

# Curriculum vitae—Lila M. Gierasch

Distinguished Professor Emeritus  
Departments of Biochemistry & Molecular Biology and Chemistry  
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## EDUCATION

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Mount Holyoke College, So. Hadley, MA	A.B. 1970	Chemistry
Harvard University, Cambridge, MA	Ph.D. 1975	Biophysics (E.R. Blout, advisor)

## PROFESSIONAL EXPERIENCE

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1974-1979	Assistant Professor of Chemistry, Amherst College
1977-1978	Visiting Scientist, Université Louis Pasteur de Strasbourg (with J.M. Lehn)
1979-1981	Assistant Professor of Chemistry, University of Delaware
1981-1985	Associate Professor of Chemistry, University of Delaware
1983-1984	Visiting Scientist, Smith Kline & French
1985-1988	Professor of Chemistry, University of Delaware
1988-1994	Professor of Pharmacology and Robert A. Welch Professor of Biochemistry, The University of Texas Southwestern Medical Center at Dallas
1991-1994	Director, Molecular Biophysics Graduate Program, UT Southwestern
1994-1999	Head, Dept. of Chemistry, Univ. of Massachusetts Amherst
1999-2005	Head, Dept. of Biochem. & Mol. Biology, Univ. of Massachusetts, Amherst
1994-	Professor of Chemistry, Univ. of Massachusetts Amherst
1999-	Professor of Biochemistry & Molecular Biology, Univ. of Massachusetts Amherst
2006-	Distinguished Professor, University of Massachusetts, Amherst
2021-	Research Professor; Professor Emeritus

## HONORS AND AWARDS

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1970	A. B. conferred summa cum laude and with great distinction
1970-1973	NSF Predoctoral Fellowship
1977-1978	French Ministry of Foreign Affairs Fellowship
1984-1986	A.P. Sloan Fellowship
1984	Vincent du Vigneaud Award for Young Investigators in Peptide Research
1985	Mary Lyon Award, Mount Holyoke College
1986	Guggenheim Fellowship
1987	Distinguished Faculty Lecturer, College of Arts & Science, Univ. of Delaware
1989	Fellow, American Association for the Advancement of Science
1999	Distinguished Faculty Lecturer/Chancellor's Medal, Univ. of Massachusetts
2002	D. Sc. Honoris Causa, Mount Holyoke College
2002	Samuel F. Conti Faculty Fellowship, University of Massachusetts, Amherst
2002	Outstanding Service Award, College of Nat. Sci. & Math., UMass, Amherst
2006	Named Distinguished Professor, University of Massachusetts, Amherst
2006	Francis P. Garvan-John M. Olin Medal of the American Chemical Society
2006	Award for Outstanding Accomplishments in Research & Creative Activity, UMass
2006	NIH Director's Pioneer Award
2008	Fellow, Massachusetts Academy of Science
2008	Goodman Lecturer, Univ. of California, San Diego
2009	Welch Lecturer, Texas

2010	Dorothy Crowfoot Hodgkin Award, The Protein Society
2014	Fellow, Biophysical Society
2014	Mildred Cohn Award, American Society of Biochemists and Molecular Biologists
2016	Francis D. Carlson Lecturer, Johns Hopkins University
2016	Elected Fellow, American Academy of Arts and Sciences
2016	Maximizing Investigators' Research Award (MIRA), NIGMS, NIH
2016	Editor-in-Chief, <i>The Journal of Biological Chemistry</i>
2018	American Chemical Society Ralph F. Hirschmann Award in Peptide Chemistry
2019	American Peptide Society Merrifield Award
2019	Elected member, National Academy of Science
2020	Alumnae Achievement Award, Mount Holyoke College
2020	College of Natural Sciences Research Award, Univ. of Massachusetts Amherst
2021	Fellow, American Society of Biochemists and Molecular Biologists

