

*Curriculum vitae*  
*Timothy M. Logan*

**Education**

- 1985 - 1991. Ph. D., Organic Chemistry. University of Chicago, Chicago, IL.  
Thesis Title: Monitoring Intact Metabolism using  $^{13}\text{C}$ -NMR Spectroscopy  
Thesis Advisor: David G. Lynn
- 1983 - 1985. Undergraduate Studies in Chemistry. Calvin College, Grand Rapids, MI.
- 1979 - 1983. B.S., Physiology. Michigan State University, E. Lansing, MI.

**Professional Experience**

- 2005 – present Interim Director, Institute of Molecular Biophysics, Kasha Laboratory
- 2004 - present Participating Investigator, Consortium for Functional Glycomics
- 2002 - present Director, Molecular Biophysics Graduate Program, Florida State University, Tallahassee, FL
- 2000 - present Associate Professor, Chemistry Department, Florida State University, Tallahassee, FL
- 1997 - present Associate Director, High Resolution NMR Program, National High Magnetic Laboratory, Tallahassee, FL.
- 1996 - present Adjunct Faculty, Biology Department, Florida State University, Tallahassee, FL
- 1994 - 2000 Assistant Professor, Chemistry Department. Florida State University, Tallahassee, FL.
- 1994 - present Faculty, Center for Interdisciplinary Magnetic Resonance, National High Magnetic Field Laboratory, Tallahassee, FL.
- 1991 - 1994 Post-Doctoral Research Associate with Dr. Stephen W. Fesik. Abbott Laboratories, Abbott Park, IL.
- 1991 Post-Doctoral Research Associate with Dr. Kevin S. Peters. University of Colorado, Dept. of Chemistry & Biochemistry, Boulder, CO.

**Awards and Professional Affiliations**

- R.J. Boucek Research Award Winner, American Heart Association, FI Affiliate, 1999
- Lonza Research Creativity Prize Award Winner, Lonza Biologics, 1999
- Bernard Smaller Prize for Excellence in Magnetic Resonance Research. University of Chicago, 1990.
- American Chemical Society, 1986 - present
- American Association for the Advancement of Science, 1987 - present

**Funded Research Projects**

- National Institute of Health (2R01 AI021628, J.R. Murphy, Boston University PI; Logan is

FSU subcontract PI); Title: "Peptide activators of diphtheria toxin repressor". Total Award: \$940,308. **T.M. Logan, co-P.I.**

National Science Foundation, via the National High Magnetic Field Laboratory. Title: "NMR Spectroscopy of Glycoproteins and Glycoconjugates at 900 MHz". Total Award: \$240,000. **T.M. Logan, P.I.**

FSU Research Foundation. Title: "Glycoprotein Structural Biology" Total Award: \$200,000. **T.M. Logan, P.I.**

### **Completed Research Projects**

National Science Foundation / National High Magnetic Field Laboratory (500/5032). 8/99-7/01. Total Award: \$132,592. Title: "Triple Resonance Microcoils for High-Field NMR Spectroscopy". **T.M. Logan, P.I.**

American Heart Association (9950887V). 7/99 - 6/01. Total award: \$110,000. Title: "Regulation of Signal Transduction and Transcription by SH3 Domains". **T.M. Logan, P.I.**

National Institutes of Health (R21 GM58143). 7/98 - 6/00. Total award: \$201,482. Title: "Producing Homogeneous Glycoproteins for Structural Biology". **T.M. Logan, P.I.**

National Science Foundation. (DBI 9604787) 2/97 - 1/99. Total Award: \$240,255. Title: "Replacement of a 500 MHz NMR Console at Florida State University". **T.M. Logan, P.I.**

National Institutes of Health. "Research Supplement for Under-Represented Minorities" to GM54035 (6/97 - 5/99. Total Award: \$11,336. **T.M. Logan, P.I.**

National Institutes of Health F.I.R.S.T award (29 GM54035) 5/96 - 4/01. Total award: \$500,822. Title: "Unfolded States and Protein Stability". **T.M. Logan, P.I.**

