *J. Biomol. NMR,* **1999**, *14*, 175-179.

11. D. D. Ojennus, M. R. Fleissner and D. S. Wuttke, “Reconstitution of a Native-Like SH2 Domain from Disordered Peptide Fragments Examined by Multidimensional Heteronuclear NMR,” *Protein Science,* **2001**, *10*, 2162-2175.

12. L. W. Glustrom, R. M. Mitton-Fry and D. S. Wuttke, “Environmental Estrogens and Breast Cancer: The Importance of Hydroxylated Intermediates,” reviewed letter, *J. Natl. Cancer Institute*, **2002**, *94*, 68-69.

13. R. M. Mitton-Fry, E. M. Anderson, T. R. Hughes, V. Lundlblad and D. S. Wuttke, “Conserved Structure for Single-Stranded Telomeric DNA Recognition,” *Science*, **2002**, *296*, 145 - 147.

14. R. M. Mitton-Fry and D. S. Wuttke, “^{1}H, ^{13}C and ^{15}N resonance assignments of the DNA-binding domain of the essential protein Cdc13 complexed with single-stranded telomeric DNA,” *J. Biomol. NMR*, **2002**, *22*, 379-380.

15. E. M. Anderson, W. A. Halsey and D. S. Wuttke, “Delineation of the High-Affinity Single-Stranded Telomeric DNA-Binding Domain of *S. cerevisiae* Cdc13,” *Nucleic Acids Research*, **2002**, *30*, 4305-4313.

16. D. D. Ojennus, S. E. Lehto and D. S. Wuttke, “Electrostatic Interactions in the Reconstitution of an SH2 Domain from Constituent Peptide Fragments,” *Protein Science*, **2003*,*** *12*, 44–55.

17. D. L. Theobald, R. M. Mitton-Fry and D. S. Wuttke, “Nucleic Acid Recognition by OB-Fold Proteins,” *Annu. Rev. Biophys. and Biomol. Struct.*, **2003,** *32*, 115-33.

18. E. M. Anderson and D. S. Wuttke, “Site-Directed Mutagenesis Reveals the Thermodynamic Requirements for Single-Stranded DNA Recognition by The Telomere-Binding Protein Cdc13,” *Biochemistry*, **2003,** *42*, 3751-3758.

19. D. M. Strauss, L. W. Glustrom and D. S. Wuttke, “Towards a Further Understanding of the Poliovirus Replication Complex: The Solution Structure of the Poliovirus 3A Protein,” *J. Mol. Biol*., **2003,** *330*, 225-234.

20. D. L. Theobald, R. B Cervantes, V. Lundblad and D. S. Wuttke, “Homology Among Telomeric End-Protection Proteins” *Structure,* **2003**, *11*, 1049-1050.

21. R. M. Mitton-Fry, E. M. Anderson, L. W. Glustrom, D. L. Theobald and D. S. Wuttke, “Structural basis for telomeric single-stranded DNA recognition by yeast Cdc13,” *J. Mol. Biol.,* **2004**, *338*, 241-255.

22. D. S. Wuttke, “Targeting the End: The Structure of the Ku80 C-Terminal Domain,” *Structure,* **2004**, *12* 55-356.

23. D. L. Theobald and D. S. Wuttke, “Prediction of multiple tandem OB-folds in telomere end-binding proteins Pot1 and Cdc13” *Structure,* **2004**, *12*, 1877-1879.

24. S. A. Jacobs, E. R. Podell, D. S. Wuttke and T. R. Cech, “Soluble domains of telomerase reverse transcriptase identified by high-throughput screening,” *Protein Science,* **2005**, *14*, 2051-2058.

25. D. L. Theobald and D. S. Wuttke, “Divergent evolution within protein superfolds inferred from profile-based phylogenetics” *J. Mol. Biol.,* **2005**, *354*, 722-737.

26. A. M. Eldridge, W. A. Halsey, and D. S Wuttke, “Identification of the determinants for the specific recognition of single-strand telomeric DNA by Cdc13,” *Biochemistry,* **2005***, 45*, 871-879.

27. D. L. Theobald and D. S. Wuttke, THESEUS: Maximum likelihood superpositioning and analysis of macromolecular structures, *Bioinformatics*, **2006**, *22*, 2171-2.

28. J. E. Croy, E. R. Podell, and D. S. Wuttke, “A new model for Schizosaccharomyces pombe telomere recognition: The telomeric single-stranded DNA binding activity of Pot1$^{1\text{-}389}$”, *J. Mol. Biol.,* **2006**, *361,* 80-93.

29. J. R. Croy and D. S. Wuttke, “Themes in ssDNA recognition by telomere end-protection proteins,” *TIBS*, **2006**, *31*, 516-525.

30. D. L. Theobald and D.S. Wuttke, “Empirical Bayes hierarchical models for regularizing maximum likelihood estimation in the matrix Gaussian Procrustes problem,” *Proc. Natl. Acad. Sci.,* **2006**, *103*, 18521-18527.

31. D. M. Strauss and D. S. Wuttke, “Characterization of protein-protein interactions critical for poliovirus replication: analysis of 3AB and VPg binding to the RNA-dependent RNA polymerase,” *J. Virol*., **2007**, 6369-6378.

32. J. R. Alford, S. Kwok, J. N. Roberts, D. S. Wuttke, B. S. Kendrick, J. F. Carpenter, T. W. Randolph, “Physical characterization of recombinant human Interleukin-1 receptor antagonist monomer-dimer equilibrium at high protein concentrations,” *J. Pharm. Sciences*, **2008**, *97*, 3035-50.

33. D. L. Theobald and D. S. Wuttke, “Accurate structural correlations from maximum likelihood superpositions,” *PLOS Comp. Biology*, **2008,** e43.

34. A. E. Eldridge and D. S. Wuttke, “The mechanism of recognition of ssDNA by the Cdc13-DBD,” *Nucleic Acid Res.,* **2008**, *36*, 1624-33.

35. J. E. Croy, J. L. Fast, N. E. Grimm, and D. S. Wuttke, “Thermodynamic characterization of specific single-stranded telomeric DNA binding to the *S. pombe*, Protection of telomeres 1 (POT1), protein, *Biochemistry,* **2008**, *47*, 4345-4358.

36. D. C. Zappulla, J. N. Roberts, K. Goodrich, T. R. Cech, and D. S. Wuttke, “Inhibition of yeast telomerase action by the telomeric ssDNA-binding protein, Cdc13p,” *Nucleic Acid Res.,* **2009**, *37*, 354-367.

37. J. E. Croy and D. S. Wuttke, “Insights into the dynamics of specific telomeric single-stranded DNA recognition by Pot1pN,” *J. Mol. Biol.,* **2009,** *387*, 935-938**.**

38. J. E. Croy, S. E. Altschuler, N. E. Grimm, and D. S. Wuttke, “Nonadditivity in the recognition of single-stranded DNA by the Schizosaccharomyces pombe protection of telomeres 1 DNA-binding domain, Pot1-DBD,” *Biochemistry,* **2009,** *48*, 6864-6875**.**

39. A. D. Gelinas, M. Paschini, F. E. Reyes, A. Héroux, R. T. Batey, V. Lundblad and D. S. Wuttke, “Telomere capping proteins are structurally related to RPA with an additional telomere-specific domain,” *Proc. Natl. Acad. Sci. USA,* **2009,** *106*, 19298-19303.

40. J. Lee, E. K. Mandell, T. Rao, D. S. Wuttke and V. Lundblad, “Investigating the role of the Est3 protein in yeast telomere replication,” *Nucleic Acids Res.*, **2010**, *38*, 2279-2290.

41. J. R. Alford, A. C. Fowler, D. S. Wuttke, B. A. Kerwin, R. F. Latypov, J. F. Carpenter, T. W. Randolph, “Effect of benzyl alcohol on recombinant human interleukin-1 receptor antagonist structure and hydrogen-deuterium exchange,” *J. Pharm. Sci.*, **2011**, *100*, 4215.

42. E. K. Mandell, A. D. Gelinas, D. S. Wuttke, V. Lundblad, “Sequence-specific binding to telomeric DNA is not a conserved property of the Cdc13 DNA binding domain,” *Biochemistry*, **2011**, *50,* 6289-91.

43. S. E. Altschuler, T. H. Dickey, and D. S. Wuttke, “*Schizosaccharomyces pombe* Protection of Telomeres 1 Utilizes Alternate Binding Modes To Accommodate Different Telomeric Sequences” *Biochemistry*, **2011**, *50*, 7503-15.

44. L. Jones Braun, A. M. Eldridge, J. Cummisky, K. Arthur, and Deborah S. Wuttke, “The Role of Adjuvant in Mediating Antigen Structure and Stability,” *J. Pharm. Sci.*, **2012**, *101*, 1391-9.

45. K. A. Lewis and D. S. Wuttke, “Telomerase and Telomere-Associated Proteins: Structural insights into mechanism and evolution,” *Structure*, **2012**, *20*, 28-39.

46. S. E. Altschuler, J. E. Croy, and D. S. Wuttke, “A Small Molecule Inhibitor of the *S. pombe* Pot1 binding to telomeric DNA,” *Biochemistry,* **2012***,* *51*, 7833-45.

47. T. H. Dickey, M. A. McKercher, and D. S. Wuttke, **“**Nonspecific Recognition Is Achieved in Pot1pC through the Use of Multiple Binding Modes,” *Structure*, **2013**, *21*, 121-32.

48. J. W. Lubin, T. Rao, E. K. Mandell, D. S. Wuttke and V. Lundblad, “Dissecting Protein Function: An Efficient Protocol for Identifying Separation-of-Function Mutations That Encode Structurally Stable Proteins.” *Genetics*, **2013**, *193*, 715-25.

49. S. E. Altschuler, K. A. Lewis, and D. S. Wuttke, “Practical Strategies for the Evaluation of High-Affinity Protein/Nucleic Acid Interactions,” *J. Nucleic Acids Investigation*, **2013**, *4*, e3.

50. T. H. Dickey, S. E. Altschuler and D. S. Wuttke, “Single-stranded DNA-binding Proteins: Multiple Domains for Multiple Functions,” invited review, *Structure,* **2013**, *21*, 1074-84.