### SERVICE TO PROFESSION

1981-1983	Consultant, NICHD Contracts Program on Peptides as Gonadotropin Inhibitors
1983-1987	Member, BCB Study Section, NIH
1985-1986	Consultant, Merck Sharp & Dohme Research Laboratories
1986-1994	Member, Scientific Advisory Board, Biosym Technologies, Inc.
1991-1994	Founder and Director, Molecular Biophysics Graduate Program, UT Southwestern
1994-1998	Member, Scientific Advisory Board, Damon Runyon/Walter Winchell Foundation
1995-2001	Member, Selection and Scheduling Committee, Gordon Res. Conferences
1996	Member, Visiting Committee, Dept. of Chemistry, Duke University
1997	Member, Chemical Sciences Roundtable, National Research Council
1998-2001	Member, National Advisory General Medical Sciences Council, NIH
1998-2001	Member, Advisory Committee, Directorate for Math and Physical Sciences, NSF
1983-1991	Member, American Peptide Symposium Planning Committee
1993-1999	Member, Council of the American Peptide Society
1990-1993	Member, U.S. National Committee for IUPAC
1991-1997	Member, U.S. National Committee for IUPAB (Chair, 1997)
1991-1994	Chair, Biophysical Society Publications Committee
1995-1996	President, Biophysical Society
1996-1998	Member, FASEB Board
1997-2000	Member, Finance Committee, Biophysical Society
1994-1996	Executive Committee, Div. of Biol. Chem., Amer. Chem. Soc.
1998-2001	Member, Nominating Committee, ASBMB
1988	Chair, "Proteins" Gordon Research Conference
1988	Co-Organizer, AAAS Symposium "Protein Folding"
1991	Program Chair, Biophysical Society Annual Meeting
1993,1995	Vice-Chair, Chair "Membrane-Molecular Biology" Gordon Research Conference
2002,2004	Vice-Chair, Chair "Protein Folding Cell" FASEB Summer Conference
2002	Outside Review Panel, Dept. of Biochemistry, Purdue University
2003-2006	Member, Council, ASBMB
2004-2010	Member, Finance Committee, Biophysical Society
2003-2006	Member, Discussions Committee, Biophysical Society
2004	Member, Physical Biochemistry Study Section, NIH
2005-2008	Member, MSFB Study Section, NIH
2005	Co-Organizer, Johns Hopkins Folding Meeting
2006-2009	Executive Committee, Biological Division of the American Chemical Society
2006-2007	Member, External Advisory Committee, University of Kansas COBRE Grant
2006-2009	Member, Executive Council, The Protein Society

2006-	Member, Protein Structure Initiative Advisory Committee to NIGMS Council
2008-2011	Member, Advisory Committee, FASEB Summer Conferences
2009-	Member, Scientific Advisory Board, Mass. Life Sciences Initiative
2009	External Review Committee, Dept. of Chemistry, Univ. of Virginia
2009-	Consultant, Vertex Pharmaceuticals
2009	Co-Organizer, Keystone Meeting on Protein Dynamics and Allostery
2009-2012	Elected member, American Peptide Society Nominating Committee
2011	External review committee, BU Med. School Graduate Program in Molecular Biophysics
2011	External review committee, UCSF Graduate Program in Biophysics
2012	Co-organizer, 6 <sup>th</sup> Peptide Engineering Meeting, Emory Univ., October 2012
2012-2013	Member, PSI:Biology Evaluation Team, NIGMS, NIH
2013-2014	Chair, Biopolymers In Vivo Subgroup, Biophysical Society
2013-2016	Elected member, ASBMB Nominating Committee
2013-2014	National Institutes of General Medical Sciences "Future of Structural Biology Committee"
2014-2015	Elected member, Biophysical Society Nominating Committee
2014	Dissertation Opponent, Linkoping University, Sweden
2014	External review committee, Wesleyan University Biophysics Program
2014	External review committee, Univ. of Texas, Austin, Molecular Biosciences Department
2014-2017	Member, NIH Office of the Director Council of Councils
2016	External review committee, The Johns Hopkins University Jenkins Department of Biophysics
2017	External review committee, The University of Toronto Dept. of Biochemistry
2018	External review committee, The University of Texas Southwestern Medical Center Graduate Program in Molecular Biophysics
2018-2023	Member, Scientific Advisory Board, Max Planck Institute of Biochemistry
2019-	Consultant, Mitobridge Inc.
2020-	Consultant, New Equilibrium Biosciences

