

Curriculum vitae—Lila M. Gierasch

Distinguished Professor
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EDUCATION

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

PROFESSIONAL EXPERIENCE

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

HONORS AND AWARDS

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, ASBMB

2016 Francis D. Carlson Lecturer, Johns Hopkins University
2016 Elected Fellow, American Academy of Arts and Sciences
2016 Outstanding Investigator Grant (Maximizing Investigators' Research Award (MIRA)),
National Institute of General Medical Sciences, NIH
2016 Editor-in-Chief, *The Journal of Biological Chemistry*
2018 American Chemical Society Ralph F. Hirschmann Award in Peptide Chemistry

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, Boston University Med. School Graduate Program in
Molecular Biophysics

2011	External review committee, UCSF Graduate Program in Biophysics
2012	Co-organizer, 6 th 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, University 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

SOCIETY MEMBERSHIPS

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

EDITORIAL ADVISORY BOARDS

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-	<i>Proteins: Structure, Function and Genetics</i>
1993-2015	<i>Chemistry & Biology</i>
1999-	<i>Structure with Folding & Design</i>
2004-2008	Editor-in-Chief, <i>Peptide Science</i>
2009-2016	Associate Editor, <i>Peptide Science</i>
2006-	<i>Protein Science</i>
2007-	<i>Chemistry Central Journal</i>
2014-	<i>Accounts of Chemical Research</i>
2014-	<i>ACS Central Science</i>
2016-2020	Editor-in-Chief, <i>The Journal of Biological Chemistry</i>

KEYNOTE, PLENARY, AND MAJOR INVITED LECTURES (2010 TO PRESENT)

Keynote Speaker, Peptides Gordon Conference, Ventura, California, February 2010.

Keynote Speaker, Dept. of Molecular, Microbial and Structural Biology Retreat, U. Conn. Health Center, May 2010.

Plenary Speaker, WorldWide Magnetic Resonance Conference, Florence, Italy, July 2010.

Plenary Speaker, Symposium in Honor of Johan Deisenhofer, Dallas, TX, July 2010.

Invited Speaker, FASEB Conference Protein Folding in the Cell. July 2010.

Award Lecture, Protein Society Annual Meeting, San Diego, CA, August 2010.

Plenary Speaker, Nobel Symposium on Protein Biophysics in the Cell, Stockholm, Sweden. August 2010.

Merck Lecturer, SUNY New Paltz. September 2010.

Plenary Lecture, Upstate NY NMR Conference. November 2010.

Plenary Lecture, 10th German Peptide Symposium. Halle, Germany, March 2011.

Plenary Lecture, City College of NY Frontiers of NMR Spectroscopy Symposium. March 2011.

Plenary Lecture, Barcelona BioMed Conference on Macromolecular Dynamics. Barcelona, Spain, October 2011.

Plenary Lecture, Cold Spring Harbor Asia Conference on Protein Homeostasis in Health & Disease, Suzhou, China, September 2011.

Invited Lecture, Protein Folding and Dynamic Gordon Conference, Ventura, California, January 2012.

Invited Lecture, Lorne Conference on Protein Structure and Function, Australia, February 2012.

Invited Lecture, Bijvoet Tutorial Symposium, Utrecht, Netherlands, April 2012.

Invited Lecture, Israel Science Foundation Workshop on Protein Folding and Misfolding: Moving Beyond Simple Model Systems, Israel, May 2012.

Keynote Lecture, Biopolymers Gordon Conference, June 2012.

Invited Lecture, FASEB Meeting on Protein Folding in the Cell, August 2012.

Srere Lecturer, Dept. of Biochemistry and Dept. of Biophysics, UT Southwestern, November 2012.

Keynote Lecture, IDP Subgroup, Biophysical Society, March 2013.

New & Notable Lecture, Biophysical Society, March 2013.

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.

Lampton 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 Speaker, Nobel Symposium on Protein Folding, Stockholm, Sweden, June 2017.

Invited Speaker, Proteins Gordon Research Conference, June 2017.

Keynote Lecture, Univ. of Liege Graduate Student Symposium, Liège, Belgium, November 2017.

Invited Speaker, Cold Spring Harbor meeting "Protein Homeostasis in Health and Disease", April 2018.

Keynote Lecture, Protein Folding Diseases Initiative Symposium, Univ. of Michigan, October 2018.

TEACHING AND ACADEMIC LEADERSHIP

At Amherst College (1974-79):

My first academic position included teaching responsibilities in Introductory Chemistry, Organic Chemistry, Biochemistry, and Spectroscopy classes, all with laboratories. I created several laboratory

experiments for the Spectroscopy course. I mentored 2 to 3 undergraduates each year in research. Amherst College became a coeducational institution while I was there, and there were few women faculty members. I was the only one in the sciences or mathematics. As a result, I played many roles, from informal academic and career mentoring to coaching women's teams (track, cross-country, and horseback riding) and serving on advisory committees to the administration on the transition to coeducation.

