

CURRICULUM VITAE

Kevin H. Gardner

Departments of Biochemistry and Pharmacology
University of Texas Southwestern Medical Center
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ACADEMIC POSITIONS

Professor (2009-present),

Associate Professor (2004-2009)

Assistant Professor (1998-2004)

Virginia Lazenby O'Hara Chair in Biochemistry
W.W. Caruth Jr. Scholar in Biomedical Research
Departments of Biochemistry and Pharmacology
UT Southwestern Medical Center

Chairman (2004-2010)

Graduate Program in Molecular Biophysics
Division of Basic Sciences, Southwestern Graduate
School of Biomedical Sciences
UT Southwestern Medical Center

TRAINING

Postdoctoral Research (1995-1998):

University of Toronto

Advisor: Lewis E. Kay, Ph.D.

Research Area: Development of biophysical and biochemical methods to obtain structural models of 30-50 kDa proteins and protein complexes using solution NMR

Ph. D. (1989-1995):

Molecular Biophysics and Biochemistry

Yale University

Advisor: Joseph E. Coleman, M.D., Ph.D.

Thesis title: "Cadmium-113 Heteronuclear NMR Studies of Zn₂Cys₆ DNA Binding Domains"

B.S. (1985-1989, with Highest Honors):

Biochemistry, University of California, Davis

AWARDS AND HONORS

GRC Chairs' Hall of Fame

2011, Gordon Research Conferences

Excellence in Postdoctoral Mentoring Award

2011, UT Southwestern Postdoctoral Association

Excellence in Education Award

2010, UT Southwestern

Virginia Lazenby O'Hara Chair in Biochemistry

2006-present, UT Southwestern

Outstanding Teacher Award

2004-2005, Dept. of Biochemistry, UT Southwestern

Meloche Lecturer

2004, Dept. of Chemistry, University of Wisconsin

CHS Hall of Fame

2000, Cupertino High School, Cupertino CA

Searle Scholar

1999-2002, The Chicago Community Trust

W.W. Caruth Jr. Scholar in Biomedical Research

1998-present, UT Southwestern Medical Center

Helen Hay Whitney Postdoctoral Fellow

1996-1998, Helen Hay Whitney Foundation

NIH/NRSA Postdoctoral Fellow

1995-1996, National Institutes of Health

HHMI Predoctoral Fellow

1989-1994, Yale University

Bachelor's Degree with Highest Honors

1989, UC Davis

Departmental Citation for Excellence

1989, UC Davis

Phi Beta Kappa

1989, UC Davis

PUBLICATIONS – PEER-REVIEWED ARTICLES

60. Zoltowski, B.D., Nash, A.I. and Gardner, K.H. (2011) Variations in protein/flavin hydrogen bonding in

a LOV domain produce non-Arrhenius kinetics of adduct decay. *Biochemistry*, **50**: 8771-8779. (*Accelerated Publication, selected as Web-featured article by journal*).

59. Yuan, H., Dragnea, V., Wu, Q., Gardner, K.H. and Bauer, C.E. (2011) Mutational and structural studies of the PixD BLUF output signal that affects light-regulated interactions with PixE. *Biochemistry*, **50**, 6365-6375. PMID: PMC3139782.

58. Nash, A.I.*, McNulty, R.*, Shillito, M.E., Swartz, T.E., Bogomolni, R.A., Luecke, H.[†] and Gardner, K.H.[†] (2011) Structural basis of photosensitivity in a bacterial LOV-HTH DNA binding protein. *Proc. Natl. Acad. Sci.*, **108**: 9449-9454. (*: equal contributors, [†]: corresponding authors). PMID: PMC3111320.

57. Partch, C.L. and Gardner, K.H. (2011) Coactivators necessary for transcriptional output of the hypoxia inducible factor, HIF, are directly recruited by ARNT PAS-B. *Proc. Natl. Acad. Sci.*, **108**, 7739-7744. PMID: PMC3093465.

56. Song, S.-H., Freddolino, P.L., Nash, A.I., Carroll, E.C., Schulten, K., Gardner, K.H. and Larsen, D.S. (2011) Modulating LOV domain photodynamics with a residue alteration outside the chromophore binding site. *Biochemistry*, **50**, 2411-2423. (*Accelerated Publication*). PMID: PMC3068209.

55. Zoltowski, B.D. and Gardner, K.H. (2011) Tripping the light fantastic: Blue light photoreceptors as examples of environmentally-modulated protein:protein interactions. *Biochemistry*, **50**: 4-16. (*selected as a Web-featured article by journal*). PMID: PMC3137735.