### **SOCIETY MEMBERSHIPS**

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AAAS, ACS, ASBMB, Biophysical Soc., Amer. Soc. Cell Biol., Amer. Peptide Soc., The Protein Society

### **EDITORIAL ADVISORY BOARDS**

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1988-1995	<i>Journal of Molecular Recognition</i>
1989-1996	<i>International Journal of Peptide and Protein Research</i>
1992-1999	<i>Biochemistry</i>
1996-1999	<i>Folding and Design</i>
1998-1993	<i>Peptide Research</i>
1997-2005	<i>Journal of Peptide Research</i>
2000-2003	<i>Journal of Biological Chemistry</i>
2006-2013	<i>Chemical Biology and Drug Design</i>
1987-2012	<i>Biopolymers</i>
1988-2015	<i>Proteins: Structure, Function and Genetics</i>
1993-2015	<i>Chemistry &amp; Biology</i>
2004-2008	Editor-in-Chief, <i>Peptide Science</i>
2009-2016	Associate Editor, <i>Peptide Science</i>
2007-2012	<i>Chemistry Central Journal</i>
2014-2018	<i>ACS Central Science</i>
2014-2017	<i>Accounts of Chemical Research</i>
1999-	<i>Structure</i>
2006-2018	<i>Protein Science</i>
2016-2021	Editor-in-Chief, <i>The Journal of Biological Chemistry</i>

2022- Editorial Board, *Proceedings of the National Academy of Sciences, U.S.A.*

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**RECENT REPRESENTATIVE KEYNOTE, PLENARY, AND MAJOR INVITED LECTURES**