At the University of Delaware (1979 to 1987):

My principal undergraduate teaching responsibility was a one-semester Biochemistry class taken by chemistry majors and graduate students from a variety of programs. This was a very well rated course. In addition, I taught graduate courses in Biophysical Methods and Protein Structure. I mentored 4 or so undergraduates in my lab each year. I did not have any formal academic leadership positions.

At the University of Texas Southwestern Medical Center (1988 to 1994):

While at UT Southwestern, I held the Robert A. Welch Chair in Biochemistry, with a primary appointment in Pharmacology and a joint appointment in Biochemistry. I was an active participant in the reorganization of the graduate programs at UT Southwestern in 1988. I spearheaded the creation of a training program in Molecular Biophysics, which successfully obtained an NIH training grant. This paved the way for this training program to become an official graduate program during the reorganization. I served as PI of the Training Grant and Director of the Graduate Program until my departure in 1994. This graduate program has since thrived, and recently, a Department of Molecular Biophysics was created from the strong community that dates back to the early organization of the graduate training program in Molecular Biophysics. As part of the reorganization of the Graduate School, I was one of a small group who created a highly successful core course for all incoming students in Biomedical Sciences, and I was one of the principal instructors in this course during my years at UT Southwestern. I also spearheaded the creation of several modular Biophysics courses and taught several of these.

At the University of Massachusetts-Amherst (1994 to present):

I was recruited to UMass to be Head of the Chemistry Department, and after 5 years moved to become Head of the Biochemistry & Molecular Biology Department. I have retained joint membership in the two departments. Under my leadership, a novel first year core course was established in the Chemistry graduate program, and laboratory rotations were initiated for first year students. During my two Headships, ten faculty were hired in the Chemistry Department and four in Biochemistry & Molecular Biology. In addition, I served for many years on the Steering Committee for both the NIH Chemistry-Biology Interface (CBI) Training Program and as a co-PI of the NSF IGERT on Cellular Engineering. While at UMass., my group has typically comprised 4 to 7 postdoctoral fellows, 4 to 6 graduate students, and 3 to 4 students. I also have had a number of high school students work in the lab. In 1999, I created and taught a course in Drug Design that has become a centerpiece of our NIH-funded CBI training program (it is the only course all CBI students must take). This class is now offered every year to advanced undergraduates and graduate students. In addition to my teaching roles, I have spearheaded the successful building of two major new interdisciplinary research and teaching buildings at UMass Amherst, which helped to dislodge a logjam in new science building. I was instrumental in the establishment of an Institute for Applied Life Sciences in 2015 and organized and led the Models to Medicine Center of IALS until last year. IALS garnered a \$95M grant from the Life Sciences Institute of the Commonwealth of Massachusetts, and I helped to organize a number of new core facilities with this support.

MENTORSHIP

On the following pages are listed names and current positions for all graduate students and postdoctoral associates who have worked under my direction. Many undergraduates have worked in the lab as well, and I keep in touch with most; they are a highly successful and scientifically passionate group.

I care deeply about those who work with me and take very seriously my responsibility for their growth as scientists and their successful navigation of a career path. I have always given high priority to the quality of the training a student or postdoctoral fellow receives, even when this might conflict with the expediency of attaining research results or publications. Happily, the latter flourish when the former is nourished.

In addition to the mentoring of my own research group, I have both formally and informally invested considerable energy in mentoring students and junior colleagues. Examples include my efforts to foster the careers of junior faculty when I was Head of either the Chemistry or Biochemistry & Molecular Biology Departments, my continuing commitment and efforts to work with faculty at earlier stages in their careers, my serving on multiple occasions on panels giving advice and perspective on tenure and other career stages, both on campus and at professional society annual meetings, and my having served on panels at several institutions as a role model or mentor to students at several levels. Whenever a visit a campus or attend a meeting, I make a point of meeting students, seeing and discussing posters, and, in any way I can, sharing whatever wisdom that I have gained during my career.

GRADUATE STUDENTS AND POST-DOCTORAL FELLOWS TRAINED IN THE GIERASCH LAB

Masters students

<u>Name</u>	<u>Year</u>	<u>Current Position</u>
Karyn O'Neil	1985	CSO and Founder at Aro Biotherapeutics
Terry Triplett	1995	Senior Java consultant, Ericsson
Guenter Wittrock	1999	Senior IT Applications Analyst, Seattle Children's Hospital
Rebecca Eden	2000	Graduate Student in Linguistics, University of Oklahoma
Jason Griffin	2001	High school science teacher
Bing Gong	2004	Senior Director, Compass Therapeutics LLC
Mangai Periasamy	2010	DST-INSPIRE faculty, CSIR-Indian Institute of Chemical Technology
Joseph Tilitsky	2017	Research Associate, Kanyos Bio