51. K. A. Lewis, D. A. Pfaff, J. N. Earley, S. E. Altschuler, and D. S. Wuttke, “The Tenacious Recognition of Yeast Telomere Sequence by Cdc13 is Fully Exerted by a Single OB-Fold Domain,” *Nucleic Acids Res.*, **2014**, *42*, 475-84.

52. T. Rao, J. W. Lubin, G. S. Armstrong, T. M. Tucey, V. Lundblad, and D. S. Wuttke, “Structure of Est3 reveals a bimodal surface with differential roles in telomere replication,” *Proc. Natl. Acad. Sci. USA,* **2014**, *111*, 214-8.

53. T. H. Dickey and D. S. Wuttke*, "*The telomeric protein Pot1 from *Schizosaccharomyces pombe* binds ssDNA in two modes with differing 3' end availability," *Nucleic Acids Res.,* **2014**, *42,* 9656 – 65.

54. N. R. Lloyd and D. S. Wuttke*,* "Less is more: structures of difficult targets with minimal constraints," *Structure*, ***2014,*** *22, 1223-4.*

55. A. Pinzaru, R. A. Hom, A. Beal, A. F. Philips, E. Ni, T. Cardozo, N. Nair, J. Choi, D. S. Wuttke, A. Sfeir, and E. L. Denchi, "Telomere replication stress induced by POT1 inactivation is a novel tumor promoting mechanism," *Cell Rep.,* **2016*,*** *15*, 2170-84*.*

56. N. R. Lloyd and D. S. Wuttke, "Tying Up the Ends: Plasticity in the Recognition of ssDNA at Telomeres," *Biochemistry,* **2016,** *55*, 5326-40.

57. M. A. McKercher and D. S. Wuttke, "NMR Chemical Shift Mapping of SH2 Peptide Interactions," *Methods in Molecular Biology*, **2017,** *1555,* 269-290.

58. M. A. McKercher and D. S. Wuttke, "Calorimetric Measurement of SH2 Domain Ligand Affinities," *Methods in Molecular Biology,* **2017,** *1555,* 291-305.

59. M. A. McKercher, X. Guan, Z. Tan and D. S. Wuttke, "Multimodal Recognition of Diverse Peptides by the C-Terminal SH2 Domain of PLCγ1," *Biochemistry,* **2017***, 56, 2225 - 2237*.

60. R. A. Hom and D. S. Wuttke, "The preference of human CST for G-rich but not necessarily telomeric sequences," *Biochemistry*, **2017***, 56,* 4210 - 4218.

61. M. A. McKercher, X. Guan, Z. Tan and D. S. Wuttke, "Diversity in Peptide Recognition by the SH2 Domain of SH2B1," *Proteins,* **2018**, *86,* 164-176.

62. N. R. Lloyd and D. S. Wuttke, "Discrimination against RNA backbones by a ssDNA binding protein," **2017***, Structure,* **2018,** *26*, 722-733.

63. L. W. Glustrom, K. Lyon, V. Lundblad, and D. S. Wuttke, "A rheostat of specificity and affinity of the single-stranded DNA binding protein Cdc13 dictates function *in vivo*," *Proc. Natl. Acad. Sci. USA,* **2018,** *115*, 10315-10320.

64. K. A. Lewis, S. E. Altschuler, and D. S. Wuttke, "Measuring Low-Picomolar Apparent Binding Affinities by Minigel Electrophoretic Mobility Shift," *Methods in Molecular Biology*, **2019***,1855*, 341-354.

65. N. V. Parsonnet, N. C. Lammer, Z. E. Holmes, R. T. Batey*, and D. S. Wuttke*, "The glucocorticoid receptor DNA-binding domain recognizes RNA hairpin structures with high affinity," *co-corresponding authors, *Nucleic Acids Research*, **2019**, *47*, 8180-8192.

66. M. Y. Nakamoto‡, J. Rudolph‡, D. S. Wuttke, K. Luger, "Non-specific binding of RNA to PARP1 and PARP2 does not lead to catalytic activation," ‡co first authors, *Biochemistry,* **2019**, *58*, 5107-5111.

67. Z. E. Holmes, D. J. Hamilton, T. Hwang, N. P. Parsonnet, J. L. Rinn, D. S. Wuttke* and R. T. Batey*, "The Sox2 transcription factor binds RNA," *co-corresponding authors, *Nature Comm.*, **2020**, *11*, 1805.

68. C. J. Lim, A. T. Barbour, A. J. Zaug, A. E. McKay, D. S. Wuttke*, and T. R. Cech*, "The cryo-EM structure of human CST reveals a two-megadalton decameric assembly bound to telomeric DNA," *co-corresponding authors, *Science,* **2020**, *368,* 1081-1085*.*

69. A. C. Carter, J. Xu, M. Y. Nakamoto, J. P. Broughton, R. C. Ransom, A. Salhotra, S. D. Nagaraja, D. S. Wuttke and H. Chang "SPEN links RNA-mediated retrovirus silencing and X chromosome inactivation" *eLife,* **2020**, *e54508.*

70. M. Y. Nakamoto, N. C. Lammer, R. T. Batey,* D. S. Wuttke,* "hnRNP K recognition of the B motif of *Xist* and other biological RNAs," *co-corresponding authors, *Nucleic Acids Res.* **2020**, *48*, 9320-9335.

71. N. R. Lloyd and D. S. Wuttke, “Cyp33 binds AAY-rich motifs and longer RNAs with affinities capable of disrupting the gene repressive Cyp33-MLL1 interaction,” *PLOSone,* **2021**, (2):e0237956. doi: 10.1371/journal.pone.0237956.

72. M. Pashini, C. M. Reyes, A. E. Gillespie, E. K. Mandell, K. A. Lewis, L. W. Glustrom, T. O. Sharpee, D. S. Wuttke and V. Lundblad, “Replication fork collapse drives telomere homeostasis in wild type cells,” **2021***, posted on BioRxiv.*

73. A. J. Zaug, C. J. Lim, C. L. Olson, M. T. Carilli, K. J. Goodrich, D. S. Wuttke, T. R. Cech, “CST does not evict elongating telomerase but prevents initiation by ssDNA binding,” *Nucleic Acids Res.*, **2021,** *49*, 11653-11665*.*

74. D. J. Hamilton, A. E. Hein, Z. E. Holmes, D. S. Wuttke*, R. T. Batey*, “The DNA-binding High Mobility Group Box domain of Sox family proteins directly interacts with RNA *in vitro,” Biochemistry,* **2022**, *61*, 943-951.

75. C. L. Olson, A. T.Barbour, D. S. Wuttke,” Filling in the blanks: how the C-strand catches up to the G-strand at replicating telomeres using CST*” Nature Struct. Mol. Biol.,* **2022*,*** *8,* 730-733*.*

76. T. A. Wieser and D. S. Wuttke, “Replication Protein A utilizes differential engagement of it DBDs to bind biologically relevant ssDNAs in diverse binding modes*,” Biochemistry,* **2022**, *61*, 2592-2606.

77**.** H. R. Steiner, N. C. Lammer, R. T. Batey*, D. S. Wuttke*, “An extended DNA binding domain of the estrogen receptor alpha directly interacts with RNAs *in vitro,” Biochemistry,* **2022**, *61*, 2490-2494. Editor’s Featured Article.

78. D. J. Hamilton, A. E Hein, D. S. Wuttke* and R. T. Batey*,” The DNA-binding high mobility group box (HMGB) family functionally binds RNA,” *RNA Wires,* **2023**, http://doi.org/10.1002/wrna.1778.

79. C. L. Olson, A. T. Barbour, and D. S. Wuttke, “RPA engages telomeric G-quadruplexes more effectively than CST,” *Nucleic Acids Res.,* **2023**, *51*, 5073-5086*,* DOI: 10.1093/nar/gkad315 .

80. A. T. Barbour and D. S Wuttke, “RPA-like single-stranded DNA-binding protein complexes including CST serve as specialized processivity factors for polymerases,” *Current Opinion in Structural Biology,* **2023** doi: 10.1016/j.sbi.2023.102611*.*

81. N. C. Lammer, H. M. Ashraf, D. A. Ugay, S. L. Spencer, M. A. Allen, R. T. Batey* and D. S Wuttke*, “RNA binding by the glucocorticoid receptor attenuates dexamethasone-induced gene activation,” *Science Reports,* **2023**,*13*, 9385 doi: 10.1038/s41598-023-35549-y*.*

82. N. C. Lammer, M. A. Allen, R. T. Batey* and D. S Wuttke*, “Quantification of transcriptome changes to investigate the role of glucocorticoid receptor-RNA binding during dexamethasone treatment,” *BMC Research Notes*, **2023**, *16,* 181*.*

83. O. A. Kletzein, D. S. Wuttke* and R. T. Batey*, “The RNA-binding domain of hnRNP U extends beyond the RGG/RG motifs,” https://biorxiv.org/cgi/content/short/2023.09.20.558674v1 and *Biochemistry,* **2024**, *in press.*

Publications under review:

84. C. L. Olson and D. S. Wuttke DS., “Guardians of the genome: How the single-stranded DNA binding proteins RPA and CST facilitate telomere replication,” *Biomolecules,* **2024** invited review

Publications in preparation:

85. O. A. Kletzein, D. S. Wuttke* and R. T. Batey*, “Characterization of the RNA-binding selectivity of hnRNP U,” **2024,** *in preparation.*

86. T. A. Wieser, C. Mueller, D. S. Wuttke and V. Lundblad, “Cannonical RPA is an *in vivo* regulator of telomerase homeostasis in yeast,” *in preparation.*