American Chemical Society, Petroleum Research Fund. 6/95 - 5/97. Total award \$20,000. Title "Non-random Random Coils: The Role of the Unfolded State in Protein Folding". **T.M. Logan, P.I.**

American Heart Association, Florida Division. 7/96 - 6/99 Total Award: \$150,000. (declined award due to AHA regulations that precluded co-award with R29 from NIH). Title: "Molecular Mechanisms of Nerve Growth Inhibition: Solution Structure of Thy-1". **T.M. Logan, P.I.**

### **Refereed Publications**

1. Fu R, Brey WW, Shetty K, Gor'kov P, Saha S, Long JR, Grant SC, Chekmenev EY, Hu J, Gan Z, Sharma M, Zhang F, Logan TM, Bruschweiler R, Edison A, Blue A, Dixon IR, Markiewicz WD, Cross TA. (2005) Ultra-wide bore 900 MHz high-resolution NMR at the National High Magnetic Field Laboratory. *J. Magn. Reson.* 177, 1-8.
2. Spencer, D.S., Xu, K. Logan, T.M., and Zhou, H.-X. (2005). Effects of pH, salt, and macromolecular crowding on the stability of FK506-binding protein: an integrated experimental and theoretical study. *J. Mol. Biol.* 351, 219-232.
3. Rangachari, V., Marin, C., Bienkiewicz, E.A., Semavina, M., Guerro, L., Love, J.F., Murphy, J.R., and Logan, T.M. (2005). Sequence of ligand binding and structure change in diphtheria toxin repressor upon activation by divalent transition metals. *Biochemistry* 44, 5672-5682.
4. Kim, J., Brych, S.R., Logan, T.M. and Blaber, M. (2005) Sequence swapping does not result

in conformation swapping for the beta4/beta5 and beta8/beta9 beta-hairpin turns in human acid fibroblast growth factor. *Protein Sci.* 14:351-359.

