

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/>

Cell: 303-250-3931

Employment

- | | |
|---|---------------------------|
| Assistant Professor
Department of Chemistry and Biochemistry
University of Colorado, Boulder | August 1996 – August 2003 |
| Associate Professor (with tenure)
Department of Chemistry and Biochemistry
University of Colorado, Boulder | August 2003 – April 2008 |
| Professor (with tenure)
Department of Chemistry and Biochemistry
University of Colorado, Boulder | April 2008 – July 2018 |
| Professor (with tenure)
Department of Biochemistry
University of Colorado, Boulder | July 2018 – present |

Education

- | | |
|--|--------------|
| Ph.D., Chemistry
California Institute of Technology
Thesis Advisor: Harry B. Gray
Thesis Title: Preparation, Characterization and Intramolecular Electron-Transfer
Studies of Ruthenium-Modified Cytochromes <i>c</i> | October 1993 |
| B.S., Chemistry <i>Summa cum laude</i>
University of Rochester
Undergraduate Advisor: George L. McLendon | May 1988 |

Research Experience

- | | |
|---|-------------------------------------|
| Visiting Scientist
The Salk Institute | Spring 2005 |
| Research Associate
The Scripps Research Institute | November 1995 to May 1996 |
| National Science Foundation Postdoctoral Fellow
The Scripps Research Institute | November 1993 to Nov. 1995 |
| Parsons Foundation Fellow
California Institute of Technology | September 1991 to Sept. 1993 |
| National Science Foundation Graduate
Research Fellow
California Institute of Technology | September 1988 to
September 1991 |

Research Assistant Eastman Kodak Company Magnetic Materials Laboratory of the Diversified Technology Group Advisor: Robert James	May 1988 to September 1988
Undergraduate Research Assistant University of Rochester Department of Chemistry Advisor: George L. McLendon	August 1987 to May 1988
Research Assistant Ecole Polytechnique Federale de Lausanne, Department of Chemistry and Chem. Engineering Lausanne, Switzerland	May 1987 to August 1987 Advisor: André Braun
Undergraduate Research Assistant University of Rochester Department of Physics, Biological Physics Research Group	May 1986 to December 1986 Advisor: Robert Knox

Honors and Fellowships

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 Fe²⁺:Ru³⁺ Electronic Couplings," *J. Am. Chem. Soc.*, **1994**, *116*, 1577-1578.
6. M. J. Bjerrum, D. R. Casimiro, I-J. Chang, A. J. Dilibio, 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. Lundblad 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, "¹H, ¹³C and ¹⁵N 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 Pot1¹⁻³⁸⁹," *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. Cumisky, 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 PLC γ 1," *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.

Publications submitted:

65. 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," *submitted*.
66. 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, *submitted*.
67. Z. E. Holmes, D. J. Hamilton, N. P. Parsonnet, D. S. Wuttke* and R. T. Batey*, "The Sox2 transcription factor binds double-stranded RNA," *co-corresponding authors, submission planned March 30, 2019.
68. 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," submission planned April 10, 2019.

Invited Seminars

- 2019:** Invited speaker, Nucleic Acids 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

NSF Award MCB-1716425

How Cyclophilins Both Regulate and are Regulated by RNA

Total Award: \$800,000

Duration: 8/17 – 7/21

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

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

Renewal submitted, awaiting Council Review

Declined (recent only)

NIH R21 Award

A Selection Strategy to Reveal Novel Protein/Long Non-Coding RNA Interactions

Total award: \$250,000

Duration: 4/16 – 3/18

Role: PI

Previous

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 Structural 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, Lafayette, CO

Dana E. Warn (1997 – 2000, M.S., Chemistry and Biochemistry, 2000), *EPA STAR Fellow*
Current: Social worker, Seattle, WA

Rachel M. Mitton-Fry (1998 - 2002, Ph.D., Chemistry and Biochemistry, 2002)
HHMI Predoctoral Fellow

Current: Assistant 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: Research Scientist, Eli Lilly 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 writer

Timsi Rao (2005 – 2012 Ph. D., MCDB)