87. Wayne and Halley paper, **2024**.

87. Daniella biochemistry paper, **2024**.

88. Conner RPA paper, **2024**.

89. Halley in vivo, Eikon paper

Invited Seminars

2022: Invited seminar, University of Colorado, Denver, April 2022
Invited seminar, University of Michigan, Ann Arbor, MI, November 2022
Invited seminar, University of Idaho, Boise, Idaho, November 2022
2020: Invited seminar, University of Colorado, Denver, April 2020 (postponed to 2022 due to COVID pandemic)
Invited seminar, Texas State University (diversity recruiting talk), November 2020
2019: Invited speaker, Nucleotides, Nucleosides and Oligonucleotides Gordon Conference, June 2019
2018: Invited speaker, UTSW, March 2018
Invited speaker, RNA Symposium University of Colorado, July 2018
2016: Invited speaker, University of Kentucky, April 2016
2015: Invited speaker, ACS Denver, March 2015
Invited speaker, ASMBMB, Boston, March 2015
Invited speaker, Bio-organic Gordon Conference, June 2015
2012: Invited seminar speaker, University of Iowa, December 2012
Speaker and Session Chair, FASEB Nucleic Acids Meeting, June 2012
Invited seminar speaker, SomaLogic, March 2012
2011: Invited seminar speaker, University of Wisconsin-Madison, November 2011
Invited seminar speaker, University of Denver, October 2011
Speaker and Session Chair, Telomeres and Telomerase, Cold Spring Harbor Meeting, May 2011
Invited seminar speaker, University of Montana, April 2011
2010: Speaker, FASEB Nucleic Acids Meeting, June 2010
Invited speaker, Pentasectional ACS meeting, Norman, OK, April 2010
2009: Invited seminar speaker, University of Nebraska, February 2009
2008: Invited seminar speaker, University of Cincinnati, February 2008
Speaker, International Conference on Magnetic Resonance in Biological Systems (August 2008)
Invited seminar speaker, Duke University, December 2008
2007: Invited seminar speaker, University of Colorado Health Sciences Center, December 2007
Invited seminar speaker, University of Kansas, October 2007
Invited seminar speaker, Colorado State University, October 2007
Speaker, Keystone Symposium, Frontiers of NMR in Molecular Biology X, January 6-11, 2007, Snowbird, Utah
2006: Invited seminar speaker, Michigan State University, October 2006
Invited seminar speaker, Vanderbilt University, June 2006
Invited seminar speaker, Texas A&M University, April 2006
Invited seminar speaker, UCHSC, March, 2006
2005: Invited seminar speaker, Sunesis Pharmaceuticals, South San Francisco, Dec. 2005
Invited to speak at Protein Society Meeting, July 2005, declined (maternity)
Speaker, Telomeres and Telomerase, Cold Spring Harbor Meeting, May 2005
Invited seminar speaker, University of San Diego, April 2005

Invited seminar speaker, University of Kansas Medical Center, February 2005
Invited seminar speaker, Wake Forest University, February 2005

2004: Invited seminar speaker, Ohio State University, October 2004
Invited seminar speaker, UT Southwestern Medical Center, December 2004

2003: Invited seminar speaker, Johns Hopkins University, November 2003
Speaker, Telomeres and Telomerase, Cold Spring Harbor Meeting, May 2003

2002: Invited seminar speaker, University of Rochester, September 2002
Invited seminar speaker, Syracuse University, September 2002
Speaker, XXth International Conference on Magnetic Resonance in Biological Systems, Toronto, Canada, August 25–30, 2002
Speaker, Beckman Young Investigator Symposium, Irvine, California, August 23–24, 2002
Invited seminar speaker, University of British Columbia, Vancouver, April 2002
Invited seminar speaker, University of Washington, April 2002
Invited seminar speaker, Hutchinson Cancer Center, April 2002
Invited seminar speaker, California Institute of Technology, March 2002
Invited seminar speaker, University of California Los Angeles, March 2002
Speaker, Keystone Meeting, Molecular Mechanisms of DNA Replication and Recombination, Snowmass, Utah, January 7–13, 2002

2001: Invited seminar speaker, University of Colorado Health Sciences Center, Dec., 2001
Invited seminar speaker, University of Utah, November 2001
Invited seminar speaker, Denver University, November 2001
Invited seminar speaker, University of Indiana, October 2001
Speaker, Proteins Gordon Conference, Holderness School, New Hampshire, June 24–29, 2001
Speaker, 12th Conversation in Biomolecular Stereodynamics, Albany, New York, June 12-23, 2001
Invited seminar speaker, University of California, San Francisco, May 2001
Invited seminar speaker, University of Colorado Health Sciences Center, May 2001

1998: Invited speaker, Sangamo Biosciences, January, 1998

1997: Invited seminar speaker, University of Rochester, November, 1997
Invited seminar speaker, Denver University, October, 1997
Invited seminar speaker, University of Colorado Health Sciences Center, September, 1997
Invited seminar speaker, University of Wyoming, January, 1997

1996: Invited seminar speaker, Colorado State University, October, 1996

1995: Invited seminar speaker, Texas A&M, February, 1995
Invited seminar speaker, University of Colorado, Boulder, February, 1995
Invited seminar speaker, University of Pittsburgh, February, 1995
Invited seminar speaker, University of Southern California, February 1995
Invited seminar speaker, University of Minnesota, February, 1995
Invited seminar speaker, Georgia Institute of Technology, January, 1995
Invited seminar speaker, Columbia College of Physicians and Surgeons, January, 1995
Invited seminar speaker, University of Utah, January, 1995

1993: Invited seminar speaker, Beckman Foundation Symposium on Chemical Biology

Grant Support

Current

NIH R01 Award GM
RPA and RPA-like Complexes at Telomeres
Total award: $1,208,000
Duration: 7/20 – 6/24
Role: PI

NIH R01 Award GM120347
RNA Regulation of Transcription Factor Activity
Total Request: $2,690,000
Duration: 9/21 – 6/25
Role: PI

Previous

NSF Award MCB-1716425
How Cyclophilins Both Regulate and are Regulated by RNA
Total Award: $800,000
Duration: 8/17 – 7/21 NCE 7/22
Role: PI

NIH R01 Award GM120347
lncRNAs as Organizers of and Bridges Between Proteins and DNA
Total Award: $1,487,000
Duration: 9/16 – 6/20, NCE 6/21
Role: coPI (joint with Robert Batey, UC Boulder)

NIH R01 Award GM
Single-Stranded DNA Recognition in Telomeres
Total award: $1,240,000
Duration: 9/12 – 9/16 (NCE to 9/18)
Role: PI

NSF Award
Plasticity in the Recognition of Flexible Ligands
Total award: $986,000
Duration: 8/11 – 7/16 (NCE to 7/17)
Role: PI

Supplement to NIH R01 Award
Single-Stranded DNA Recognition in Telomeres for purchase of x-ray instrumentation
Total award: $60,000
Duration: 2/15 – 9/16 (NCE to 9/17)
Role: PI

University of Colorado Innovation Award
Probing the RNA Universe: A new strategy to reveal novel protein/non-coding RNA interactions
Total award: $ 48,000
Duration: 7/13 – 6/14
Role: PI

NSF Award

Understanding the Physical Mechanism of Telomere End-Capping
Total award: $629,000
Duration: 10/06 – 9/12
Role: PI

NIH RFA
Purchase of a 900 MHz NMR Spectrometer
Total award: $6,500,000
Duration: 7/03 – 4/12
Role: PI

Butcher Fellow
Structure-function analysis of N-terminal actin binding domain of dystrophin
Total Award: $85,000
Role: co-PI (with Professor Krishna Mallela, Dept. of Pharmaceutical Sciences, UCDHSC)

NIH Instrumentation Award
Purchase of CD Spectropolarimeter
Total Award: $198,000
Duration: 4/15/10 – 4/14/11

NIH R01 Award (ARRA Funding)
Single-Stranded DNA Recognition in Telomeres
Total award: $600,000
Duration: 9/09 – 9/12
Role: PI

NIH R01 Award
Single-Stranded DNA Recognition in Telomeres
Total award: $805,761
Duration: 7/04 – 9/09
Role: PI

NIH R21 Award
Development of a HTS Assay Targeting End Protection of Telomeres
Total award: $190,000
Duration: 3/07 – 2/09
Role: PI

NIST Seed Grant
High Sensitivity Nanowire Sensors for Biomolecular Detection
Total Award: $25,000
Duration: 8/07 – 8/08
Role: co-PI (with Kris Bertness, NIST)

American Cancer Society Institutional Research Grants
University of Colorado Cancer Center Seed Money/Fellowship Grants
KEOPS: A new conserved complex involved in transcription and telomere regulation
Duration: 7/08 - 6/09
$45,000 (including a $20,000 supplement)

University of Colorado Innovation Award
Total award: $41,000
Duration: 7/07 – 6/08

Role: PI

American Cancer Society Institutional Research Grants
University of Colorado Cancer Center Seed Money/Fellowship Grants
Understanding Chromosomal Stability through the Mechanism of Telomere End Capping
2/06 - 8/07
$35,000 (including a $10,000 supplement)

Butcher Fellow
Towards the Rational Development of More Efficient Vaccines
Total Award: $85,000
Role: co-PI (with Professor LaToya Jones, Dept. of Pharmaceutical Sciences, UCDHSC)

Butcher Fellow
Screening for Therapeutic and Environmental Ligand Binding to the Estrogen Receptor
Total Award: $85,000
Role: co-PI (with Professor Ted Randolph in Chemical Engineering)

Keck Award
Protein/RNA Interactions at the Telomere
Total Award: $15,000
Role: PI (administered by CU Boulder)

NSF Career Development Award
Structural and Biophysical Studies of Essential Viral Proteins
Total award: $352,178
Duration: 3/99 – 10/05
Role: PI

NIH R01 Award
Single-Stranded DNA Recognition in Telomeres
Total award: $805,761
Duration: 6/99 – 5/04

Beckman Young Investigator Award
Obtaining Improved High-Resolution Structural Information of Proteins and Protein Complexes using Limited Magnetic Alignment with NMR Spectroscopy
Total award: $200,000
Duration: 10/99 – 9/03

Department of Defense Breast Cancer Research Program Idea Award
Breast Cancer Therapeutics, Environmental Estrogens and the Estrogen Receptor (ER): Characterization of the Diverse Ligand-Binding Properties of the ER
Total award: $209,855
Duration: 8/99 – 7/03

Research Corporation Young Investigator Award
Protein Fragment Complexation as a New Approach for the Design of Structurally Well-Defined Proteins with Enhanced Functionality
Total award: $35,000
Duration: 12/97 - 12/00

American Cancer Society
Biochemical and Biophysical Studies of Single-Stranded DNA Recognition in Telomeres

Total award: $342,000
Duration: 1/99 – 12/01. This award was returned after 3 months of support due to overlap with the NIH award.