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Invited Lecture, EMBO Conference “The Biology of Molecular Chaperones”, Sardinia, Italy, May 2013.  
Plenary Lecture, Swedish Structural Biology Network Annual Conference, Tällberg, Sweden, June 2013.  
Lamport Lecturer, University of Washington, October 2013.  
University Lecturer, UT Southwestern, January 2014.  
Mildred Cohn Award Lecture, ASBMB, April 2014.  
Invited Lecture, Linköping University, Sweden, May 2014.  
Keynote Lecture, FASEB Meeting on Protein Folding in the Cell, July 2014.  
Plenary Lecture, Belgian Society of Biophysics Annual Meeting, Brussels, Belgium, October 2014.  
Invited Lecture, Takeda Pharmaceuticals, Cambridge, MA, May 2015.  
Beckman Scholars Lecture, Univ. of Michigan, April 2015.  
Frederic Richards Lecturer, Yale University, March 2015.  
Invited Lecture, FASEB Meeting on Biophysical and Physiological Aspects of Amyloid, June 2015.  
Invited Lecture, Cold Spring Harbor Meeting on Protein Homeostasis in Health and Disease, May 2016.  
Francis D. Carlson Lecturer in Biophysics, Johns Hopkins University, May 2016.  
Invited Lecture, Gordon Conference on Intrinsically Disordered Proteins, June 2016.  
Invited Lecture, FASEB Meeting on Protein Folding in the Cell, July 2016.  
Invited Lecture, Workshop on Chaperones in the maintenance of cellular proteostasis, Baeza, Spain, October 2016.  
Invited Lecture, Third Protein Folding Symposium, Bangalore, India, November 2016.  
Mary Jane Osborne Lecturer, The Univ. of Connecticut Health Science Center, June 2017.  
Invited Lecture, Nobel Symposium on Protein Folding, Stockholm, Sweden, June 2017.  
Invited Lecture, Proteins Gordon Research Conference, June 2017.  
Keynote Lecture, Univ. of Liege Graduate Student Symposium, Liège, Belgium, November 2017.  
Ralph F. Hirschman Award Lecturer, ACS, March 2018.  
Invited Lecture, Cold Spring Harbor meeting “Protein Homeostasis in Health and Disease”, April 2018.  
Invited Lecture, Protein Society 32nd annual symposium, July 2018.  
Invited Lecture, FASEB Meeting on Protein Folding in the Cell, July 2018.  
Keynote Lecture, Protein Folding Diseases Initiative Symposium, Univ. of Michigan, October 2018.  
Merrifield Award Lecture, American Peptide Society, June 2019.  
Keynote Lecture, Mass Spectrometry in Biology Meeting, July 2019.  
Keynote Lecture, Linderstrom-Lang Symposium, Copenhagen, Denmark, November 2019.  
Keynote Lecture, Northwestern Biophysics Symposium, September 2019.  
Keynote Lecture, Wesleyan Biophysics Symposium, September 2019.  
Keynote Lecture, Paul Janssen Award Symposium, New York, October 2019.  
Keynote Lecture, Peptides in Chemistry and Biology Gordon Conference, February 2020.  
Plenary Speaker at the Castle Conference, Univ. of South Florida, Tampa, March 2020.  
CCR Grand Rounds, National Cancer Institute, NIH, October 2020 (virtual).  
Invited Lecture, The Chaperone Code Symposium, October 2020 (virtual).  
Invited Lecture, Cold Spring Harbor meeting on Protein Homeostasis, November 2020 (virtual).  
Invited Lecture, Miami University Ritter Memorial Lectureship, Miami, Ohio, September 2022.  
Invited Lecture, Protein Folding Dynamics Gordon Research Conference, Ventura, CA, October 2022.  
Keynote Lecture, Conference on Protein Dynamics and Conformational Switching, Venice, Italy, May 2023.  
Invited Lecture, Stress Proteins in Growth, Development and Disease Gordon Research Conference, Il Ciocco, Italy, July 2023.

Invited Lecture, 2nd International Symposium on the Chaperone Code, Old Town, VA, October 2023  
Invited Lecture, "Cellular Machineries of Protein Folding, Assembly and Transport" symposium, Munich, Germany, February 2024  
Invited Lecture, ACS Murray Goodman Award Symposium, New Orleans, LA, March 2024  
Keynote Lecture, Molecular Biophysics in the Northeast (MBN) meeting, UMass Amherst, April 2024  
Invited Lecture, FASEB Meeting on Protein Folding in the Cell, Southbridge, MA, July 2024  
Keynote Lecture, Univ. of Utah Bioscience Symposium, Salt Lake City, UT, September 2024  
Keynote Lecture, Harvard Chemical Biology retreat, Portland, ME, October 2024  
Invited Lecture, University of Florida, Gainesville, FL, January 2025  
Invited Lecture, American Peptide Symposium, San Diego, CA, June 2025  
Invited Lecture, Stress Proteins in Growth, Development and Disease Gordon Research Conference, Newry, ME, July 2025