54. Akella, R., Min, X., Wu, Q., Gardner, K.H. and Goldsmith, E.J. (2010) The third stable conformation p38 α MAP kinase observed in phosphorylated p38 α and in solution. *Structure*, **18**: 1571-1578.

53. Strickland, D., Yao, X., Gawlak, G., Rosen, M.K., Gardner, K.H. and Sosnick, T.R. (2010) Rationally increasing the dynamic range of genetically-encoded, optically-controlled proteins. *Nature Methods*, **7**: 623-626. (*covered in News and Views article, "Hold me tightly LOV" by K.M. Hahn and B. Kuhlman, Nat. Methods 7(2010): 595-596*). PMID: PMC2914111.

52. Lehotzky, R.E.*, Partch, C.L.*, Mukherjee, S., Cash, H., Goldman, W.E., Gardner, K.H.[†] and Hooper, L.V.[†] (2010) Molecular basis for peptidoglycan recognition by a bactericidal lectin. *Proc. Natl. Acad. Sci.*, **107**, 7722-7727. (*: equal contributors, [†]: corresponding authors) PMID: PMC2867859.

51. Key, J.*, Scheuermann, T.H.*, Anderson, P.C., Daggett, V. and Gardner, K.H. (2009) Principles of ligand binding within a completely buried cavity in HIF-2 α PAS-B. *J. Am. Chem. Soc.*, **131**: 17647-17654. (*: equal contributors) PMID: PMC2819816.

50. Evans, M.R. and Gardner, K.H. (2009) Slow transition between β -strand registers is dictated by protein unfolding. *J. Am. Chem. Soc.*, **131**: 11306-11307. PMID: PMC2739125.

49. Partch, C.L., Card, P.B., Amezcuca, C.A. and Gardner, K.H. (2009) Molecular basis of coiled coil coactivator recruitment by the aryl hydrocarbon receptor nuclear translocator (ARNT). *J. Biol. Chem.*, **284**: 15184-15192. PMID: PMC2685699.

48. Wu, Q. and Gardner, K.H. (2009) BlrP1 BLUF domain: Structure and insight into light-induced changes. *Biochemistry*, **48**: 2620-2629. (*reviewed in Faculty of 1000*).

47. Evans, M.R., Card, P.B. and Gardner, K.H. (2009) ARNT PAS-B has a fragile native state structure with an alternative beta-sheet register nearby in sequence space. *Proc. Natl. Acad. Sci.*, **106**: 2617-2622. PMID: PMC2650313.