Grant-in-Aid, University of Colorado
Biochemical and Structural Studies of Molecular Recognition in Poliovirus
Total award: $7,000
Duration: 3/98 – 2/99

Colorado RNA Center
Molecular Recognition of RNA by the Double-Stranded RNA-Binding Domain
Total award: $50,000
Duration: 7/1/97 – 6/30/99 (competitive renewal for second year)

The Petroleum Research Fund, Type G Proposal
Thermodynamic and Structual Studies of Hydrophobic Protein Cores Created by Rational and Combinatorial Techniques
Total Award: $20,000
Duration: 9/1/97 - 8/31/98

University of Colorado Junior Faculty Development Award, Council on Research and Creative Work
Towards a Molecular Level Understanding of Cancer
Total Award: $5,000
Duration: 6/1/97 - 8/31/97

Dean's Award for Computational Resources for Teaching, University of Colorado
Total Award: $7,000

NSF Chemistry/Special Projects
Time-Resolved NMR Folding Studies of Ribonuclease A using Site-Specifically Labeled Protein
Total Award: $40,000
Duration: 6/1/97 – 5/30/98

Shared Instrumentation Grants

The first three grants represent funding for an 800 MHz NMR spectrometer for a consortium of three institutions in the Rocky Mountain region: University of Colorado, Boulder, University of Colorado Health Sciences Center and the University of Utah Medical School. Profs. Arthur Pardi and Deborah Wuttke are the primary contributors from the University of Colorado, Boulder.

NIH RFA
Purchase of a 900 MHz NMR Spectrometer
Total award: $6,500,000
Duration: 7/03 – 4/12
Role: PI

NIH NCRR Shared Instrumentation Grant (Prof. Arthur Pardi, PI)
Purchase of 800 MHz NMR Spectrometer
Total Award: $500,000

NSF Division of Biological Infrastructure Instrumentation and Instrument Development Program (Prof. Arthur Pardi, PI, Prof. Deborah S. Wuttke Co-PI)
Purchase of 800 MHz NMR Spectrometer
Total Award: $400,000

W. M. Keck Foundation Award (Prof. Robert Hodges, PI, UCHSC)
W. M. Keck Advanced High Field NMR Center
Total award: $700,000

W. M. Keck Foundation Award (Prof. Thomas Cech, PI)
Program in Molecular and Cellular Structure
Total award: $1,000,000
Duration: 07/01/99-6/30/01

NIH NCRR Shared Instrumentation Grant (Prof. Arthur Pardi, PI)
Purchase of a 600 MHz NMR and Upgrade of NMR Facilities
Total Award: $400,000
Duration: 6/15/97 - 6/14/98

NSF Division of Biological Infrastructure Instrumentation and Instrument Development Program (Prof. Arthur Pardi, PI)
600 MHz NMR Spectrometer for Structure Determination of Proteins and RNA
Total Award: $400,000
Duration: 4/1/97 – 3/31/99

NSF Chemistry Research Instrumentation and Facilities Program (Prof. Deborah Wuttke, PI)
Purchase of Instrumentation for Peptide Synthesis and Purification
Total award: $55,000
Duration: 2/1/97 – 1/31/98

Research Group Members

Graduate Students

Deanna Dahlke Ojennus (1996 – 2001, Ph.D., Chemistry and Biochemistry, 2001)
Current: Professor and Chair of Chemistry, Whitworth University, Spokane, WA

Wendy A. Bishop (1996 – 1998, M.S., Chemistry and Biochemistry, 1998)
Current: Practicing physician

Emily M. Anderson (1997 - 2002, Ph.D., Chemistry and Biochemistry, 2002)
Breast Cancer Research Fellow
Current: Research Scientist, Dharmacon RNA Technologies, now ThermoFisher Scientific, Lafayette, CO

Dana E. Warn (1997 – 2000, M.S., Chemistry and Biochemistry, 2000), *EPA STAR Fellow*
Current: Environmental Scientist for the EPA, Seattle, WA

Rachel M. Mitton-Fry (1998 - 2002, Ph.D., Chemistry and Biochemistry, 2002)
HHMI Predoctoral Fellow
Current: Associate Professor of Chemistry, Denison University

Daniel M. Strauss (2000 – 2005, Ph.D., Chemistry and Biochemistry, 2005)
Current: Senior Scientist, Asahi Kasei Bioprocess, Chicago, IL

Elizabeth V. Clarke (2004 – 2005, M.S., Chemistry and Biochemistry, 2005)
Current: Immunology postdoc, Seattle, Washington

Nicole Grimm (2006 – 2008 M.S., Chemistry and Biochemistry, 2008)
Current: IP Lawyer, Associate with McDonnell Boehnen Hulbert & Berghoff LLP.

Jennifer N. Roberts (Earley) (2002 - 2008, PhD., Biochemistry, 2008)
Current: Senior Advisor, Eli Lily Corporation, Indianapolis, IN

Amy D. Gelinas (2003 - 2009, PhD., Biochemistry, 2009)
Current: Scientist, SomaLogic, Boulder, CO

Sarah E. Altschuler (2004 - 2011 Ph.D., Biochemistry)
NSRA Postdoctoral Fellow, University of Utah, Brenda Bass PI
Current: Science librarian, Summit School district

Timsi Rao (2005 – 2012 Ph. D., MCDB)
Postdoctoral Fellow, Yale School of Medicine, Patrick Sung PI, Current: Senior Scientist, Ring Therapeutics, Cambridge MA
Thayne H. Dickey (2007 – 2014 Ph.D., Biochemistry)
NSRA Postdoctoral Fellow, Yale University, Anna Pyle PI
Current: Research scientist at NIAID, structural vaccinology
Danielle Pfaff (2011 - 2014, Chemistry and Biochemistry program)
Current: Entrepreneur, Victoria, BC, Canada
Marissa McKercher (2012 – 2017, Ph.D., Biochemistry)
Current: Scientist, Elion Pharmaceuticals, now KBI Biopharma, Boulder CO)
Neil Lloyd (2013 – 2018, Ph. D., Biochemistry, continued as Postdoctoral Fellow until March 2019)
Current: Scientist, Elion Pharmaceuticals, now KBI Biopharma)
Nicholas Parsonnet (2013 – 2018, Ph. D., Biochemistry, Continued as Postdoctoral Fellow until March 2019), Current: Scientist at GenerationBio, Cambridge MA)
Meagan Nakamoto (2015 – 2019, Ph. D., Biochemistry, Continued as Postdoctoral Fellow until January 2020), Current: Scientist at Loxo, Boulder CO)
Alexandra Barbour (2018 – 2022, Ph.D., Biochemistry, Current: Scientist at Loxo, Boulder CO)
Nickolaus Lammer (2018 – 2023, Ph.D., Biochemistry, Scientist at Artisan Biosciences, Boulder CO)
Thomas Wieser (2019 – 2023, Ph.D., Biochemistry, Continuing as Postdoctoral Fellow into 2023)
Conner Olson (2020 – present, Current Ph.D. student, Biochemistry)
Halley Steiner (2021 – present, Current Ph.D. student, MCDB)
Daniella Ugay (2022 – present, Current Ph.D. student Biochemistry)
Angie Liu, co-advised with Rob Batey (2023 – present, Current Ph.D. student Biochemistry)

Postdoctoral Fellows

Douglas L. Theobald (2001 – 2006) Ph.D. CU Boulder
Current: Associate Prof. Biochemistry, Brandeis University
Aimee M. Eldridge (2002 – 2007) Ph.D. University of Oregon
Current: Instructor of Chemistry/Biochemistry, Bowdoin College
Johnny Croy (2003 – 2009) Ph.D. U. California San Diego
Current: Senior Research Advisor, Eli Lilly Corporation, Indianapolis, IN
Jonas Fast (2004 – 2007) Ph.D. University of Lund,
Current: Senior Scientist, Roche Corporation, Basel, Switzerland
Karen Lewis (2009 – 2014) Ph.D. UTSW
Current: Assistant Professor Texas State University, San Marcos
Amy Gelinas (2010) Ph.D. University of Colorado Boulder
Current: Scientist II, SomaLogic, Director, Caris Life Sciences, Boulder, CO
Sarah Altschuler (2011 – 2012), Ph.D. University of Colorado, Boulder
NSRA Postdoctoral Fellow, University of Utah, Brenda Bass PI
Current: Science writer, librarian
Thayne Dickey (2014), Ph. D., University of Colorado, Boulder
NSRA Postdoctoral Fellow, Yale University, Anna Pyle PI, Research scientist at NIAID, structural vaccinology
Robert Hom (2010-2017), Ph.D., UCHSC, Scientist, Cytoskeleton
Neil Lloyd (2018-2019), Ph.D., University of Colorado, Boulder, Scientist KBI Biopharma
Nicholas Parsonnet (2018-2019), Ph.D., University of Colorado, Boulder

Undergraduate Students

Jeffery M. Osoba (1997)
Jonathan K. Bleyhl (1997 - 1999)
Corey R. Mandel (1997 - 2001)
Carrie D. Swartz (1998)
Mark R. Fleissner (1999)
John Dietz Fry (1999 - 2000)
Long N. Hoang (1999 - 2001)
Brian Kelly (2000 - 2001)
Janelle K. Kawamoto (2000 - 2001)
Beth M. Hovey (2000 – 2001)

Thorsten A. Schäfer (1999)
Sarah E. Lehto (1999 – 2001)
Andrea E. Wismann (1999 - 2001)
Laura K. Figoski (2003 – 2005)
Carrie Wang (2005 – 2007)
Rieko Kato (2009 – 2011)
Rita le Tat (2014 – 2016)
Torey Averick (2016 – 2018)
Stephen Armour (2022)
Elizabeth Fry (2001)
Karen Meyer-Arendt (2001)
Bryn Weaver (2002 – 2004)
Irene Dreith (2004 – 2005)
Kelsey Chow (2007 – 2008)
Luke Bivikov (2010-2011)
Canessa Swanson (2015)
Maria Carilli (2019 – 2021)
Jacqueline Pankraz (2023)