### **PUBLICATIONS (early papers have my author name as Lila G. Pease)**

1. L. G. (Gierasch) Pease, C. M. Deber, and E. R. Blout, Cyclic Peptides, V.  $^1\text{H}$  and  $^{13}\text{C}$  nuclear magnetic resonance determination of the preferred  $\beta$  conformation for proline-containing cyclic hexapeptides, *J. Am. Chem. Soc.*, 95, 258-260 (1973).
2. E. R. Blout, C. M. Deber, and L. G. Pease, Cyclic peptides, in *Polypeptides, Peptides, and Proteins*, E. R. Blout, F. A. Bovey, M. Goodman, and N. Lotan, Eds., Interscience, New York, pp. 266-281 (1974).
3. D. Baron, L. G. Pease, and E. R. Blout, Cyclic peptides, 19. Cation binding of a cyclic dodecapeptide cyclo-(L-Val-Gly-Gly-L-Pro) $_3$  in an aprotic medium, *J. Am. Chem. Soc.*, 99, 8299-8306 (1977).
4. L. G. Pease and C. Watson, Conformational and ion binding studies on a cyclic pentapeptide: evidence for  $\beta$  and  $\gamma$  turns in solution, in *Peptides: Proceedings of the Fifth American Peptide Symposium*, M. Goodman, and J. Meienhofer, Eds., John Wiley and Sons, New York, pp. 346-349 (1977).
5. C.-H. Niu, L. G. Pease and E. R. Blout, Cyclic peptides. XVIII.  $^{13}\text{C}$  spin-lattice relaxation times of (X-L-Pro-Y) $_2$  cyclic hexapeptides, *Biopolymers*, 17, 115-123 (1978).
6. L. G. Pease and C. Watson, Conformational and ion binding studies of a cyclic pentapeptide: evidence for  $\beta$  and  $\gamma$  turns in solution, *J. Am. Chem. Soc.*, 100, 1279-1286 (1978).
7. C.-H. Niu, V. Madison, L. G. Pease and E. R. Blout, Cyclic peptides, XXII. Cation binding by a cyclic hexapeptide, Cyclo-(D-Ala-L-Pro-Gly) $_2$ , *Biopolymers*, 17, 2747-2751 (1978).
8. B. Dietrich, T. Fyles, J. M. Lehn, L. G. Pease and D. L. Fyles, Anion receptor molecules. synthesis and some anion binding properties of macrocyclic guanidinium salts, *JCS Chem. Comm.*, pp. 934-936 (1978).
9. K. L. Williamson, L. G. Pease and J. D. Roberts, Conformational analysis by nuclear magnetic resonance spectroscopy:  $^{15}\text{N}$  NMR of a cyclic pentapeptide, *J. Am. Chem. Soc.*, 101, 714-716 (1979).
10. K. R. K. Easwaran, L. G. Pease and E. R. Blout, Cyclic Peptides, XXIII. Conformations of an ion-binding cyclic peptide analog of valinomycin, Cyclo-(L-Val-Gly-Gly-L-Pro) $_3$ , *Biochemistry*, 18, 61-67 (1979).
11. L. G. Pease, C.-H. Niu and G. Zimmermann, Solution conformation of cyclo(Gly-Pro-Ser-D-Ala-Pro). Hydrogen-bonded reverse turns in cyclic pentapeptides, *J. Am. Chem. Soc.*, 101, 184-191 (1979).