5. Wylie, G.P., Rangachari, V., Bienkiewicz, E., Marin V., Bhattacharya, N., Love, J.F., Murphy, J.R., and Logan, T.M. (2005). Prolylpeptide binding by the prokaryotic SH3-like domain of the diphtheria toxin repressor: A regulatory switch. *Biochemistry* 44, 40-051.
6. Brych S.R., Dubey, V.K., Bienkiewicz, W., Lee, J., Logan, T.M. and Blaber, M. (2004) Symmetric primary and tertiary structure mutations within a symmetric superfold: a solution, not a constraint, to achieve a foldable polypeptide. *J. Mol. Biol.* 344, 769-780.
7. Green, T., O. Ganes, K. Perry, L. Smith, L.H. Phylip, T.M. Logan, S.J Hagen, B.M. Dunn and A.S. Edison. (2004) "IA3, an Aspartic Proteinase Inhibitor from *Saccharomyces cerevisiae*, is Intrinsically Unstructured in Solution", *Biochemistry* 43, 4071-4081.
8. Love, J., Guerrero, L., Marin, V., Logan, T.M. & Murphhy, J.R. (2004) "Activation of the diphtheria toxin repressor (DtxR) by transition metal ions occurs via a three-step mechanism", *in the press, Proc. Natl. Acad. Sci., USA.* 101,2506-2511.
9. Mehndiratta, P., Walton, W.J., Pulido, S., Hare, J., Parthasarathy, G., Emmett, M., Marshall, A.G., & T.M. Logan. (2004) "Expression, Purification and Characterization of Chicken Thy-1 Expressed in Lec-1 and Insect Cells for Reduced Glycoform Heterogeneity", *Protein Expression and Purification*, 33(2),274-287.
10. Li, Y., T.M. Logan, A.S. Edison, and A. Webb. (2003) "Design of small-volume HX and triple resonance probes for improved limits of detection in protein NMR experiments", *J. Magn. Reson.* 164, 128-135.
11. Kim, J., Brych, S.R., Lee, J., Logan, T.M. and Blaber, M. (2003) "Identification of a Key Structural Element for Protein Folding Within  $\beta$ -Hairpin Turns", *J. Mol. Biol.* 328, 951-961
12. Korepanova, A., C. Douglas, & T.M. Logan. (2002) "Glutamine53 is a Gatekeeper Residue in the Folding of the FK506 Binding Protein", *J. Mol. Biol.* 323, 285-296.
13. Brych, S.R., S.I. Blaber, T.M. Logan, M. Blaber. (2001) "Structure and stability effects of mutations designed to increase the primary sequence symmetry within the core region of a b-trefoil." *Protein Science* 10, 2587-2599.
14. Korepanova, A., Leyngold, I. & T.M. Logan. (2001) "N-terminal extension changes the folding mechanism of the FK506 binding protein." *Protein Science* 10, 1905-1910.
15. Twigg, P.D., G. Parthasarathy, L. Guerrero, T.M. Logan & D.I.D.Caspar. (2001) "Disorder-to-Order Transition in the Regulation of Diphtheria Toxin Repressor Activity". *Proc. Natl. Acad. Sci., USA* 98, 11259-11264.
16. Callihan, D.E., & T.M. Logan. "Conformations of Peptide Fragments from the FK506 Binding Protein: Comparison to the Native and Urea-Unfolded States". (1999) *J. Mol. Biol.* 285, 2161- 2175.
17. Wang, G., G. Wylie, P. Twigg, D.L.D. Caspar, J.R. Murphy & T.M. Logan. "Solution structure and proposed function of the C-terminal SH3 domain in Diphtheria Toxin Repressor". (1999) *Proc. Natl. Acad. Sci., USA* 66, 6119-6124.
18. Murali, N., G. Wang, C. Jolivet, & T.M. Logan. "Application of a High Resolution Superconducting NMR Probe in Natural Product Structure Determination" (1999) *Magn. Reson. Chem.* 37, 512-515.
19. Twigg, P.D., G.P. Wylie, G. Wang, D.L.D. Caspar, J.R. Murphy & T.M. Logan. "Expression

and Assignment of the  $^1\text{H}$ ,  $^{15}\text{N}$ , and  $^{13}\text{C}$  Resonances of the C-terminal Domain of the Diphtheria Toxin Repressor".(1999) *J. Biomol. NMR* 13, 197-198.

