

Curriculum Vitae

Gary J. Pielak

Department of Chemistry
Venable & Kenan Laboratories
University of North Carolina at Chapel Hill
Chapel Hill, NC 27599-3290
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Email: gary_pielak@unc.edu
Home page: www.chem.unc.edu/people/faculty/pielak/group/

Research Interests:

Protein chemistry and biophysics, especially in living cells.

Employment:

January 2000-

Professor of Chemistry, UNC
Professor of Biochemistry & Biophysics, UNC
Member, UNC Lineberger Comprehensive Cancer Center

July 2000 - June 2005 & July 2007 - June 2008

Vice Chair of Undergraduate Studies in Chemistry

January 2000-June 2006

Faculty Director, UNC Macromolecular Interactions Facility

January 1995-Dec. 1999

Associate Professor of Chemistry, UNC

July 1998 - July 1999

Sabbatical Visitor: Professor Christopher M. Dobson, F.R.S.
Oxford Centre for Molecular Sciences
University of Oxford, England

January 1989 - December 1994

Assistant Professor, UNC

January 1989-

Member UNC Program in Molecular Biology and Biotechnology
Co-director UNC Biomolecular NMR Facility, UNC

June 1986 - January 1989

N.I.H. Postdoctoral Fellow: R.J.P. Williams, F.R.S.
Inorganic Chemistry Laboratory, University of Oxford, England

March 1983 - June 1986

N.I.H., Postdoctoral Fellow: Professor M. Smith, F.R.S., deceased
Department of Biochemistry University of British Columbia
Vancouver, B.C. Canada

Education:

January 1983

Ph.D. in Biochemistry
Laboratory of Professor J. Ivan Legg
Department of Chemistry
Washington State University, Pullman, Washington
Dissertation: Characterization of Arsanilazo & Sulfanilazo Proteins

June 1977

B.A. in Chemistry, Magna cum Laude
Bradley University, Peoria, Illinois

Teaching:

Past Postdocs and Their Current Employer

Dr. Guifang Wang (Chinese Academy of Sciences, Wuhan)
Dr. Conggang Li (Chinese Academy of Sciences, Wuhan)

Current Graduate Students

Ms. Jillian Tyrrell
Ms. Mohona Sarkar
Mr. Will Monteith
Mr. Austin Smith

Past Graduate Students and Their Current Employer

Dr. Yaqiang Wang (Chemistry & Biochemistry, UCLA)
Dr. Imola-Gabriela Zigoneanu (Biomedical Engineering, UNC)
Dr. Alex Schlesinger (Monsanto)
Dr. Andrew Miklos (Postdoc, FSU)
Mr. Christopher Barnes (Pitt)
Dr. Rebecca Ruf (MRSA Research Center, U. Chicago)
Mr. Matthew Hrabak (Naval Surface Warfare Center)
Dr. Kristin Slade (Claremont McKenna College)
Dr. Lisa Charlton (Pitt)
Dr. Brian McNulty (Athenix)
Dr. Julie Bryant (Merck)
Dr. Alina Olteanu (Tulane)
Dr. Dana Albon (Moses Cone Mem. Hosp.)
Dr. Fang Yi (Centocor)
Dr. Chetan Patel (Lilly)
Dr. Artemiza Morar (GlaxoSmithKline)
Mr. Xuming Wang (Intel)
Dr. Gresham Weatherly (Abbot Labs)
Dr. Paula Davis-Searles (Diosynth)
Dr. Jennifer Waldner
Ms. Devon Allen, M.S. (Diosynth)
Dr. David Cohen (Advanced Liquid Logic)
Dr. Aleister Saunders (Drexel)

Past Graduate Students and Their Current Employer, cont'd

Dr. Jennifer Marmorino
Dr. Donald Doyle (Georgia Tech.)
Dr. James Beasley, (Pharmacopeia)
Dr. Lixin Chen (New Engl. Biolabs)
Dr. Zoey Fredericks (Amgen)
Dr. Douglas S. Auld (Novartis)
Dr. Stephen F. Betz (Crinetics)
Dr. Sharon Hilgen-Willis (Integral Molecular)
Ms. Xuhong Wang, M.A (Sanofi-Aventis)