12. L. G. Pease, Preferred hydrogen-bonded conformations of cyclic pentapeptides, in *Peptides: Structure and Biological Function, Proceedings of the Sixth American Peptide Symposium*, E. Gross and J. Meienhofer, Eds., Pierce Chem. Co., Rockford, IL, pp. 197-200 (1979).
13. L. G. Pease, D. Baron, K. R. K. Easwaran and E. R. Blout, A valinomycin analogue containing only naturally-occurring amino acids, in *Frontiers of Bio-Organic Chemistry and Molecular Energy*, S. N. Ananchenko, Ed., Pergamon Press, Oxford, pp. 81-91 (1980).
14. J. A. Smith and L. G. Pease, Reverse turns in peptides and proteins, *CRC Crit.Rev. Biochemistry*, 8, 315-400 (1980).
15. L. G. Pease, M. H. Frey and S. J. Opella, Observation of conformationally distinct proline residues in two model peptides by solid-state nuclear magnetic resonance, *J. Am. Chem. Soc.*, 103, 467-468 (1981).
16. L. M. Gierasch, C. M. Deber, V. Madison, C.-H. Niu and E. R. Blout, Conformations of (X-L-Pro-Y)<sub>2</sub> cyclic hexapeptides. preferred  $\beta$ -turn conformers and implications for  $\beta$  turns in proteins, *Biochemistry*, 20, 4730-4738 (1981).
17. T. H. Walter, G. L. McIntire, E. E. Bancroft, E. R. Davis, L. M. Gierasch and H. N. Blount, Interfacial spin trapping in model membrane systems, *Biochem.Biophys. Res. Comm.*, 102, 1350-1357 (1981).
18. J. E. Lacy, K. F. Thompson, P. I. Watnick and L. M. Gierasch, Conformations of model peptides in membrane-mimetic environments, in *Peptides: Synthesis, Structure and Function*, D. H. Rich and E. Gross, Eds., Pierce Chem. Co., Rockford, IL, pp. 339-342 (1981).
19. A. C. Bach, II, A. A. Bothner-By and L. M. Gierasch, Estimation of proline ring nonplanarity in cyclic pentapeptides from proton spin-spin coupling constants, in *Peptides: Synthesis, Structure and Function*, D. H. Rich and E. Gross, Eds., Pierce Chem. Co., Rockford, IL, pp. 343-346 (1981).
20. L. M. Gierasch, S. J. Opella and M. H. Frey, Solid-state NMR of peptides, in *Peptides: Synthesis, Structure and Function*, D. H. Rich and E. Gross, Eds., Pierce Chem. Co., Rockford, IL, pp. 267-275 (1981).
21. L. M. Gierasch, J. E. Lacy, K. F. Thompson, A. L. Rockwell and P. I. Watnick, Conformations of model peptides in membrane-mimetic environments, *Biophys. J.*, 37, 275-284 (1982).
22. A. C. Bach, II, A. A. Bothner-By and L. M. Gierasch, Determination of proline ring nonplanarity from proton spin-spin coupling constants: applications to two cyclic pentapeptides, *J. Am. Chem. Soc.*, 104, 572-576 (1982).
23. L. M. Gierasch, M. H. Frey, J. G. Hexem and S. J. Opella, Solid state NMR of linear and cyclic peptides, in *NMR Spectroscopy: New Methods and Applications*, George C. Levy, Ed., ACS Symposium Ser. No. 191, Washington, D.C., 233-247 (1982).
24. T. H. Walter, E. E. Bancroft, G. L. McIntire, E. R. Davis, L. M. Gierasch, H. N. Blount, H. J. Stronks and E. G. Janzen, Spin trapping in heterogeneous electron transfer processes, *Canadian J. Chem.*, 60, 1621-1636 (1982).
25. A. F. Spatola, L. M. Gierasch and A. L. Rockwell, A conformational comparison of cyclic peptide and pseudopeptide structures with intramolecular hydrogen bonding, *Biopolymers*, 22, 147-151 (1983).
26. L. M. Gierasch, J. E. Lacy, G. Anderle, R. Lalancette and R. Mendelsohn, Spectroscopic studies of a hydrophobic peptide in membrane-like environments, *Biopolymers*, 22, 381-385 (1983).
27. G. D. Rose, W. B. Young and L. M. Gierasch, Interior Turns in Globular Proteins, *Nature*, 304, 654-657 (1983).
28. J. L. Flippen-Anderson, R. Gilardi, I. L. Karle, M. H. Frey, S. J. Opella, L. M. Gierasch, M.