Professional Research Assistants

Leslie W. Glustrom (1996 – 2004, 2014 - 2019)
Wayne A. Halsey (1999 – 2004)
Mark R. Fleissner (2000)
Sarah E. Lehto (2001 – 2002)
Andrew Garst (Summer 2006)
Geoffrey Armstrong (2005 – 2015)
Sabrina Hunt (Summer 2011)
Neil Lloyd (Summer 2012)
Kenneth Lyon (August 2012 – 2014)
Patrick Thomas (Summer 2015)

Professional Affiliations

Member: American Chemical Society (1988 – present)
Member: University of Colorado Cancer Center (2005 – present)

Teaching Activities

Classroom Teaching

Fall 1996 Advanced General Biochemistry I (Chem 5771), 6 credits, taught 45 hrs
Fall 1997 Advanced General Biochemistry I (Chem 5771), 6 credits, taught 45 hrs
Fall 1997 Biochemistry Seminar (Chem 6601), 1 credit
Fall 1998 Physical Chemistry with Biological Applications (Chem 4411), 3 credits, taught 45 hours
Fall 1998 Biochemistry Seminar (Chem 6601), 1 credit
Spring 1999 Advances in Molecular Biophysics (Chem 5661), 3 credits, taught 6 hours
Fall 1999 Physical Chemistry with Biological Applications (Chem 4411), 3 credits, taught 45 hours
During the several years I taught this class, I redeveloped the curriculum to better focus on development of critical thinking skills and emphasize the relevance of the material with salient biochemical examples.
Spring 2000 Physical Chemistry of Macromolecules (Chem 5561), 3 credits, taught 6 hours
Fall 2000 Physical Chemistry with Biological Applications (Chem 4411), 3 credits, taught 45 hours
Spring 2002 Advances in Molecular Biophysics (Chem 5661), 3 credits, taught 9 hours and organized class
Spring 2003 Honors General Chemistry 2 (Chem 1171), 6 credit course with laboratory
Fall 2003 Advanced General Biochemistry I (Chem 5771), 6 credits, taught 45 hrs
Fall 2004 Contributed lectures to Physical Chemistry of Macromolecules (Chem. 5561), 3 credits, taught 3 hours
(Fall 2004/Spring 2005: Sabbatical Leave)
Fall 2005 Chemistry 6901
Spring 2006 Chemistry 6901
Fall 2006 Chemistry 6901
Fall 2006 Contributed lectures to Physical Chemistry of Macromolecules (Chem. 5561), 3 credits, taught 4.5 hours
Spring 2007 Chemistry 6901
Spring 2007 Chemistry 1171 Honors General Chemistry, 5 credits, taught 45 hours and laboratory

This course was part of the SEI initiation at CU. Over the next several years, I worked to revamp the course organized around learning goals, interactive clicker questions and small group breakout exercises.

Fall 2007 Chemistry 6901
Spring 2008 Chemistry 6901
Spring 2008 Chemistry 1171 Honors General Chemistry, 5 credits, taught 45 hours and laboratory
Fall 2008 Chemistry 6901
Spring 2009 Chemistry 6901
Spring 2009 Chemistry 1171 Honors General Chemistry, 5 credits, taught 45 hours and laboratory
Fall 2009 Chemistry 6901 (with Rob Batey, Graduate Advisor)
Fall 2010 Contributed 2 lectures, homework and midterm to Methods in Molecular Biophysics (Chem 5551)
Spring 2011 Advanced General Biochemistry I (Chem 5771), 6 credits, taught 45 hrs
Fall 2012 Physical Chemistry with Biological Applications (Chem 4411/5411), 3 credits, taught 45 hrs
(Spring 2013/Fall 2013: Sabbatical Leave/College Scholar Award)
Spring 2014 Advanced General Biochemistry I (Chem 5771), 5 credits, taught 22.5 hrs
Fall 2014 Contributed 2 lectures, homework and midterm to Methods in Molecular Biophysics (Chem 5561)
Fall 2014 Developing new 1-semester Pchem course for Biochemistry majors, CHEM4400, Core Concepts in Physical Chemistry with Applications to Biochemistry, to replace the 1 semester series. I have developed a new syllabus and am designing new materials to focus on student-centered learning. Course syllabus, text book selection and course approval process completed in 2014
Spring 2015 Advanced General Biochemistry I (Chem 5771), 6 credits, taught 22.5 hrs
Spring 2015 Continued development of materials for CHEM4400
Fall 2015 Core Concepts in Physical Chemistry with Applications to Biochemistry, developed and taught class for the first time, 4 credits (including recitation)
Fall 2016 Core Concepts in Physical Chemistry with Applications to Biochemistry, 4 credits (including recitation)
Spring 2018 Core Concepts in Physical Chemistry with Applications to Biochemistry, 4 credits (including recitation)
Spring 2019 Advanced General Biochemistry II (BCHM 5781), 5 credits, taught 22.5 hrs
(Spring 2020: Sabbatical Leave)
Spring 2021 Advanced General Biochemistry II (BCHM 5781), 5 credits, taught 22.5 hrs
Fall 2021 Contributed support to Advanced General Biochemistry I (BCHM 5771) through research proposal mentoring
Spring 2022 Coordinated Advanced Topics in Signal Transduction and Cellular Regulation (BCHM 5801)
Spring 2022 Contributed support to Advanced General Biochemistry II (BCHM 5781) through research proposal mentoring
Spring 2023 Advanced General Biochemistry II (BCHM 5781), 5 credits, taught 22.5 hrs
Fall 2023 Fundamentals of Biochemistry I (BCHM 5770), 3 credits, developed as new course.
Spring 2023 Biophysics Seminar class

Bioinformatics Teaching

One important focus of my teaching contribution to the undergraduate and graduate program has been to introduce the emerging area of bioinformatics into the biochemistry curriculum.

2001 - 2004: Expanded the Independent Study Program for development of a bioinformatics web site.
2000: Implemented Bioinformatics Web Site at CU with Independent Study students.
1999: Received CAREER Award from NSF with teaching component dedicated to bioinformatics.
1997: Grant for a graphics workstation for teaching graduate and undergraduate biochemistry obtained from the Associate Dean of the College of Arts and Sciences.

Non-classroom Teaching (Graduate Students)

Principal Dissertation/Thesis Advisor for graduate students

Deanna Dahlke Ojennus (1996 – 2001; Ph.D, 2001)
Emily M. Anderson (1997 – 2002; Ph.D., 2002)
Dana E. Warn (1997 – 2000, M.S., 2000)
Rachel M. Mitton-Fry (1998 – 2002; Ph.D., 2002)
Wendy A. Bishop (1996 – 1998; M.S., 1998)
Elizabeth Clarke (2004 – 2005; M.S., 2005)
Daniel M. Strauss (2000 – 2005; Ph.D., 2005)
Jennifer N. Roberts (2003 – 2008; Ph.D. 2008)
Amy D. Gelinas (2004 – 2009)
Sarah E. Altschuler (2006 – 2011; Ph. D. 2011)
Nicole Grimm (2007 – 2008; M.S. 2008)
Timsi Rao (MCDB) (2007 – 2012; Ph. D. 2012)
Thayne H. Dickey (2009 – 2014, Ph. D. 2014)
Danielle Pfaff (2011 – 2014)
Marissa McKercher (2012 – 2017, Ph. D. 2017)
Neil Lloyd (2013 – 2018, Ph. D. 2018)
Nicholas Parsonnet (2013 – 2018, Ph. D. 2019)
Meagan Nakamoto (2015 – 2019, Ph. D. 2019)
Alexandra Barbour (2018 – 2022, Ph. D. 2023)
Nickolaus Lammer (2018 – 2023, Ph. D. 2023)
Thomas Wieser (2019 – 2023)
Conner Olson (2020 – present)
Halley Steiner (2021 – present)
Daniella Ugay (2022 – present)
Angie Liu (2023 – present)

Member of Graduate Dissertation/Thesis Committee (other than principal advisor)

1997 Jody Ryter, Ph.D., Tracy Stage, Ph.D., Grant Zimmermann, Ph.D.
1998 Darla McCarthy, Ph.D., Dylan Taatjes, Ph.D., Scott Butler, Ph. D
2000 Gunter Engling, M. S., Christopher Sillence, M. S., Patrick Shiflett, M. S., Jennifer Enmon, Ph.D.
2001 Jamie Sperger, Ph.D., Fred LaRiviere, Ph.D.
2002 Karl Kossen, Ph.D., Andrew Hoofnagle, Ph.D., Heather Brummel, Ph.D.
2003 Anita Seto, Ph.D., Gwen Murphy, Ph.D., Annaleen Vermeulen, Ph.D., Joshua Bornhorst, Ph.D., Gennyne Walker, Ph.D., Stephan Aigner, Ph.D., Christina Yamuda, Ph.D., Camille Diges, Ph.D.
2004 Matt Seefeldt, Ph. D, (Chemical Engineering), Thomas Lee, Ph.D., Nathan Malmberg, Ph.D. (not at actual defense).
2005 Taraka Dale, Ph.D.
2006 Lee Sanderson, Ph.D.
2007 Jennifer Boots, Ph.D., Katrina Eike, M. S., Ricardo Stephen, Ph. D.
2008 Daniel Cash, M.S., Michael Latham, Ph.D., Rebecca Montange, Ph.D., David Wren, M.S.
2009 Krista Meyer, Ph.D., Branden Salinas, Ph.D. (Chemical and Biological Engineering), Chrysa Latrick, Ph.D. (Chemistry and Biochemistry), Ryan Crisman, Ph.D. (Chemical Engineering), Kyle Landgraf, Ph.D. (Chemistry and Biochemistry), Jared Bee, Ph.D. (Chemical Engineering)
2010 Andrea Edwards, candidate for Ph.D., Lisa Warner, candidate for Ph.D., Andrew Garst, candidate for Ph.D., Phil Dittmer, candidate for Ph.D., Kevin Sours, candidate for Ph. D., Leslie Morton, candidate for Ph.D., Mohamed Seyam, candidate for Ph.D Chemical and Biological Engineering, Alana Portaro, candidate for Ph.D Chemical and Biological Engineering, Laura Johnson, candidate for Ph.D.(Biochemistry)

2011 Andrea Edwards, Ph.D. (Biochemistry), Lisa Warner, Ph.D. (Biochemistry), Andrew Garst, candidate for Ph.D., Kevin Sours, Ph.D. (Biochemistry), Leslie Morton, candidate for Ph.D. (Biochemistry), Laura Johnson, candidate for Ph.D. (Biochemistry), Zach Poss, candidate for Ph.D. (Biochemistry), Mohamed Seyam, candidate for Ph.D Chemical and Biological Engineering, Alana Portaro, candidate for Ph.D Chemical and Biological Engineering.