Doctoral Students

<u>Name</u>	<u>Year</u>	<u>Current Position</u>
Jeffrey Lacy	1986	Professor, Shippensburg State College
Martha S. Briggs	1986	High school chemistry teacher, Atlanta, GA
Edmund Baniak	1987	Senior Standards Associate, American Petroleum Inst.
Alvin C. Bach	1988	Associate Professor, University of Rhode Island
Adam N. Stroup	1989	Research Scientist, US Army
C. James McKnight	1990	Professor, Boston University Medical School
David Hoyt	1990	Senior Research Scientist, Pacific Northwest Research Labs
Laura Lark	1990	Project Leader, Emergency Medical Associates, Dallas, TX
Anu Bansal	1991	Senior Principal Scientist, Genentech
Zhi-Ping Liu	1993	Associate Professor, University of Texas Southwestern
Ning Zheng	1997	Professor, HHMI, University of Washington

Patricia Clark	1997	Professor, Notre Dame University
Richard Kibbey	2000	Associate Professor, Yale Univ. School of Medicine
Robert Cleverley	2002	Research Associate, Newcastle University, England
Kenneth Rotondi	2002	Laboratory Instructor in Chemistry, Amherst College
Renuka Sivendran	2003	Director Analytical Development at Five Prime Therapeutics, Inc.
Catherine Goodman	2003	Scientific Editor, JBC
Yi-Te Chou	2004	Research Scientist, Amgen
Gizem Dinler	2006	Professor, Istanbul Technical University, Turkey
Anne Marie Marcelino	2008	Research Scientist, Regeneron
Jenny Lynn Maki	2009	Scientific Recruiter and Consultant at Recruitomics Consulting
TJ Brunette (co-mentored)	2010	Postdoctoral Fellow, University of Washington
Rob Smock	2011	Postdoctoral Fellow, EMBL Hamburg, Germany
Mylene Castell Ferrolino	2013	Postdoctoral Fellow, St. Jude Children's Research Hospital
Kristine Faye Pobre	2016	Postdoctoral Fellow, St. Jude Children's Research Hospital
Karan Hingorani	2016	Medical student, Boston University Medical School
Robert G. Smock	2011	Postdoctoral Fellow, EMBL Hamburg, Germany
Mylene Castell Ferrolino	2013	Postdoctoral Fellow, St. Jude Children's Research Hospital
Kristine Faye Pobre	2016	Postdoctoral Fellow, St. Jude Children's Research Hospital
Karan S. Hingorani	2016	Medical student, Boston University Medical School

Postdoctoral Fellows and Research Associates

<u>Name</u>	<u>Years in lab</u>	<u>Current Position</u>
Maria Rafalski	85-88	Senior Research Scientist, Incyte Corp.
Madan Dhingra	88-89	Retired
Jose Rizo Rey	89-91	Professor, University of Texas Southwestern
Rachelle Bienstock	89-91	Guest Researcher NIH
Jeffrey Jones	89-93	Police officer, Dallas, TX
Samuel Landry	89-93	Associate Professor, Tulane Univ. Med. School
Francisco Blanco	90-90	Principal Investigator, CIC bioGUNE, Derio, Spain
Carolyn Lee	90-92	Postdoctoral Fellow, Sci & Tech Policy Institute
Zhulun Wang	91-94	Science Director, Amgen
Muppalla Sukumar	93-98	Research Advisor, Eli Lilly
Michael Goger	94-98	Director NMR Facility, NY Structural Biology Consortium
Hwa-Ping Feng	94-99	Research Scientist, Merck
Stephen Eyles	95-00	Director Mass Spec. Facility, University of Massachusetts
Diana Montgomery	96-99	Principal Scientist, Merck
Joanna Swain	97-07	Director, Protein Engineering, Cogen Therapeutics
Kannan Gunasekaran	99-01	Senior Director, Biotherapeutics at Denali Therapeutics
Muthu Dhanasekaran	00-01	Research Scientist, University of Arizona
Zoya Ignatova	00-04	Professor, University of Hamburg, Germany
Elaine Allen McVey	01-02	Business Owner, Municipal Market at TransLoc
Elena Falkovskaia	01-04	EQA Editor, McGraw-Hill Education
Marc Vogt	02-05	Engineer/Technologist, General Electric
Aneta Szymanska	03-04	Assistant Professor, University of Gdansk, Poland
Jiang Hong	06-10	Assistant Professor, Shanghai University, China
Qinghua Wang	06-10	Bioinformatics Scientist, University of Delaware
Harekrushna Sahoo	07-10	Assistant Professor, Natl. Inst. of Technology, Rourkela, India
Beena Krishnan	04-11	Senior Scientist, IMTECH, Chandigarh, India
Santosh Kumar	10-11	Newton International Fellow, Univ. of Birmingham, England
Ivan Budyak	07-13	Research Scientist, Eli Lilly