- Goodman, V. Madison and N. G. Delaney, Crystal structures, molecular conformations, infrared spectra and  $^{13}\text{C}$  NMR spectra of methylproline peptides in the solid state, *J. Am. Chem. Soc.*, 105, 6609-6614 (1983).
29. M. H. Frey, J. G. Hexem, G. D. Leo, P. Tsang, S. J. Opella, A. L. Rockwell and L. M. Gierasch, Solid state NMR of peptides in membrane bilayers, in *Proceedings of the Eighth American Peptide Symposium*, V. Hruby and D. H. Rich, Eds., Pierce Chem. Co., Rockford, IL, pp. 763-771 (1983).
30. K. Yenai, A. L. Rockwell, J. P. Cook, S. Dworetzky and L. M. Gierasch, Comparison of cation binding by three cyclic pentapeptides, in *Proceedings of the Eighth American Peptide Symposium*, V. Hruby and D. H. Rich, Eds., Pierce Chem. Co., Rockford, IL, pp. 499-502 (1983).
31. A. C. Bach, II, B. S. Dunn, L. M. Gierasch, Y. Shimohigashi and C. S. Stammer, Conformational consequences of incorporating  $\Delta\text{Phe}$  in an enkephalin analogue and in related peptides, in *Proceedings of the Eighth American Symposium*, V. Hruby and D. H. Rich, Eds., Pierce Chem. Co., Rockford, IL, pp. 299-302 (1983).
32. J. E. Lacy, L. M. Gierasch, A. L. Rockwell, and G. D. Rose, Reverse turns in hydrophobic environments, in *Proceedings of the Eighth American Peptide Symposium*, V. Hruby and D. H. Rich, Eds., Pierce Chem. Co., Rockford, IL, pp. 781-784 (1983).
33. A. C. Bach, II, A. A. Baldwin, L. M. Gierasch and A. L. Rheingold, Characterization of a methoxylated 5-oxazolone derivative: an unexpected intermediate in a dehydropeptide synthesis, *JCS Chem. Comm.*, pp. 1398-1399 (1983).
34. L. M. Gierasch, K. F. Thompson, J. E. Lacy and A. L. Rockwell, Exploring peptide interactions with interfacial water using reversed micelles, in *Biological and Technological Relevance of Reverse Micelles and Other Amphiphilic Structures in Apolar Media*, P. L. Luisi, Ed., Plenum Press, New York, pp. 265-277 (1984).
35. K. F. Thompson and L. M. Gierasch, The conformation of a peptide solubilize in a reversed micelle water pool, *J. Am. Chem. Soc.*, 106, 3648-3652 (1984).
36. M. S. Briggs and L. M. Gierasch, Exploring the conformational roles of signal sequences: synthesis and conformational analysis of lambda receptor protein wild type and mutant signal peptides, *Biochemistry*, 23, 3111-3114 (1984).
37. L. M. Gierasch, A. L. Rockwell, K. F. Thompson and M. S. Briggs, Conformation-function relationships in hydrophobic peptides: interior turns and signal sequences, *Biopolymers*, 24, 117-135 (1985).
38. M. D. Bruch, J. H. Noggle and L. M. Gierasch, Conformational analysis of a cyclic pentapeptide by one- and two-dimensional nuclear overhauser effect spectroscopy, *J. Am. Chem. Soc.*, 107, 1400-1407 (1985).
39. G. D. Rose, L. M. Gierasch and J. A. Smith, Turns in peptides and proteins, *Adv. Protein Chem.*, Vol. 37, C. B. Anfinsen, J. T. Edsall and F. M. Richards, Eds., Academic Press, New York, pp. 1-109 (1985).
40. M. H. Frey, S. J. Opella, A. L. Rockwell and L. M. Gierasch, Solid state NMR of cyclic pentapeptides, *J. Am. Chem. Soc.*, 107, 1946-1951 (1985).
41. M. S. Briggs, L. M. Gierasch, A. Zlotnick, J. Lear and W. F. DeGrado, In vivo function and membrane binding properties are correlated for E. coli Lamb signal peptides, *Science*, 228, 1096-1099 (1985).
42. L. M. Gierasch, I. L. Karle, A. L. Rockwell and K. Yenai, Crystal and solution structures of Cyclo(Ala-Pro-Gly-D-Phe-Pro): A new type of cyclic pentapeptide which undergoes cis-trans isomerization of the ala-pro bond, *J. Am. Chem. Soc.*, 107, 3321-3327 (1985).