46. Mukherjee, S.*, Partch, C.L.*, Lehotzky, R.E., Whitham, C.V., Chu, H., Bevins, C., Gardner, K.H.[†] and Hooper, L.V.[†] (2009) Regulation of C-type lectin antimicrobial activity by a flexible N-terminal prosegment. *J. Biol. Chem.*, **284**: 4881-4888. (*: equal contributors, †: corresponding authors). PMID: PMC2643518.
45. Scheuermann, T.H., Tomchick, D.R., Machius, M., Guo, Y., Bruick, R.K. and Gardner, K.H. (2009) Artificial ligand binding within the HIF-2 α PAS-B domain of the HIF2 transcription factor. *Proc. Natl. Acad. Sci.*, **106**: 450-455. PMID: PMC2626723.
44. Nash, A.I.*, Ko, W.-H.*, Harper, S.M. and Gardner, K.H. (2008) A conserved glutamine plays a central role in LOV domain signal transmission and duration. *Biochemistry*, **47**: 13842-13849. (*: equal contributors; selected as Web featured article by journal). PMID: PMC2630409.
43. Wu, Q., Ko, W.-H. and Gardner, K.H. (2008) Structural requirements for key residues and auxiliary portions of a BLUF domain. *Biochemistry*, **47**: 10271-10280.
42. Sakiyama, H., Wynn, R.M., Lee, W.-R., Fukasawa, M., Mizuguchi, H., Gardner, K.H., Repa, J. and Uyeda, K. (2008) Regulation of nuclear import/export of carbohydrate response element-binding protein (ChREBP): interaction of an alpha-helix of ChREBP with the 14-3-3 proteins and regulation by phosphorylation. *J. Biol. Chem.*, **283**: 24899-24908.
41. Yao, X., Rosen, M.K. and Gardner, K.H. (2008) Estimation of the available free energy in a LOV-J α photoswitch. *Nat. Chem. Biol.*, **4**: 491-497. (covered in News and Views article, "Protein dynamics under light control" by M. Vendruscolo, *Nat. Chem. Biol.* **4**(2008): 449-450; reviewed in Faculty of 1000). PMID: PMC2597337.
40. Lee, J., Tomchick, D.R., Brautigam, C.A., Machius, M., Kort, R., Hellingwerf, K.J. and Gardner, K.H. (2008) Changes at the KinA PAS-A dimerization interface influence histidine kinase function. *Biochemistry*, **47**: 4051-4064. (chosen as Hot Article by Biochemistry).
39. Kajimura, J., Rahman, A., Hsu, J., Evans, M.R., Gardner, K.H. and Rick, P.D. (2006) O-acetylation of the enterobacterial common antigen (ECA) polysaccharide is catalyzed by the product of the *yiaH* gene of *Escherichia coli* K-12. *J. Bacteriology*, **188**: 7542-7550. PMID: PMC1636290.
38. Colbert, C.L., Wu, Q., Erbel, P.J.A., Gardner, K.H. and Deisenhofer, J. (2006) Mechanism of substrate specificity in *Bacillus subtilis* ResA, a thioredoxin-like protein involved in cytochrome c maturation. *Proc. Natl. Acad. Sci.*, **103**: 4410-4415. PMID: PMC1400588.
37. Yang, J., Zhang, L., Erbel, P.J.A., Gardner, K.H., Ding, K.M., Garcia, J.A. and Bruick, R.K. (2005) Functions of the Per/ARNT/Sim (PAS) domains of the hypoxia inducible factor (HIF). *J. Biol. Chem.*, **280**: 36047-36054.
36. Card, P.B., Erbel, P.J.A. and Gardner, K.H. (2005) Structural basis of ARNT PAS-B dimerization: Use of a common β -sheet interface for hetero- and homodimerization. *J. Mol. Biol.*, **353**: 664-677.
35. Socolich, M., Lockless, S.W., Russ, W.P., Lee, H., Gardner, K.H. and Ranganathan, R. (2005) Evolutionary information for specifying a protein fold. *Nature*, **437**: 512-518. (reviewed in Faculty of 1000).
33. Best, J.L., Amezcua, C.A., Mayr, B., Flechner, L., Murawsky, C.M., Emerson, B., Zor, T., Gardner, K.H. and Montminy, M. (2004) Identification of small molecule antagonists that inhibit an activator:coactivator interaction. *Proc. Natl. Acad. Sci.*, **101**: 17622-17627. (reviewed in Faculty of 1000). PMID: PMC539725.
32. Harper, S.M., Christie, J.M. and Gardner, K.H. (2004b) Disruption of LOV/J α helix interaction activates phototropin kinase activity. *Biochemistry*, **43**: 16184-16192.