Anastasia Zhuravleva	07-13	Lecturer, Univ. of Leeds, UK
Mandy Blackburn	09-14	Assistant Professor, Univ. of Central Missouri
Weiwei Kuo	12-16	Staff Fellow, US FDA
Abhay Thakur	11-16	Senior Scientist, Lake Pharma
Charles English	15-18	Data Incubator Fellow, NY

RESEARCH OVERVIEW

Our work has the overarching goal of understanding the relationship between amino acid sequence and the preferred conformations of peptides and proteins. Our early work helped establish the now-common approach of using peptide fragments to examine functionally important interactions of proteins. Initially, I designed peptide models of reverse turns. This work has shed light on turn propensities in proteins and offered a basis for design of analogues of bioactive peptides. With collaborators, we developed potent, conformationally-constrained antagonists of gonadotrophin-releasing hormone. We elucidated conformational propensities and physical properties of signal sequences, which helped to explain how diverse sequences target polypeptide chains to the secretory pathway. We were among the first to describe how molecular chaperones recognize 'unfoldedness' in their protein substrates: We showed that the chaperonin GroEL exploits hydrophobic surfaces to recognize substrates, while Hsp70s bind polypeptides as extended chains. Our laboratory discovered the GroEL-interactive 'mobile loop' on GroES. More recent work is focused on understanding of the mode of action of these molecular machines, in particular the Hsp70 family. We have investigated the folding mechanism of β -rich proteins. Recently, we have developed strategies to explore protein folding landscapes in the cell. Genetic incorporation of a specific binding site for a cell-permeable fluorescent dye has provided a measure of protein stability in vivo and allowed off-pathway aggregation events to be observed. We are combining our interrogation of protein folding networks in the cell with computational modeling of all reactions involving protein folding and quality control in *E. coli*. Taken together, our approach enables fundamental study of conformational defects that are implicated in human misfolding diseases such as Alzheimer's, Huntington's, and others.

GRANT SUPPORT (last 15 years, reverse chronological order)

NIH R35 GM118161 Gierasch, PI

MIRA grant, Protein Folding in the Cell: Challenges and Coping Mechanisms
6/1/2016 to 5/31/2021

Funding level \$515,702 (TDC, steady state, lower in years 1 and 2 to phase out other funding)

Alpha1 Foundation Hebert, Gershenson, & Gierasch, co-PIs

Optimizing Alpha1-antitrypsin Folding for Gene Therapy
7/1/16 to 2/28/19

Funding level \$100,000 (Annual TDC)

NIH R01 GM101644 Multi-PI grant, with Gierasch, L and Powers, E., PIs.

Modeling a Cellular Protein Homeostasis Network
9/3/2013 to 8/31/2017 (terminating because of grant consolidation in MIRA)

Funding level \$408,725 (TDC for the last year, UMass and Scripps)

NIH R01 GM027616 Gierasch, PI

Allosteric Mechanism of Hsp70 Molecular Chaperones. [Former title: Peptide and Protein Conformations.]

Continuous support for 37 years; ended 7/31/2016 when MIRA was funded.

Funding level \$318,000 (TDC for the last year).

NIH R01 GM094848 Gierasch, co-PI with Anne Gershenson and Dan Hebert.

Post-Reductionist Protein Folding [Eureka grant]

9/1/2010 to 8/31/2015

Funding level \$300,000 (TDC for the last year).

International Rett Syndrome Foundation Woodcock, C, PI, Gierasch, L, co-PI

Rett Syndrome - a Protein Folding Disease?

1/1/2007 to 12/31/2008

Funding level \$50,000 (TDC annually)

NIH DP1 OD000945 Gierasch, PI

NIH Director's Pioneer Award

9/28/2006 to 7/31/2013

Funding level \$785,000 (TDC annually).

NIH R01 GM076706 Gierasch, PI; co-PI Oliver Brock (originally PI with Gierasch co-PI)

Predicting Protein Structure with Guided Conformation Space Search

8/1/2006 to 7/31/2013

Funding level \$227,860 (TDC for the last year)

NIH R01 GM34962 Gierasch, PI

Signal Sequences – Conformations and Membrane Binding

1/1/1986 to 12/30/2007; ended when Pioneer grant was awarded

Funding level \$212,233 (TDC for the last year)

PUBLICATIONS

1. L. G. (Gierasch) Pease, C. M. Deber, and E. R. Blout, Cyclic Peptides, V. ^1H and ^{13}C nuclear magnetic resonance determination of the preferred β 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 β and γ 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}C spin-lattice relaxation times of $(\text{X-L-Pro-Y})_2$ 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 β and γ 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}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).
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