20. Zhang, Z., Li, W., Li, M., Logan, T.M., & A.G. Marshall. "Human recombinant [C22A] FK506 binding protein amide hydrogen exchange rates from mass spectrometry match and extend those from NMR." (1997) *Protein Science* 6, 2203-2217.
21. Marshall, A.G., M.W. Senko, W. Li, M. Li, S. Dillon, S. Guan, & T.M. Logan. "Protein Molecular Mass to 1 Da by  $^{13}\text{C}$ ,  $^{15}\text{N}$  Double-Depletion and FT-ICR Mass Spectrometry." (1997) *J. Am. Chem. Soc.* 119, 433-434.
22. Callihan, D., J. West, S. Kumar, B.I. Schweitzer, & T.M. Logan. "Simple Distortion-Free Homonuclear Spectra of Peptides and Nucleic Acids in Water using Excitation Sculpting." (1996) *J. Magn. Reson.* 112B, 82-85.
23. Vincent, S.J.F., Zwahlen, C., Bolton, P.H., T.M. Logan, & G. Bodenhausen. "Measurement of cross-relaxation between amide protons in N-15-enriched proteins with suppression of spin diffusion" (1996) *J. Am. Chem. Soc.* 118, 3531-3532.
24. Zhou, M.-M., Meadows, R.P., Logan, T.M., Yoon, H.S., Wade, W.S., Ravichandran, K.S., Burakoff, S.J., & Fesik, S.W. 1995. "Solution structure of the shc SH2 domain complexed with a tyrosine-phosphorylated peptide from the T-cell receptor". (1995) *Proc. Natl. Acad. Sci. USA* 92, 7784-7788.
25. Logan, T.M., Zhou, M.-M., Nettesheim, D.G., Meadows, R.P., van Etten, R. & Fesik, S.W. "Solution structure of a low molecular weight protein tyrosine phosphatase." (1994) *Biochemistry* 33, 11087-11096.
26. Zhou, M.-M., Logan, T.M., Theriault, Y.T., van Etten, R. & Fesik, S.W. "Backbone  $^1\text{H}$ ,  $^{13}\text{C}$ , and  $^{15}\text{N}$  assignments and secondary structure of bovine low molecular weight phosphotyrosyl protein phosphatase." (1994) *Biochemistry* 33, 5221-5229.
27. Logan, T.M., Theriault, Y.T. & Fesik, S.W. "Structural characterization of the FK506 binding protein unfolded in urea and guanidine hydrochloride." (1994) *J. Molecular Biology* 236, 637- 648.
28. Logan, T.M., Olejniczak, E.T., Xu, R.X., & Fesik, S.W. "A general method for assigning NMR spectra of denatured proteins using 3D HC(CO)NH-TOCSY triple resonance experiments." (1993) *J. Biomolecular NMR* 3, 225-231.
29. Egan, D.A., Logan, T.M., Liang, H., Matayoshi, E., Fesik, S.W. & Holzman, T.F. "Equilibrium denaturation of recombinant human FK506 binding protein in urea." (1993) *Biochemistry* 32, 1920-1927.
30. Theriault, Y.T., Logan, T.M., Meadows, R.P., Yu, L., Olejniczak, E.T., Holzman, T.F., Simmer, R.L., & Fesik, S.W. "Solution structure of the cyclosporin A/cyclophilin complex by NMR" (1993) *Nature* 361, 88-91.
31. Peters, K.S., Watson, T. & Logan, T.M. "Photoacoustic calorimetry of human carboxyhemoglobin." (1992) *J. Am. Chem.Soc.*114, 4276-4278.
32. Logan, T.M., Olejniczak, E.T., Xu, R.X., & Fesik, S.W. "Sidechain and backbone assignments in isotopically labeled proteins from two heteronuclear triple resonance experiments." (1992) *FEBS Lett.* 314, 413-418.
33. Logan, T.M., Zhong, P., & Lynn, D.G. "Metabolic thermotolerance: magnetic resonance detected protection of glutamate synthase." (1992) *Biochemistry* 32, 7256-7263.
34. Neri, P., Meadows, R., Gemmecker, G., Olejniczak, E., Nettesheim, D., Logan, T., Simmer, R., Helfrich, R., Severin, J., & Fesik, S. " $^1\text{H}$ ,  $^{13}\text{C}$  and  $^{15}\text{N}$  backbone assignments of cyclophi-

lin when bound to cyclosporin A (CsA) and preliminary structural characterization of the CsA binding site." (1991) *FEBS Lett.* 294, 81-88.

35. McLaggen, D., Logan, T.M., Lynn, D.G., & Epstein, W. "Involvement of gamma-glutamyl peptides in osmoadaptation of *Eschericia coli*." (1990) *J. Bacteriol.* 172, 3631-3636.

### Invited Lectures

November 2003. Inaugural Lecture in Chemical Biology, University of West Florida. "Regulation of Diphtheria Toxin Repressor Protein".

August, 2002. American Chemical Society, San Juan, Puerto Rico. "Regulation of Diphtheria Toxin Repressor Protein".

November, 2001. Georgia State University, Department of Chemistry, Atlanta, GA. "Disordered to Ordered Transition in the Activation of Diphtheria Toxin Repressor."

November, 2001. Emory University, Department of Chemistry, Atlanta, GA. "Disordered to Ordered Transition in the Activation of Diphtheria Toxin Repressor."

November, 2001. Wayne State University Medical School, Department of Biochemistry, Wayne, MI. "Disordered to Ordered Transition in the Activation of Diphtheria Toxin Repressor."