31. Erbel, P.J.A., Seidel, R., Macintosh, S.E., Gentile, L.N., Amor, J.C., Kahn, R.A., Prestegard, J.H., McIntosh, L.P. and Gardner, K.H. (2004) Cyclic enterobacterial common antigen: Potential contaminant of bacterially expressed protein preparations. *J. Biomolecular NMR*, **29**: 199-204.
30. Harper, S.M., Neil, L.C., Day, I.J., Hore, P.J. and Gardner, K.H. (2004a) Conformational changes in a photosensory LOV domain monitored by time-resolved NMR spectroscopy. *J. Am. Chem. Soc.*, **126**: 3390-3391.
29. Erbel, P.J.A., Card, P.B., Karakuzu, O., Bruick, R.K. and Gardner, K.H. (2003) Structural basis for PAS domain heterodimerization in the bHLH-PAS transcription factor HIF. *Proc. Natl. Acad. Sci.*, **100**: 15504-15509. PMID: PMC307597.
28. Harper, S.M., Neil, L.C. and Gardner, K.H. (2003) Structural basis of a phototropin light switch. *Science*, **301**: 1541-1544. (reviewed in *Faculty of 1000*).
27. Erbel, P.J.A., Barr, K., Chen, N., Gerwig, G.J., Rick, P.D. and Gardner, K.H. (2003) Identification and biosynthesis of cyclic ECA in *Escherichia coli*. *J. Bact.*, **185**: 1995-2004. PMID: PMC150143.
26. Amezcua, C.A., Harper, S.M., Rutter J. and Gardner, K.H. (2002) Structure and interactions of PAS kinase N-terminal PAS domain: Model for intramolecular kinase regulation. *Structure*, **10**: 1349-1361.
25. Xiao, T., Gardner, K.H. and Sprang, S.R. (2002) Cosolvent-induced transformation of a death domain tertiary structure. *Proc. Natl. Acad. Sci.*, **99**: 11151-11156. PMID: PMC123225.
24. He, Q., Cheng, P., Yang, Y., Wang, L., Gardner, K.H. and Liu, Y. (2002) White collar-1, a DNA binding transcription factor as a light sensor. *Science*, **297**: 840-843. (reviewed in *Faculty of 1000*).
23. Cheng, P., Yang, Y., Gardner, K.H. and Liu, Y. (2002) PAS domain-mediated WC-1/WC-2 interaction is essential for maintaining the steady-state level of WC-1 and the function of both proteins in circadian clock and light responses of *Neurospora*. *Mol. Cell. Biol.*, **22**: 517-524. PMID: PMC139750.
22. Holdeman, T.C. and Gardner, K.H. (2001) ¹H, ¹³C and ¹⁵N chemical shift assignments of the N-terminal PAS domain of mNPAS2. *J. Biomolecular NMR*, **21**: 383-384.
21. Usher, K.C., Özkan, E., Gardner, K.H. and Deisenhofer, J. (2001) The plug domain of FepA, a TonB-dependent transport protein from *E. coli*, binds its siderophore in the absence of the transmembrane barrel domain. *Proc. Natl Acad. Sci.*, **98**: 10676-10681. PMID: PMC58525
20. Rutter, J., Michnoff, C.H., Harper, S.M., Gardner, K.H. and McKnight, S.L. (2001) PAS kinase: an evolutionarily conserved PAS domain-regulated serine/threonine kinase. *Proc. Natl Acad. Sci.*, **98**: 8991-8996. PMID: PMC55361.
19. Schweitzer, B.I., Foti, M., Keertikar, K., Kumar, S., Gardner, K.H. and Tucker-Kellogg, G. (1999) The use of ³¹P relaxation experiments to probe the effects of nucleoside analogs on DNA dynamics. *Phosphorus, Sulfur and Silicon*, **144**: 301-304.

Postdoctoral research – University of Toronto (1995-1998)

18. Goto, N.K., Gardner, K.H., Mueller, G.A., Willis, R.C. and Kay, L.E. (1999) A robust and cost-effective method for the production of Val, Leu and Ile (δ 1) methyl-protonated ^{15}N , ^{13}C , ^2H -labeled proteins. *J. Biomol. NMR*, **13**: 369-374.

17. Gardner, K.H., Zhang, X., Gehring, K. and Kay, L.E. (1998) Solution NMR studies of a 42 kDa maltose binding protein/ β -cyclodextrin complex: chemical shift assignments and analysis. *J. Am. Chem. Soc.*, **120**: 11738-11748.

16. Zwahlen, C., Gardner, K.H., Sarma, S.P., Horita, D.A., Byrd, R.A. and Kay, L.E. (1998) An NMR experiment for measuring methyl-methyl NOEs in ^{13}C labeled proteins with high resolution. *J. Am. Chem. Soc.*, **120**: 7617-7625.

15. Yang, D., Gardner, K.H. and Kay, L.E. (1998) A sensitive pulse scheme for measuring the backbone dihedral angle ψ based on cross-correlation between $^{13}\text{C}\alpha$ - $^1\text{H}\alpha$ dipolar and carbonyl chemical shift anisotropy relaxation interactions. *J. Biomol. NMR*, **11**: 213-220.

14. Zwahlen, C., Vincent, S.J.F., Gardner, K.H. and Kay, L.E. (1998) Significantly improved resolution for NOE correlations from valine and isoleucine ($\text{C}\gamma$ 2) methyl groups in ^{15}N , ^{13}C and ^{15}N , ^{13}C , ^2H -labeled proteins. *J. Am. Chem. Soc.*, **120**: 4825-4831.

13. Shan, X., Gardner, K.H., Muhandiram, D.R., Kay, L.E. and Arrowsmith, C.H. (1998) Subunit-specific backbone NMR assignments of a 64 kDa *trp* repressor/DNA complex: a role for N-terminal residues in tandem binding. *J. Biomol. NMR*, **11**: 307-318.