2012 Leslie Morton, candidate for Ph.D. (Biochemistry), Laura Johnson, candidate for Ph.D. (Biochemistry), Zach Poss, candidate for Ph.D. (Biochemistry), Ely Porter, candidate for Ph.D. (Biochemistry), Andrew Dalby, candidate for Ph.D. (Biochemistry), Carol Manhardt, candidate for Ph.D. (Biochemistry), Alana Portaro, candidate for Ph.D Chemical and Biological Engineering.

2013 Leslie Morton, candidate for Ph.D. (Biochemistry), Laura Johnson, Ph.D. 2013 (Biochemistry), Zach Poss, candidate for Ph.D. (Biochemistry), Ely Porter, candidate for Ph.D. (Biochemistry), Andrew Dalby, candidate for Ph.D. (Biochemistry), Alana Portaro (Gerhardt), candidate for Ph.D (Chemical and Biological Engineering).

2014 Joanna Brown, candidate for Ph. D. (Biochemistry, defense May, 2014), Erik Norwald, candidate for Ph. D. (Chemical and Biological Engineering), Alana Portaro (Gerhardt), Ph.D (Chemical and Biological Engineering) January, 2014, Zach Poss, candidate for Ph.D. (Biochemistry), Ely Porter, candidate for Ph.D. (Biochemistry), Andrew Dalby, Ph.D. (Biochemistry, defense Nov., 2014), Alexis Zukowski, candidate for Ph. D., Dept. of Molecular Biology, University of Colorado, Denver, School of Medicine, Bagdeser Akdogan, candidate for Ph. D. MCDB (Robert Batey, Thesis Advisor)

2015 Erik Norwald, candidate for Ph. D. (Chemical and Biological Engineering), Zach Poss, candidate for Ph.D. (Biochemistry) defended June 2016, Ely Porter, candidate for Ph.D. (Biochemistry) defended March 2015, Alexis Zukowski, candidate for Ph. D., Dept. of Molecular Biology, University of Colorado, Denver, School of Medicine, Bagdeser Akdogan, candidate for Ph. D. MCDB (Robert Batey, Thesis Advisor), Alex Hopkins, candidate for Ph. D. (Biochemistry), Joe Cardiello, candidate for Ph. D. (Biochemistry), Jen Liddle, candidate for Ph. D. (Biochemistry), surrogate advisor for Kathryn Wall, candidate for Ph. D. (Biochemistry) and IQ Biology program

2016 Alexis Zukowski, candidate for Ph. D., Dept. of Molecular Biology, University of Colorado, Denver, School of Medicine, Bagdeser Akdogan, candidate for Ph. D. MCDB (Robert Batey, Thesis Advisor), Alex Hopkins, candidate for Ph. D. (Biochemistry), Joe Cardiello, candidate for Ph. D. (Biochemistry), Jen Liddle, candidate for Ph. D. (Biochemistry), surrogate advisor for Kathryn Wall, candidate for Ph. D. (Biochemistry) and IQ Biology program, George Hayden Swisher, candidate for Ph. D. (Biochemistry), Sabrina Hunt, candidate for Ph. D. (Biochemistry).

2017 Alexis Zukowski, candidate for Ph. D., Dept. of Molecular Biology, University of Colorado, Denver, School of Medicine, Bagdeser Akdogan, candidate for Ph. D. MCDB (Robert Batey, Thesis Advisor, defense summer 2017), Alex Hopkins, candidate for Ph. D. (Biochemistry) defense May 2017, Joe Cardiello, candidate for Ph. D. (Biochemistry), Jen Liddle, candidate for Ph. D. (Biochemistry) defense March 2017, surrogate advisor for Kathryn Wall, candidate for Ph. D. (Biochemistry) and IQ Biology program, George Hayden Swisher, candidate for Ph. D. (Biochemistry), Sabrina Hunt, candidate for Ph. D. (Biochemistry) defense May 2017, Zac Holmes, candidate for Ph. D. (Biochemistry), Arden Doeher, candidate for Ph.D. (Biochemistry), Sarah Dickerson, candidate for Ph. D., Biochemistry, defended Nov. 2017, Member of Ph. D. Committee, Michael Hjortness, candidate in Chemical and Biological engineering, Member of Ph. D. Committee, Ryan Smyth, candidate in Chemical and Biological engineering

2018 Alexis Zukowski, candidate for Ph. D., Dept. of Molecular Biology, University of Colorado, Denver, School of Medicine, defense April 2018, Joe Cardiello, candidate for Ph. D. (Biochemistry) defense August 2018, surrogate advisor for Kathryn Wall, candidate for Ph. D. (Biochemistry) and IQ Biology program, defense November 2018, George Hayden Swisher, candidate for Ph. D. (Biochemistry), Zachariah Holmes, candidate for Ph. D. (Biochemistry) defense November 2018, Arden Doeher, candidate for Ph.D. (Biochemistry),

defended 2018, Stephen Okoniewski, candidate for Ph. D. (Physics), Member of Ph. D. Committee, Michael Hjortness, candidate in Chemical and Biological engineering, Member of Ph. D. Committee, Ryan Smyth, M.S, candidate in Chemical and Biological engineering, Member of Ph. D. Committee, Dylan Iverson, candidate in Biochemistry, Member of Ph. D. Committee, Patrick Thomas, candidate in Biochemistry

2019 Member of Ph. D. Committees: George Hayden Swisher, candidate for Ph. D. in Biochemistry, Dylan Iverson, candidate for Ph. D. in Biochemistry, Patrick Thomas, candidate for Ph. D. in Biochemistry, Stephen Okoniewski, candidate for Ph. D. in Physics, Michael Hjortness, candidate in Chemical and Biological Engineering, Otto Kletzein, candidate for Ph. D. in Biochemistry, Garrett Edwards, candidate for Ph. D. in Biochemistry

2020 Member of Ph. D. Committees: George Hayden Swisher, candidate for Ph. D. in Biochemistry, defended, August 2020, Dylan Iverson, candidate for Ph. D. in Biochemistry, Patrick Thomas, candidate for Ph. D. in Biochemistry, Defended Dec. 2020, Stephen Okoniewski, Ph. D. in Physics defended April, 2020, Michael Hjortness, candidate in Chemical and Biological Engineering, Otto Kletzein, candidate for Ph. D. in Biochemistry, Garrett Edwards, candidate for Ph. D. in Biochemistry, defended in June, 2020; Devin Tauber, candidate for Ph. D. in Biochemistry, defended July, 2020.

2021 Dylan Iverson, candidate for Ph. D. in Biochemistry, Otto Kletzein, candidate for Ph. D. in Biochemistry, Leah Damon, candidate for Ph.D. in Biochemistry, Savannah Spradlin, candidate for Ph.D. in Biochemistry, Alya Hussein, candidate for Ph.D. at CU Anschutz

2022 Dylan Iverson, candidate for Ph. D. in Biochemistry, defended Jan. 2022; Otto Kletzein, candidate for Ph. D. in Biochemistry, defended Jan. 2022; Leah Damon, candidate for Ph.D. in Biochemistry, defended May. 2022; Savannah Spradlin, candidate for Ph.D. in Biochemistry; Alya Hussein, candidate for Ph.D. at CU Anschutz; Whitney Bergman, candidate for Ph.D. in Biochemistry; Erin Taylor, candidate for Ph.D. in MCDB, Bruce Proctor III, candidate for Ph.D. in MCDB, James Pratt, candidate for Ph.D. in Biochemistry, Allison Peeney, candidate for Ph. D. in Biology, Lehigh University (external member)

2023 Savannah Spradlin, candidate for Ph.D. in Biochemistry; Whitney Bergman, candidate for Ph.D. in Biochemistry; Erin Taylor, candidate for Ph.D. in MCDB, Bruce Proctor III, candidate for Ph.D. in MCDB, James Pratt, candidate for Ph.D. in Biochemistry, Allison Peeney, candidate for Ph. D. in Biology, Lehigh University (external member, David Zappulla advisor), Amy Conte, candidate for Ph.D. in Biochemistry, Nate Hamel, candidate for Ph. D. in Biochemistry, Logan McCoy, candidate for Ph. D. in Biochemistry, Sashi Weerawarana, candidate for Ph. D. in Biochemistry, Liyi Cheng, candidate for Ph. D. in Biochemistry

Rotation Advisor for Graduate Students (Biochemistry unless otherwise indicated)

AY 1996/1997: Emily Anderson, Gary Kleiger, William Wagner, Dana Warn
AY 1997/1998: Gwen Murphy, Rachel Fry, Nate Malmberg, Stephan Aigner, Joshua Bornhorst
AY 1998/1999: Scott Lyman (Chemical and Biological Engineering)
AY 1999/2000: Daniel Strauss, Tommy Lee
AY 2000/2001: Jennifer Boots, Aaron Heib, Aaron Miller
AY 2001/2002: Kristen Bjorkman, Ricardo Stephan, Michael Townsend, Renee Lagutaris
AY 2002/2003: Jennifer Roberts, Lihua Ding, Liang Guo
AY 2003/2004: Amy Gelinas, Krista Wenberg, Daniel Cash, Elizabeth Clarke, Michael Latham
AY 2004/2005: Kyle Landgraf
AY 2005/2006: Sarah Altschuler, Janet McCombs, David Wren
AY 2006/2007: Nicole Grimm, Andrew Libby, Cristina Sandoval, Timsi Rao (MCDB)
AY 2007/2008: Jamee Bresee, Michelle Turco
AY 2008/2009: Leslie Morton, Thayne Dickey
AY 2009/2010: Ely Porter, Joanna Duncan
AY 2010/2011: Danielle Pfaff, Alexandra Young, Jake Polaski
AY 2011/2012: Eric Bunker, Leighanna Hinojosa, Marissa McKercher, Sabrina Hunt
AY 2012/2013: Neil Lloyd, Marie Balboa, Nicholas Parsonnet, Arden Doerner, Joe Cardiello