October, 2001. SEMRC, Gainesville, FL. "Disordered to Ordered Transition in the Activation of Diphtheria Toxin Repressor."

September, 2001. SERMACS, Savannah, GA. "Conformational Averaging in the Unfolded State of the FK506 Binding Protein Affects the Folding Pathway".

November, 2000. University of Florida, Gainesville, FL. "Solution structure and peptide binding by a prokaryotic SH3 domain."

October, 2000. Clarkson University, Biology Department. "Protein folding as a regulatory mechanism in a prokaryotic transcriptional regulator".

November, 1999. Trinity University, San Antonio, TX. "Investigating long-range structure in unfolded proteins"

August, 1999. Sturtevant Symposium, Tallahassee, FL. "Structural Characterization of the Urea Unfolded State of FK506 Binding Protein"

June, 1999. Clarkson University. "Frontiers of NMR Spectroscopy: What's New and What's Hot"

June 1999. Northeast Regional ACS Meeting. Title: "Solution structure and peptide binding by a prokaryotic SH3 domain".

May, 1999. FAME / FLACS, Orlando, FL. "Solution Structure and Peptide Binding by C-terminal Domain of Diphtheria Toxin Repressor, a Prokaryotic SH3 Domain".

May, 1999. 4th NATO ASI Summer Course in Magnetic Resonance and Structural Biology, Erice, Italy. "Solution structure and peptide binding by a prokaryotic SH3 domain".

May 1998. FAME / FLACS Meeting, Orlando, FL. "Chemical shift assignments, secondary structure and folding topology of the C-terminal domain of the diphtheria toxin repressor protein."

November, 1997. 29th SEMRC, Gainesville, FL. "Chemical shift assignments, secondary structure, and folding topology of the C-terminal domain of the diphtheria toxin repressor"

protein.”

October, 1997. Calvin College, Grand Rapids, MI. “Structural Characterization of Unfolded Proteins using Multidimensional NMR Spectroscopy”

October, 1997. Hope College, Holland, MI. “Structural Characterization of Unfolded Proteins using Multidimensional NMR Spectroscopy”

September, 1997. U. South Florida, Tampa, FL. “Structural Characterization of Unfolded Proteins using Multidimensional NMR Spectroscopy”

July, 1997. Center for Interdisciplinary Magnetic Resonance, NHMFL, Tallahassee, FL. “Frontiers in Structural Characterization of Unfolded Proteins”

January, 1997. PENCE Lecture, U. Toronto, Toronto, ON. “Structural Characterization of Unfolded Proteins using Multidimensional NMR Spectroscopy”

### Posters & Abstracts

April, 2001. American Society for Mass Spectrometry. “Characterizing recombinant chicken Thy-1 with reduced glycoform distribution by MALDI-TOC and ESI FT-ICR MS of AspN digested glycoprotein.” P. Mehndiratta, S. Pulido, M.R. Emmett, W.J. Walton, J. Hare, A.G. Marshall, & T.M. Logan

October, 1999. Glycoprotein Society Meeting. “Cloning and High-level Expression of Avian Thy-1 in Mammalian and Insect Cell Systems”. P. Mehndiratta, M. Tway, G. Parthasarathy, & T.M. Logan

August, 1999. Sturtevant Symposium. “Conformations of Peptide Fragments from FKBP: Comparison to the Native and Urea-unfolded States”. D. Callihan & T.M. Logan

March, 1999. 4th Johns Hopkins Folding Meeting. “Conformations of Peptide Fragments from FKBP: Comparison to the Native and Urea-unfolded States”. D. Callihan & T.M. Logan

January, 1999. Frontiers of NMR in Molecular Biology, Keystone Meeting. “Solution structure and peptide binding by the C-terminal domain of the diphtheria toxin repressor protein”, G.Wang, G. Wylie, P Twigg, J.R. Murphy, D.L.D. Caspar & T.M. Logan.