12. Gardner, K.H. and Kay, L.E. (1997) Production and incorporation of ^{15}N , ^{13}C , ^2H (^1H - δ 1 methyl) isoleucine into proteins for multidimensional NMR studies. *J. Am. Chem. Soc.*, **119**: 7599-7600.

11. Gardner, K.H., Rosen, M.K. and Kay, L.E. (1997) Global folds of highly deuterated, methyl protonated proteins by multidimensional NMR. *Biochemistry*, **36**: 1389-1401.

10. Gardner, K.H., Konrat, R., Rosen, M.K. and Kay, L.E. (1996) A (H)C(CO)NH-TOCSY pulse scheme for sequential assignment of protonated methyl groups in otherwise deuterated ^{15}N , ^{13}C labeled proteins. *J. Biomol. NMR*, **8**: 351-356.

9. Rosen, M.K., Gardner, K.H., Willis, R.C., Parris, W.E., Pawson, T. and Kay, L.E. (1996) Selective methyl group protonation of perdeuterated proteins. *J. Mol. Biol.*, **263**: 627-636.

8. Shan, X., Gardner, K.H., Muhandiram, D.R., Rao, N.S., Arrowsmith, C.H. and Kay, L.E. (1996) Assignment of the ^{15}N , $^{13}\text{C}\alpha$, $^{13}\text{C}\beta$ and HN resonances in an ^{15}N , ^{13}C , ^2H labeled 64 kDa *trp* repressor-operator complex using triple resonance NMR spectroscopy and ^2H -decoupling. *J. Am. Chem. Soc.*, **118**: 6570-6579.

Graduate research – Yale University (1989-1995) and Undergraduate research – UC Davis (1985-1989)

7. Gardner, K.H., Anderson, S.F. and Coleman, J.E. (1995) Solution structure of the *K. lactis* LAC9 Cd_2Cys_6 DNA-binding domain. *Nat. Struct. Biol.*, **2**: 898-905.

6. Schweitzer, B.I., Gardner, K.H. and Tucker-Kellogg, G. (1995) HeteroTOCSY-based experiments for measuring heteronuclear relaxation in nucleic acids and proteins. *J. Biomol. NMR*, **6**: 180-188.

5. Klemba, M., Gardner, K.H., Marino, S., Clarke, N.D. and Regan, L. (1995) A novel family of designed metal-binding proteins. *Nat. Struct. Biol.*, **2**: 368-373 (*addendum and correction: NSB* **2**: 912).

4. Gardner, K.H. and Coleman, J.E. (1994) ^{113}Cd - ^1H heteroTOCSY: a method for determining metal-protein connectivities. *J. Biomol. NMR*, **4**: 761-774.
3. Schweitzer, B.I., Mikita, T., Kellogg, G.W., Gardner, K.H. and Beardsley, G.P. (1994) Solution structure of a DNA dodecamer containing the anti-neoplastic agent arabinosylcytosine: combined use of NMR, restrained molecular dynamics, and full relaxation matrix refinement. *Biochemistry*, **33**: 11460-11475.
2. Gardner, K.H., Pan, T., Narula, S., Rivera, E. and Coleman, J.E. (1991) Structure of the binuclear metal-binding site in the GAL4 transcription factor. *Biochemistry*, **30**: 11292-11302.
1. Sekiguchi, J.M., Cole, A.D., Gardner, K.H. and Kmiec, E.B. (1990) Transcription factor TFIIIA stimulates DNA supercoiling promoted by a fractionated cell-free extract from *Xenopus laevis*. *Eur. J. Biochem*, **192**: 311-320.