43. A. C. Bach, II and L. M. Gierasch, Dehydrophenylalanine as the i+2th residue of a  $\beta$ -turn: synthesis and conformation analysis of cyclo-(Gly-Pro- $\Delta^2$ -Phe-D-Ala-Pro) and cyclo(Gly-Pro-D-Phe-D-Ala-Pro), *J. Am. Chem. Soc.*, 107, 3349-3350 (1985).
44. M. K. Jain, J. Rogers, L. Simpson, and L. M. Gierasch, Effect of tryptophan derivatives on the phase properties of bilayers, *Biochim. Biophys. Acta*, 816, 153-162 (1985).
45. S. J. Opella and L. M. Gierasch, Solid state nuclear magnetic resonance of peptides, in *The Peptides*, Vol. 7, V. J. Hruby and J. Meienhofer, Eds., Academic Press, NY, pp. 405-436 (1985).
46. M. S. Briggs and L. M. Gierasch, Biophysical studies of genetically defined synthetic signal sequences, in *Proceedings of the Ninth American Peptide Symposium*, K. D. Kopple and C. M. Deber, Eds., Pierce Chem. Co., Rockford, IL, pp. 883-886 (1985).
47. A. C. Bach, II, L. M. Gierasch, and A. L. Rheingold, Synthesis and conformational analysis of three dehydrophenylalanine-containing cyclic pentapeptides, in *Proceedings of the Ninth American Peptide Symposium*, K. D. Kopple and C. M. Deber, Eds., Pierce Chem. Co., Rockford, IL, pp. 181-184 (1985).
48. L. M. Mueller, M. H. Frey, A. L. Rockwell, L. M. Gierasch and S. J. Opella, Dynamics of a hydrophobic peptide in membrane bilayers by solid state NMR, *Biochemistry*, 25, 557-561 (1986).
49. A. F. Spatola, M. K. Anwer, A. L. Rockwell and L. M. Gierasch, Compatibility of  $\beta$ - and  $\gamma$ -turn features with a peptide backbone modification: synthesis and conformational analysis of a model cyclic pseudopeptide, *J. Am. Chem. Soc.*, 108, 825-831 (1986).
50. L. M. Gierasch, M. S. Briggs, and D. G. Cornell, Physical properties of genetically-defined synthetic signal sequences suggest initial steps in protein export, in *Protein Engineering*, M. Inouye and R. Sarma, Eds., Academic Press, Orlando, FL, pp. 173-191 (1986).
51. M. S. Briggs and L. M. Gierasch, Molecular mechanisms of protein secretion: the role of the signal sequence, *Adv. Protein Chem.*, Vol. 38, C. B. Anfinsen, F. M. Richards and J. T. Edsall, Eds., Academic Press, 109-180 (1986).
52. A. C. Bach, II and L. M. Gierasch, Dehydrophenylalanine can occur in various reverse turn sites: conformational analysis of  $\Delta$ Phe-containing model peptides, *Biopolymers*, 25, S175-S191 (1986).
53. M. S. Briggs, D. G. Cornell, R. A. Dluhy and L. M. Gierasch, Conformations of signal peptides induced by lipids suggest initial steps in protein export, *Science*, 233, 206-208 (1986).
54. D. W. Hoyt, C. J. McKnight, M. S. Briggs, A. N. Stroup and L. M. Gierasch, Biophysical properties of synthetic presequences suggest conformations important for protein localization, in *Peptides 1986*, D. Theodoropoulos, Ed., Walter de Gruyter & Co., Berlin, pp. 373-376 (1986).
55. E. L. Baniak, II, J. E. Rivier, A. T. Hagler, and L. M. Gierasch, Nuclear magnetic resonance analysis and conformational characterization of a cyclic decapeptide antagonist of gonadotropin-releasing hormone, *Biochemistry*, 26, 2642-2656 (1987).
56. L. Chen, P. C. Tai, M. S. Briggs and L. M. Gierasch, Protein translocation into *E. coli* membrane vesicles is inhibited by functional synthetic signal sequences, *J. Biol. Chem.*, 262, 1427-1429 (1987).
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Editorials

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