AY 2013/2014: Zachariah Holmes
AY 2014/2015: Meagan Nakamoto, Brooke Danaher, Garrett Edwards, Patrick Thomas (summer)
AY 2015/2016: Graycen Wheeler, Thomas Harper
AY 2016/2017: Devin Tauber, Jonathan Markert, Otto Kletzein
AY 2017/2018: Jeffre Allen, Allison Schier, Alexandra Barbour, Nickolaus Lammer, Genevieve Roberts
AY 2018/2019: Calvin Voong, Thomas Weiser, Chelsea Toner, Savannah Spradin
AY 2019/2020: Briana Aboulache, Connor Olsen, James Pratt, Meagan Pallacio
AY 2020/2021: Halley Steiner (MCDB), Nathaniel Hamel, Danielle Gullien, Shea Siwik
AY 2021/2022: Daniella Ugay, Ryan Messer, Joy Armendariz, Ashley Sullivan
AY 2022/2023: Alexandra Fiorenza (MCDB)

Non-classroom Teaching (Undergraduate Students)

Principal Honors Thesis Advisor for Undergraduate Students

Jonathan Bleyhl, Honors Thesis *Summa cum laude*, B. A., Biochemistry and Mathematics, May, 1999
Mark Fleissner, Honors Thesis *cum laude*, B. A., Biochemistry and MCDB, December, 1999
Rieko Kato, Honors Thesis, *Summa cum laude*, B. A., May 2011
Rita Tat, Honors Thesis, *Summa cum laude*, B. A., May 2016
Torey Averick, Honors Thesis, *Summa cum laude,* B. A., May 2018
Maria Carilli, Honor Thesis, *Summa cum laude,* B. A., May 2021

Supervised Undergraduate Independent Study

Jeffery M. Osoba, (1996 – 1997)	B.A., MCDB, Minor Biochemistry, May, 1997, completed Medical School
Jonathan K. Bleyhl (1997 – 1999)	B.A., Biochemistry and Math, Minor Chemistry, May, 1999, Enrolled in Graduate School, University of Washington, in Applied Math, deceased.
Carrie D. Swartz (1998)	B.A., Biochemistry and Chemistry, Minor Philosophy, May, 1998, Enrolled in Medical School, University of Kansas
Mark R. Fleissner (1999)	B.A., Biochemistry, Minor Chemistry, December, 1999, Ph.D., Chemistry and Biochem. UCLA
Corey R. Mandel (1997 - 2001)	B.A., Biochemistry and MCDB, Minor Chemistry, May, 2001 Enrolled in Graduate School, Columbia University in Biology
Andrea E. Wismann (1999 - 2000)	B.A., Biochemistry and MCDB, Minor Chemistry, December, 2000, Enrolled in Graduate School, University of Colorado Health Sciences Center in Public Health
John Dietz Fry (1999 - 2000)	B.A., Biochemistry, Minor Chemistry, May, 2000, Employed in Biotechnology Financial Consulting, Denver Colorado
Long N. Hoang (1999 - 2000)	B.A., Biochemistry and MCDB, Minor Chemistry, December, 2000, Employed in Boulder, Colorado
Brian Kelly (2000 - 2001)	B.A., Biochemistry, Minor Chemistry, May, 2001, Ph.D. in Biochemistry, University of Utah Medical School in Biochemistry
Janelle K. Kawamoto (2000 - 2001)	B.A., Biochemistry, Minor Chemistry, May, 2001, Employed in Biotechnology, Seattle, Washington
Beth M. Hovey (2000 – 2001)	B.A., Biochemistry and MCDB, Minor Chemistry, May, 2001, seeking Medical School admission
Karen Meyer-Arendt (2001)	Graduate student in Chemistry and Biochemistry, CU
Bryn Weaver (2002 – 2003)	Udall Scholar, Benjamin Brown Scholar, Sri Lanka
Laura K. Figoski (2003 – 2005)	Awarded degree in Naturopathy, National College of Natural Medicine
Irene Dreith (2004 – 2005)	B.A., Biochemistry, Research specialist at Emory University School of Medicine

Carrie Wang (2006 – 2008)	B.A., MCDB, attended Veterinary School
Kelsey Chow (2007 – 2008)	Undergraduate Biochemistry Major
Rieko Kato (2009 – 2011)	B. A., Biochemistry, M.S. in Biochemistry, University of Toyko
Luke Bivikov (2011 – 2012)	Premed studies, University of Colorado, MD program
Canessa Swanson (2014)	SMART Student, PH. D. at University of Maryland, Baltimore County (Michael Summers, advisor; current scientist Genentech)
Rita le Tat (2014 – 2016)	B. A., Biochemistry and MCDB, University of Colorado Honors Thesis, *Summa cum laude*, 2016, attending medical school, University of Colorado Denver
Torey Averick (2016- 2018)	B. A., Biochemistry, University of Colorado, Honors Thesis *Summa cum laude*, April 2018. Attending Medical School, UCLA
Maria Carilli (2019- 2021)	B. A., Physics and Music, University of Colorado, Honors Thesis *Summa cum laude*, May 2021. Attending graduate school in Biophysics, Caltech
Stephen Armour (2021 – 2022)	Uplift student, B. A. Biochemistry in progress
Jaqueline Pankratz (2022 – 2023)	Biochemistry student, B. A. Biochemistry in progress

URAP/UROP Advisor

Jonathan K. Bleyhl (AY 1997, AY 1998)
Corey R. Mandel (AY 1998, AY 1999)
Mark R. Fleissner (Summer 1999)
Bryn Weaver (Summer 2002)
Laura K. Figoski (AY 2003, AY 2004)
Carrie Wang (AY 2006, 2007)
Kelsey Chow (AY 2008)
Rieko Kato (AY 2010)
Rita Tat (AY 2014)

HHMI Undergraduate Biological Sciences Education Initiative

Jonathan K. Bleyhl (Summer 1997)
Corey R. Mandel (Summer 1998)
Long N. Hoang (Summer 2000)
Laura K. Figoski (Summer 2003)
Kelsey Chow (Summer 2007)
Rita Tat (Summer 2015)
Maria Carilli (Summer 2020, Spring 2021)

SMART Student Advisor

Canessa Swanson, University of Alabama, Summer 2015

Preceptor for the NSF REU Program

Sarah E. Lehto (Summer 1999), enrolled in School of Education, University of Washington, Seattle

Preceptor for Regensberg Exchange Student
Thorsten A. Schäfer (Fall 1999)

Preceptor for Winter Semester Visiting Student
Elizabeth Fry, Oberlin College (January 2001)

Member of Honors Thesis Committee (other than principal advisor)

Daniel Hogan, B. A. *Summa cum laude,* MCDB 2001, Ph.D. Stanford University
Cynthia Barber, B. A., MCDB, defended thesis May 2002, graduated 2003, Ph.D. MIT
Reilly Fankhauser, B. A. Biochemistry, *Summa cum laude*, Biochemistry thesis defense April 2018
Nicole Johnson, B. A. Biochemistry, *Magna cum laude*, Biochemistry thesis defense November 2019

Nicholas Cordaro, B. A. Biochemistry, *Summa cum laude*, Biochemistry thesis defense April 2020
Abigail Hein, B. A. Biochemistry, *Magna cum laude*, Biochemistry thesis defense March 2022

Surrogate Advisor: K99 NIH Grant Awardee

Dr. David Zappulla (Prof. Tom Cech, Primary Advisor)

Service Activities

Service to the University of Colorado

Service to College and University

2022 – present	Co-director of Moleculear Biophysics Training Grant
2020	Research Restart Committee, campus COVID19 response strategy
2018- 2020	Faculty Fellowship in service of Dean White investigating equity and inclusion in the faculty within the College of Arts and Sciences
2017 - 2018	ODECE committee for Inclusive Excellence, Physical Sciences
2015 - 2022	Assistant Director of Molecular Biophysics Training Grant
2015 - 2018	Faculty Mentor for Prof. Sara Sawyer, BioFrontiers Institute and MCDB
2014 - 2023	Faculty director of Biological Sciences Initiative (BSI) at CU As PI of the HHMI Biological Science grant, I am helping BSI develop new laboratory course in MCDB and Biochemistry that bring research-based experiences into the curriculum at the entry level.
2015 - 2019	Fellow, CU Center for STEM Learning
2014 – 2020	Minority Training Roles – development of proposal for minority stem education program and participation at the minority recruiting conference SACNAS 2014 (LA)
2017-2018	Internal Review Committee for ARPAC for Chemical and Biological Engineering Department (with Daniel Dessau, Physics)
2017, 2020	Internal CU Review for Grant Competitions, Research and Innovation Office
2015	Review Panel for CU Campus Innovation Awards, IGP2015
2014	Invited panelist at Pi Day, Celebrating Women in Science and Math at CU
2012	FTEP Early Career Faculty Presentation, Work/Life balance
2011	Seed Grant Review, University of Colorado Cancer Center
2011	Reviewer of campus NSF Science and Technology Centers
2010 - 2011	Unit Review, Chemical and Biological Engineering
2008	Review Panel for CU Campus Innovation Awards, IGP2008
2007 - 2012	College of Arts and Sciences Council Budget Committee
2003 - 2005	Member of advisory panel for Faculty Teaching Excellence Program
2003 - 2005	Member, Faculty Search Committee, UC Health Sciences Center

Service to Department

2023 – 2024	Member FDAP Faculty Search Committee
2022 – 2023	Member FDAP Faculty Search Committee
2021	Nominations Committee
2020 – present	Chair, Biochemistry Department Diversity, Equity and Inclusion committee
2020 – present	Chair, Alexandra Whiteley Tenure and Promotion Committee, Assistant Professor in Biochemistry
2020 – present	Member, Tenure and Promotion Committee, Ellen Broering, Instructor in Chemistry
2019 – 2020	Junior Faculty Search Committee in Biochemistry, CryoEM focus
2020, 2018, 2021, 2022	Faculty discussion leader for Responsible Conduct of Research training
2019, 2022	Departmental Salary Evaluation Committee
2016 - 2018	Chair, Palmer Promotion Committee (note, only committees with significant P&T actions are listed)
2015 - 2018	Associate Chair of Faculty Affairs, Department of Chemistry and Biochemistry
2015 - 2018	Member Oversight Committee, Division of Biochemistry
2016	Chair, Rinn Tenure Committee
2016 - 2017	Junior Faculty Search Committee in Biochemistry
2015	Member, reappointment committee for Richard Shoemaker, Research Faculty