PUBLICATIONS – REVIEWS

10. Motta-Mena, L.B., Partch, C.L. and Gardner, K.H. (2010) The three Rs of transcription: Recruit, retain and recycle. *Mol. Cell*, **40**: 855-858. PMID: PMC3012270.
9. Partch, C.L. and Gardner, K.H. (2010) Coactivator recruitment: A new role for PAS domains in transcriptional regulation by the bHLH-PAS family. *J. Cell. Physiol.*, **223**: 553-557. PMID: PMC2872778.
8. Gardner, K.H. (2008) Molecular Biophysics at UT Southwestern Medical Center: Strength through breadth. *Biopolymers*, **89**: 244-247.
7. Ko, W.-H., Nash, A.I. and Gardner, K.H. (2007) A LOVely view of blue light photosensing. *Nature Chem. Biol.*, **3**: 372-374.
6. Scheuermann, T.H., Yang, J., Zhang, L., Gardner, K.H. and Bruick, R.K. (2007) Hypoxia-Inducible Factor PAS domains: Structure and function. *Meth. Enz.*, **435**: 3-24.
5. Gardner, K.H. and Montminy, M. (2005) Can you hear me now: Regulation of transcriptional activators by phosphorylation. *Science STKE*, **2005**: pe 44.
4. Card, P.B. and Gardner, K.H. (2005) Identification and optimization of protein domains for NMR studies. *Meth. Enz.*, **394**: 3-16.
3. Gardner, K.H. and Kay, L.E. (1998) The use of ^2H , ^{13}C , ^{15}N multidimensional NMR to study the structure and dynamics of proteins. *Ann. Rev. Biophys. Biomol. Struct.*, **27**: 357-406.
(reprinted as Gardner, K.H. and Kay, L.E. (1999) Multidimensional ^2H -based NMR methods for resonance assignment, structure determination and the study of protein dynamics in Biological Magnetic Resonance: Modern Techniques in Protein NMR, **16**: 27-74)
2. Hardy, B.J., Doughty, S., Parretti, M., Tennison, J., Finn, B., Gardner, K.H. (1997) Internet conferences in nuclear magnetic resonance spectroscopy. *Prog. NMR Spec.*, **31**: 107-117.
1. Kay, L.E. and Gardner, K.H. (1997) Solution NMR spectroscopy beyond 25 kDa. *Curr. Op. Struct. Biol.*, **7**: 722-731.

PATENTS

4. Gardner, K.H., Motta-Mena, L.B. and Zoltowski, B.D. (2011) Blue light inducible system for gene expression. Patent pending, filed November 18, 2011.
3. Gardner, K.H., Amezcua, C.A., Erbel, P.J.A. and Card, P.B. (2010) NMR detection of foreign PAS

domain ligands. US Patent Number 7,645,569 (issued January 12, 2010).

1,2. McKnight, S.L., Gardner, K.H., Harper, S., Rutter, J., Michnoff, C. and Amezcua, C. (2001) PAS kinase. US Patent Number 6,319,679 (issued November 20, 2001) and Patent Number 7,132,278 (issued November 7, 2006).

-2002: Searle Scholar Program, Chicago Community Trust

TRAINEES

Postdoctoral researchers:

Dr. Carlos Amezcua (1999-2003) – *Research Scientist (Physical Chemistry Sciences), Baxter Health Care, Naperville, IL*

Dr. Paul Erbel (2000-2004) – *Research Investigator (Structural Sciences Unit), Novartis Institutes for Biomedical Research, Basel, CH*

Dr. Qiong Wu (2003-2009) – *Director, Biomolecular NMR Facility, UT Southwestern*

Dr. Thomas Scheuermann (American Cancer Society Postdoctoral Fellow; 2004-2010) – *Instructor (Research Investigator), Gardner laboratory, UT Southwestern*

Dr. Carrie Partch (NIH NRSA Postdoctoral Fellow; 2006-2011) – *Assistant Professor, Dept. of Chemistry and Biochemistry, UC Santa Cruz*

Dr. Jason Key (2007-2011) – *Instructor (Research Investigator), Gardner laboratory, UT Southwestern*

Dr. Fernando Corrêa (2008-present)

Dr. Brian Zoltowski (NIH NRSA Postdoctoral Fellow; 2008-2011) – *Assistant Professor, Dept of Chemistry, Southern Methodist University*

Dr. Giomar Rivera-Cancel (2009-present)

Dr. Laura Motta-Mena (2010-present)

Graduate students:

Shannon Harper (2000-2004; Ph.D. 2004) – *postdoctoral researcher, Andrew Munro laboratory, University of Manchester, UK*

Paul Card (2000-2005 - Ph.D. 2005; postdoc 2005-2006) – *Operations Coordinator, E.O. Wood Inc.*

Terra Holdeman (2000-2001) – *M.D. degree from UTMB; surgery fellow, University of Missouri*

James Lee (MSTP, 2002-2006; completed Ph.D portion of M.D./Ph.D. program 2006) – *Medical resident, Huntington Memorial Hospital, Pasadena, CA*

Wen-huang (Lisa) Ko (2004-2009; Ph.D. 2009) – *postdoctoral researcher, Melanie Cobb laboratory, UTSWMC*

Matthew Evans (2005-2009 - Ph.D. 2009; postdoc 2009-2010) – *postdoctoral researcher, Michael Roth laboratory, UT Southwestern*