October, 1998. NMR Technologies Meeting. “Characterization of a high-resolution NMR probe made from high temperature superconducting materials, and application to natural product structure determination.” M. Murali, G. Wang, C. Jolivet & T.M. Logan

July, 1998. 12th Protein Society Meeting. “Solution structure and peptide binding by the C-terminal domain of the diphtheria toxin repressor protein”, G.Wang, G. Wylie, P Twigg, J.R. Murphy, D.L.D. Caspar & T.M. Logan.

January, 1998. Magnetic Resonance Gordon Conference. “Characterization of a high-resolution NMR probe made from high temperature superconducting materials, and application to natural product structure determination.” M. Murali, G. Wang, C. Jolivet & T.M. Logan

November, 1997. 29th SEMRC. “Probing long-range interactions in unfolded proteins”, D. Callihan, P. Fajer, K. Hideg, T. Kalai & T.M. Logan

July, 1997. 11th Protein Society Meeting. “Probing long-range interactions in unfolded proteins”, D. Callihan, P. Fajer, K. Hideg, T. Kalai & T.M. Logan

July, 1997. 11th Protein Society Meeting. “Identification of *E. coli* protein profiles by HPLC/FT-ICR mass spectrometry of proteins grown on <sup>13</sup>C,<sup>15</sup>N doubly-depleted media” W. Li, M.

- Li, Z. Zhang, M. Emmett, T.M. Logan, & A.G. Marshall.
- October, 1996 NIH Protein Folding Meeting. "Local versus long range interactions in secondary structure formation in unfolded proteins" D. Callihan, T. Shepherd, L. Stirling, & T.M. Logan
- July, 1996 10th Protein Society Meeting "FK506 Binding protein conformation from protein amide hydrogen exchange determined by FT-ICR mass spectrometry". Z. ZHANG, W. Li, M. Li, TM Logan, S. Guan & AG Marshall.
- July, 1996 10th Protein Society Meeting "Sharpening of protein mass spectrometric profiles by depletion of minor isotopes of carbon and nitrogen." Z. Zhang, M.W. Senko, M. Li, T.M. Logan & AG Marshall.
- July, 1996 10th Protein Society Meeting. "Local versus Long-Range Interactions in Non-Random Structure Formation in Unfolded Proteins" D. Callihan, T.M. Shepherd, L. Stirling, & T.M. Logan
- July, 1996. 10th Protein Society Meeting. "Does Non-Random Structure in an Unfolded Protein Affect Native State Stability?" Ming Li and Timothy M. Logan.
- July, 1996. 10th Protein Society Meeting. "Isolation and Characterization of a Novel Thy-1 Saffron from Chicken Brain" G. Parthasarathy, J.E. Williams, & T.M. Logan
- December, 1995. 27th SEMRC, Tallahassee, FL. "Peptide models of unfolded FKBP" D.Callihan & TM Logan.

## Teaching Experience

**Courses Taught:** BCH 4053 General Biochemistry I  
BCH 5745 Chemical and Physical Characterization of Biopolymers  
BCH 5886 Macromolecular NMR Spectroscopy  
BCH 6896r & BCH 6897r Graduate Seminar in Biochemistry and Molecular Biophysics

### Students and Other Trainees:

Postdoctoral Associates: Dr. Guangshun Wang, Dr. Steven Whitten, Dr. R. Vijayraghavan.

#### PhD Students:

Dana Callihan (Ph.D., 2000); Alla Korepanova (Ph.D., 2001);  
Gregory Wylie (Ph.D., 2002); Promod Mehndiratta (Ph.D., 2002);  
Vedrana Marin, Wendy Walton, Ilker Sen, Maria Semavina,  
Sumiko Takahashi, Nilakshee Bhattacharya, Aga Kasprczyk

Masters Students: Ming Li (1997); Kefei Zhou (2000), Laura Mertz (2000).

Undergraduate Students: 20; 8 currently in graduate or medical school.

Graduate Student Committees: 23 in Chemistry, Biology, Molecular Biophysics, and Engineering.