2014 - 2015	Biochemistry Division representative to Department Nominations Committee
2012	Member, Promotion and Tenure Committee, Robert Batey
2012	Search Committee, Director of Finance Operations
2011	Chair, Palmer Promotion and Tenure Committee
2011	Chair, New Committee to evaluate Biochemistry autonomy
2011 - 2013	Director of Biochemistry Division, Dept. of Chemistry and Biochemistry
2010 - Fall 2011	Interim Director of Biochemistry Division
2010 - 2011	Departmental Operations Committee
2010	Member, Liu promotion committee
2008	Departmental Salary Evaluation Committee
2006 - 2009	General Chemistry Working Group, Science Education Initiative
2005 - 2007	Biochemistry Ph.D. Committee
2005	Member, University of Colorado Cancer Center
2004	Departmental Salary Evaluation Committee
2003 - 2004	Member, Executive Committee, Dept. of Chemistry and Biochemistry
2002 - 2015	Departmental Instrumentation Committee (NMR)
2001 - present	Biochemistry Representative on the CU Biological Sciences Initiative Board
2000 - 2001	Supervisor for Mimi Zahar, Adminstrative Assistant for Junior Faculty
1997 - present	Regular member of faculty grant review committees

Graduate and Undergraduate Advising

2014 – 2019	Member, Graduate Advisory Committee
2009 – 2012	Member, Graduate Advisory Committee
2005 – 2009	Graduate Advisor for Biochemistry
2005 - 2007	Prepared, defended and received approval for Biochemistry Ph.D. program from CU Administration and Board of Regents
2002 – 2003	Graduate Advisor for Biochemistry
1999 – 2000	American Chemical Society Student Affiliate Club Advisor
1996 – 1999	Advisor for Undergraduate Majors in Chemistry and Biochemistry
1996 – 1999	Advisor for PreMed Students
1997 – 1998	Substitute advisor for summer orientation for Chem. and Biochem. Majors

Seminars

1997 – 1999	Organized the Biochemistry Graduate Student Seminar Series (Chem 6601)
1996 – 1999	Organized the Biochemistry Seminar Series (one of two faculty)

Training Grant

2015 - present	Associate Director Biophysics Training Grant (Joseph Falke, Director)
2014 - present	Member Steering Committee for Biophysics Training Grant
2005 – 2015	Participant in Pharmaceutical Biosciences Training Grant
2002 - 2005	Member Steering Committee for Biophysics Training Grant
1999 - present	Participant in Signal Transduction and Cell Cycle Regulation Training Program
1999 – present	Participant in Biophysics Training Program
1999 – 2001	Biochemistry Representative on Graduate Recruiting Committee
1996 – 2015	Biochemistry Representative for Biotechnology Training Program
1996 – 1999	Participant in Biotechnology Training Program

Service Outside of the University of Colorado

Grant Review Panels- National Science Foundation

2020	NSF Biophysics Review Panel (Panel meeting via Zoom)
2018	NSF Nucleic Acids Biophysics Panel (Panel meeting in Alexandria, VA)
2016	NSF Biophysics Panel (Panel meeting in Arlington, VA)
2015	NSF Biophysics Panel (Panel meeting in Arlington, VA)

2004 – 2009	Member NSF Biophysics Review Council (Bi-annual Panel meetings in Arlington, VA, 10 meetings total)
1997- 2022	Ad hoc reviewer for NSF (various Directorates, mail in reviews, 2-4 per year)

Grant Review Panels- National Institutes of Health

2020	Reviewer for NIH special emphasis panel
2019 – 2023	Permanent Member, TWD-B (T32 review panel)
2017	Reviewer for NIH special emphasis panel, ZRG1 BCMP
2016	Reviewer for NCI program project panel, ZCA1 RPRB
2014	Site visit review panel for NIH, Stanford Synchrotron Biology Resource at SSRL, ZRG1 BCMB-P (40)
2014	Reviewer for NIH, Competing Revisions for Macromolecular Interactions in Cells, ZGM1 TRN-0
2012	Site visit review panel for NIH, APS at Argonne National Labs, Ealick Crystallography Center ZRG1 BCMB-P
2009 – 2013	Permanent Member of NIH review panel MSF-C
2008	Member of NIH Study Section, Ad hoc reviewer, Mol. Genetics C
2007	Review of select proposals for NIH Study Section, Mol. Genetics C
2004	Member of NIH Study Section, F31 Minority Fellowships, ZRG1 CDF-1
2004	Review of select proposals for NIH Study Section, CDF-2
2003	Member of NIH Study Section, Ad hoc reviewer, Biochemistry Section

Service to the Arnold and Mabel Beckman Foundation

2022- present	Chair of Programs Committee, Beckman Board of Directors
2017 – 2021	Member of Science Committee, Beckman Board of Directors
2017 - present	Member of the Board of Directors, Arnold and Mabel Beckman Foundation
2016 – 2017	Design and execution of a new $13 million initiative in cryoEM instrumentation by the Arnold and Mabel Beckman Foundation
2015 - 2017	Scientific Advisory Council co-Chair, Arnold and Mabel Beckman Foundation This activity involves managing the SAC and reporting on Foundation activities and advising the Board of Directors on future investments
2014 – 2017	Scientific Advisory Council (SAC) for Arnold and Mabel Beckman Foundation
2014	Beckman Foundation Review Panel Chair, Level 1 and 2 Selection Panels
2012	Beckman Young Investigators Program, Level 1 and Level 2 Selection Panels
2008	Final Selection Panel, Beckman Young Investigators Program
2004, 2005, 2007, 2008, 2012	Review Panel, Beckman Young Investigators Program

National Professional Organizations/Meetings

2021 – present	Member, External Advisory Committee for NIH COBRE-funded Center for Biomolecular Structure and Dynamics, University of Montana
2019 – present	Organizer, Cold Spring Harbor Labs Telomere and Telomerase meeting
2019 – 2023	COBRE mentor for Prof. Lisa Warner, Boise State University
2016 - 2019	Member, Advisory Board for Structural Biology Center, CUNY
2014	Organizing committee and Co-chair for ICMRBS meeting, Dallas TX, Aug. 2014
2012	Session Chair, FASEB meeting on Nucleic Acid Enzymes, Snowmass,CO
2011	Session Co-organizer for Telomeres and Telomerase Meeting, Cold Spring Harbor Laboratory, New York, May 2011
2007 - 2010	Member, Advisory Board for NMRFAM, National Magnet Facility in Madison, WI

2007	Session Co-organizer for Telomeres and Telomerase Meeting, Cold Spring Harbor Laboratory, New York, May 2007
2003	Session Co-organizer for Telomeres and Telomerase Meeting, Cold Spring Harbor Laboratory, New York, May 2003

Service to the Protein Society

2003 - 2006	Member of Nominations Committee
2002	Nominated for Office in Protein Society (Councilor)
2001 & 2000	Protein Society Meeting Poster Session Organizer (1000 presentations)
1999 - 2001	Protein Society Meeting Poster Judge

Science Outreach

2020	Science Outreach Show, Bear Creek Elementary School
2001 - 2017	Wizard in the CU Wizards Program. The Wizard Program is a University of Colorado science outreach program to present science in a fun, compelling and educational way to local children (age 2 –14) and their parents. Approximately 300-500 people attend these presentations, entitled "Biochemistry for Kids."
2017	CU Wizards Program. Presented show as co-Wizard in Feb. 2017.
2015	CU Wizards Program. Presented show as co-Wizard in Feb. 2015.
2012	CU Wizards Program. Presented show as co-Wizard in Dec. 2012.
2010	CU Wizards Program. Presented show as Wizard in May 2010.
2008	CU Wizards Program. Presented show as Wizard in May 2008.
2004	CU Wizards Program. Presented show as Wizard in January, 2004.
2003	CU Wizards Program. Presented show as Wizard in May, 2003.
2001	CU Wizards Program. Presented show as Wizard in February, 2001.
2014, 2015	Ran Science Exploratorium at Bear Creek Elementary School with CU Teach, 250+ participants
2013	Ran Science Exploratorium at Bear Creek Elementary School, 200+ participants
2012	Science demonstrations at Bear Creek Elementary School
2000, 2001	Lab tours conducted for the Wild Bear Science School, Nederland Colorado (approximately 20 elementary age students/tour)
1998	Participated in the American Cancer Society, Boulder Section lab tours to promote ACS's work to volunteers and potential donors

Reviewer for Journals and Granting Agencies (no panel service)

1996 – present	Refereed papers submitted to a wide range of peer-reviewed journals in my field, including *Nature Structural Biology, Proceeding of the National Academy of Sciences, Biochemistry, Journal of Molecular Biology, Journal of Biological Chemistry, Journal of Biological NMR, FEBS Letters and Journal of Bioinorganic Chemistry, EMBO J. Genes & Development, Nature M&SB, NAR, Science, Nature, Cell, Nature Communications, Cell Reports*
2013 – 2018	Ad hoc reviewer for Cottrell Foundation, ~1 review/year
2012	Ad hoc reviewer for Graduate Women in Science program, NC State
2012	Ad hoc reviewer for Sigma Delta Epsilon, Graduate Women in Science
2001	Ad hoc reviewer for NSERC (Science funding agency in Canada)
1998 – 2004	Ad hoc reviewer for Research Corporation and Petroleum Research Fund
1997	Contributed Paper Alerts to Current Opinion in Chemical Biology

Professional Development

June 2006	LEAP Workshop for Associate Faculty, CU
Fall 2006	LEAP Workshop for Course Development, Increasing Women and Minority

	Accessibility
September 2006	COACH Workshop, ACS meeting, San Francisco.
November 2016	HHMI Workshop “Implementing Course-Based Research Experiences at Scale: Building the Value Proposition”
November 2017	HHMI Workshop “HHMI Looking Forward Meeting” Strategic planning for institutional change
September 2020	CIMER (Center for the Improvement of Mentored Experiences in Research) training in inclusive mentoring
Spring 2021	AAAS SEA Change training in Building Gender Equity in the Academy