Abigail Nash (MSTP, 2005-2009; completed Ph.D. portion of M.D./Ph.D. program 2009) – *completing medical school portion of M.D./Ph.D., anticipated graduation 2011*

Yirui Guo (2010-present)

Victor Ocasio-Ramirez (2010-present)

Michael Streeter (2011-present)

(also mentored 22 additional rotation students during first-year rotations in lab, 1999-present)

Undergraduate students: (summer undergraduates via UT Southwestern SURF program)

Mark Chan (1999, Harvard Univ.); Brad Holmes (2001, Texas A&M Univ.); Daniel Buehler (2004, Univ. New Mexico); Aaron Maeng (2005, UT Austin); Leanna Steier (2007, Notre Dame); Laura Salguero (2008, New Mexico State Univ.); Kyle Ireton (2010, Oregon State Univ.)

Sabbatical visitors:

Dr. Ernest Blakeney (Fall 1999, Dept. of Chemistry, Centenary College)

Dr. Susan Alguindigüe (Summer 2002, Dept. of Chemistry, Univ. of Oklahoma)

PROFESSIONAL SERVICE & TEACHING – UT SOUTHWESTERN

Service:

2010	Faculty Chair, UTSW Postdoctoral Association Symposium
2009-present	Advisory Board, NIH T32 programs for Psychiatry and Mechanisms of Drug Addiction
2007-present	Inservice teaching and tour leader, STARS (Science Teacher Access to Resources at Southwestern) program
2007-2010	member, search committee – Radiology Department chair
2004-2010	Molecular Biophysics: Graduate Program Chairman
2004-present	PI, NIH T32 GM008297: Molecular Biophysics Predoctoral Training Program
2002-2005	Department of Biochemistry: Computing Committee member
2001-2005	Molecular Biophysics: Retreat Chairman
2000-present	Molecular Biophysics: Steering Committee member
1999-present	Department of Biochemistry: Faculty Search Committee member (7 committees)
1999-present	Department of Biochemistry: Seminar and Events Committee member (chair: 1999-2002)
1999-present	Ph.D. dissertation committees (35 total in four graduate programs)
1999-present	Ph.D. qualifying exam committees (19 total in two graduate programs)

Teaching:

2010	DBS Core Course Biophysics Thread – co-director and 6 60' lectures, 15 Ph.D. topics: Biomolecular NMR Spectroscopy, Scattering Methods, Integration of Techniques
2009	Biological Chemistry: Literature Discussion Group – 6 60' sessions, 10 Ph.D. students topics: Environmental sensing and signaling
2008-present	Molec. Biophysics: Advanced Biomolecular NMR – 4 90' lectures, 5 Ph.D./postdoc topics: NMR theory, pulse sequence development
2008-2010	Molec. Biophysics: Modern Methods in Structural Biology – 4-6 90' lectures, 10 Ph.D. Course organizer and director topics: solution NMR – chemical shift assignment, structure determination
2007-present	Molec. Biophysics: Physical Biochemistry I – 1 90' lecture, 10-12 Ph.D. students topics: biophysical properties of proteins as polymers
2003-present	Molec. Biophysics: Enzymology / Physical Biochemistry II – 1-2 90' lectures, 4-10 Ph.D. topics: time-resolved biophysical methods; role of dynamics in catalysis
2001-2006	Molec. Biophysics: Biomolecular NMR – 3-5 90' lectures, 12 Ph.D. students topics: several topics in NMR theory and practice
2000-present	Medical Biochemistry – 5-6 60' lectures, 200-230 M.D. students topics: protein structure/function; allostery; hemoglobin
1999-2007	DBS Core Course – 1-2 90' lectures, 60-95 Ph.D. students topics: protein NMR spectroscopy
1999-present	DBS Core Course – 5-6 90' literature review sessions, 8-10 Ph.D. students topics: protein structure and function

PROFESSIONAL SERVICE – COMMUNITY

2014	Chair, XXVI International Conference for Magnetic Resonance in Biological Systems (ICMRBS)
2011-2014	Member, Center for Biomolecular Structure and Dynamics CoBRE External Advisory Board, University of Montana
2008, 2010	Vice-chair (2008) and Chair (2010) of Photosensory Receptors and Signal Transduction Gordon Research Conference
2009-2012	Member and Chair (2010-2012), NMRFAM (NMR Facility at Madison) External Advisory Board, University of Wisconsin, Madison
2009	<i>Ad hoc</i> member, NIH Stimulus panels, NIH/NCI Molecular Oncology P01 Special Emphasis Panel, NIH BBM Study Section
2008	<i>Ad hoc</i> member, NIH Shared Instrumentation Special Emphasis Panel and NIH MSFB Study Section