Current: Postdoctoral Fellow, Yale School of Medicine, Patrick Sung PI
 Thayne H. Dickey (2007 – 2014 Ph.D., Biochemistry)
 Current: NSRA Postdoctoral Fellow, Yale University, Anna Pyle PI
 Danielle Pfaff (2011 - 2014, Chemistry and Biochemistry program)
 Current: Entrepreneur, Victoria, BC, Canada
 Marissa McKercher (2012 – 2017, Ph.D., Biochemistry)
 Current: Scientist, Elion Pharmaceuticals
 Neil Lloyd (2013 – 2018, Ph. D., Biochemistry, Currently continued as Postdoctoral Fellow until March 2019)
 Nicholas Parsonnet (2013 – 2018, Ph. D., Biochemistry, Currently continued as Postdoctoral Fellow until March 2019)
 Meagan Nakamoto (2015 – present, Current Ph.D. student, Biochemistry)
 Alexandra Barbour (2018 – present, Current Ph.D. student, Biochemistry)
 Nickolaus Lammer (2018 – 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: Managing Scientist, 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 Gelinias (2010) Ph.D. University of Colorado Boulder
 Current: Scientist, SomaLogic, Boulder, CO
 Sarah Altschuler (2011 – 2012), Ph.D. University of Colorado, Boulder
 NSRA Postdoctoral Fellow, University of Utah, Brenda Bass PI
 Current: Science writer
 Thayne Dickey (2014), Ph. D., University of Colorado, Boulder
 Current: NSRA Postdoctoral Fellow, Yale University, Anna Pyle PI
 Robert Hom (2010-2017), Ph.D., UCHSC, Scientist, Cytoskeleton
 Neil Lloyd (2018-2019), Ph.D., University of Colorado, Boulder
 Nicholas Parsonnet (2018-2019), Ph.D., University of Colorado, Boulder

Undergraduate Students

Jeffery M. Osoba (1997)	John Dietz Fry (1999 - 2000)
Jonathan K. Bleyhl (1997 - 1999)	Long N. Hoang (1999 - 2001)
Corey R. Mandel (1997 - 2001)	Brian Kelly (2000 - 2001)
Carrie D. Swartz (1998)	Janelle K. Kawamoto (2000 - 2001)
Mark R. Fleissner (1999)	Beth M. Hovey (2000 – 2001)
Thorsten A. Schäfer (1999)	Elizabeth Fry (2001)
Sarah E. Lehto (1999 – 2001)	Karen Meyer-Arendt (2001)
Andrea E. Wismann (1999 - 2001)	Bryn Weaver (2002 – 2004)
Laura K. Figoski (2003 – 2005)	Irene Dreith (2004 – 2005)
Carrie Wang (2005 – 2007)	Kelsey Chow (2007 – 2008)
Rieko Kato (2009 – 2011)	Luke Bivikov (2010-2011)
Rita le Tat (2014 – 2016)	Canessa Swanson (2015)
Torey Averick (2016 – 2018)	

Professional Research Assistants

Leslie W. Glustrom (1996 – 2004, 2014 - present)

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 Lyons (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 (Chem 5776), 5 credits, taught 22.5 hrs

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. Gelinus (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)

Neil Lloyd (2013 – 2018)

Nick Parsonnet (2013 – 2018)

Meagan Nakamoto (2015 – present)

Alexandra Barbour (2018 – present)

Nickolaus Lammer (2018 – 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), Chrysta 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

Rotation Advisor for Graduate Students

- 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
 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 Gelinias, 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

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

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, attending 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, pursuing PH. D. at University of Maryland, Baltimore County (Michael Summers, advisor)
Rita le Tat (2014 – 2016)	B. A., Biochemistry and MCDB, University of Colorado Honors Thesis, <i>Summa cum laude</i> , 2016
Torey Averick (2016- 2018)	B. A., Biochemistry, University of Colorado, Honors Thesis <i>Summa cum laude</i> , April 2018.

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)

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 Regensburg 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

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

2018- present	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 - present	Assistant Director of Molecular Biophysics Training Grant
2015 - present	Faculty Mentor for Prof. Sara Sawyer, BioFrontiers Institute and MCDB
2014 - present	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 - present	Fellow, CU Center for STEM Learning
2014 - present	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	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

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, Administrative Assistant for Junior Faculty
1997 - present	Regular member of faculty grant review committees

Graduate and Undergraduate Advising

2014 – present	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

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)
1997- present	Ad hoc reviewer for NSF (various Directorates, mail in reviews, 2-4 per year)

Grant Review Panels- National Institutes of Health

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

2017 - present Appointed to 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

2016 - present 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

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 <i>Nature Structural Biology</i> , <i>Proceeding of the National Academy of Sciences</i> , <i>Biochemistry</i> , <i>Journal of Molecular Biology</i> , <i>Journal of Biological Chemistry</i> , <i>Journal of Biological NMR</i> , <i>FEBS Letters</i> and <i>Journal of Bioinorganic Chemistry</i> , <i>EMBO J. Genes & Development</i> , <i>Nature M&SB</i> , <i>NAR</i> , <i>Science</i> , <i>Nature</i> , <i>Cell</i>
2013 - present	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.