- 2006 *Ad hoc* member, NIH MSFB Study Section
2004 *Ad hoc* member, NIH BBCA Study Section
2001, 2002 lecturer: Woods Hole Marine Biology Laboratory – Physiology course
2001 *Ad hoc* member, NIH BBCA Special Study Section
2001 lecturer: NRC/HHMI course “Determination of high-resolution structures for the post-genomic age”, Warsaw, Poland
ongoing *Ad hoc* reviewer for *Science*, *Nature*, *Proc. Natl. Acad. Sci.* (editing and reviewing), *Biochemistry*, *Journal of the American Chemical Society*, *Journal of Molecular Biology*, and *Journal of Biomolecular NMR* and other journals. Also serving as an *ad hoc* reviewer for several funding agencies, including NSF.

SOCIETY MEMBERSHIPS

American Chemical Society, Biophysical Society, American Association for the Advancement of Science

INVITED LECTURES (2009 - present)

2013:

134. Keystone Symposium – Frontiers of NMR in Biology

2012:

128. Gordon Research Conference – Biomolecular Interactions and Methods, Galveston, TX
129. Gordon Research Conference – Photosensory Receptors & Signal Transduction, Galveston, TX (Session Chair)
130. Department of Biochemistry & Molecular Biology, University of Chicago, IL
131. NMR Symposium, Vanderbilt University, Nashville, TN
132. Biophysical Society 56th Annual Meeting, San Diego, CA (Session Chair)
133. 19th International Methods in Protein Structure Analysis Conference, Ottawa, Canada

2011:

118. Biophysical Society 55th Annual Meeting, Baltimore, MD
119. Frontiers in Nuclear Magnetic Resonance Spectroscopy: Biomolecular Structure, Dynamics and Interactions, City College of New York, New York, NY
120. CUNY Advanced Science Seminar Series, City University of New York, New York, NY
121. Department of Chemistry, University of Akron, Akron, OH
122. 52nd Experimental NMR Conference, Asilomar, CA
123. Center for Vascular Biology Research, Harvard Medical School, Boston, MA
124. Department of Chemistry, Princeton University, Princeton, NJ
125. Vielberth Foundation Visiting Professorship, University of Regensburg, Regensburg, Germany
126. 35th Steenbock Symposium, University of Wisconsin, Madison, WI (Keynote Lecturer)
127. GRASP-NMR 2011 Symposium, University of Kansas, Lawrence, KS (Plenary Lecturer)

2010:

108. NMRS 2010, Lucknow, India
109. Undergraduate Research Festival, Abilene Christian University, Abilene, TX (Plenary Lecturer)
110. Gordon Research Conference – Photosensory Receptors & Signal Transduction, Il Ciocco, Italy (Meeting Chair)
111. Plant Signalling Mechanisms, Freiburg, Germany
112. Gulf Coast Consortium Magnetic Resonance Conference, Houston, TX
113. International Conference for Magnetic Resonance in Biological Systems, Cairns, Australia (Keynote Speaker)
114. School of Molecular and Biomedical Science, University of Adelaide, Adelaide, Australia
115. 49th Annual Meeting of the Nuclear Magnetic Resonance Society of Japan, Tokyo, Japan
116. Department of Molecular and Cell Biology, UT Dallas, Richardson, TX
117. Pacificchem 2010, Honolulu, HI

2009:

97. Department of Chemistry, University of Washington, Seattle, WA
98. Departments of Biochemistry and Pharmacology, Univ. North Carolina, Chapel Hill, NC
99. Departments of Molecular Biology & Immunology, Univ. of North Texas Health Sciences Center, Ft. Worth, TX
100. Department of Molecular Biosciences, University of Kansas, Lawrence, KS
101. American Society for Biochemistry and Molecular Biology Meeting, New Orleans, LA

102. International Congress of Photobiology (ICP-2009), Düsseldorf, Germany
103. European Society for Photobiology Congress, Wrocław, Poland
104. Department of Chemistry & Biochemistry, San Francisco State University, CA
105. Structural and Quantitative Biology Seminar Series, University of California, Berkeley, CA
106. Symposium for International Prize for Biology, Kyoto, Japan
107. Department of Structural Biology, St. Jude Children's Hospital, Memphis, TN