Current Undergraduate Students

Mr. Alexander Krois
Mr. Vishavpreet Singh
Mr. Joe Lu

Past Undergraduates and Where They Went Next

Ms. Yuri Yang (Applying to med. school)
Ms. Amanda Rosett (SURE, back to Susquehanna U.)
Ms. Kristen Black (Colegio Bilingüe New Horizons, Dominican Republic)
Mr. Emmanuel Chan (Technician, UNC)
Ms. Heidi Scronce (Technician, Duke)
Ms. Niama Sharaf (Grad. School, Pitt)
Mr. Christopher Barnes (Grad. School, UNC)
Mr. Evan Lutz (Med. School, ECU)
Ms. Sandy An (MD/PhD program, Wake Forest, U.)
Mr. Hao Wu
Ms. Hayley Fischer (Med. School, ECU)
Ms. Michelle Mian (Dental School, Harvard)
Ms. Essraa Bayoumi
Mr. Michael Minder (Med. School, Duke)
Mr. Chris Kragel (Med. School, ECU)
Mr. Devin Barrett (Grad. School, UNC)
Mr. Joseph Batchelor (University of California, Berkeley)
Mr. Matthew Dedmon (University of Cambridge, UK)
Mr. Scott Kennedy (Grad. School, UNC)
Ms. Maria Lind (Grad. School, UGA)
Mr. Ikey Kakouras (Duke)
Ms. Kimberly Clay (Med. School, UNC)
Ms. Amret Thompson (Med. School, Wake Forest)
Mr. Daniel Hostetter (Grad. School Biochem. Stanford)
Ms. Melisa Lehti (Grad. School, Botany, Wisconsin)
Mr. Phil Hardwidge (Grad. School, Immunology, Mayo Clinic)
Mr. Sherif Ghobrial (Grad. School, Env. Sci. & Eng., UNC)
Mr. Chetan Patel (Grad. School, Chemistry, UNC)
Ms. Sonja Trojak (Med. School, UNC)
Mr. Bryan Fine (Med. School, U South Florida)
Ms. Xecerla Littles (Med. School, Tulane)
Ms. Shelly Finger (Vet. School, Texas A&M)
Mr. Luiz Alcazar-Roman (Grad. School, Chemistry)
Mr. Harvey Chui (Med. School, UNC)
Ms. Kara Bortone (Grad. School, Chemistry, U. Texas)
Mr. Sudip Parikh (Grad. School, Biochem., Scripps)
Mr. Richard Bruick (Grad. School, Biochem., Scripps)
Ms. Andrea Lee (Grad. School, Biochem., Scripps)
Mr. Mark Dransfield (Med. School, UNC)

Past Undergraduates and Where They Went Next, cont'd

Ms. Jennifer Fencl (Grad. School, Chemistry, UNC)

Ms. Tori Williams (Grad. School, Yale)

Former High School Students and Where They Went Next

Ms. Malika Rauf (back to North Chapel Hill High)

Ms. Melanie Wiley (U. Maryland)

Courses:

UNC

Advances in Macromolecular Structure
Macromolecular Structure and Metabolism
Macromolecular Interactions
Practical Protein NMR
First Semester General Chemistry
First Year Seminar: You don't have to be a rocket scientist.
General Biochemistry
Protein Chemistry
Enzyme Mechanisms
Molecular Biology Laboratory
Practical Oligonucleotide-Directed Mutagenesis

Oxford

Biophysics Tutor. New College, 1988

Cold Spring Harbor

Advanced Cloning Course, 1984, 1987
Advanced Techniques in Molecular Biology

University of British Columbia

Site-specific Mutagenesis Directed by Oligodeoxyribonucleotides, 1985

Service:

Current Committee Assignments in Chemistry

Post Tenure Review Committee, 2011-
Graduate Studies Committee, 2010-
Graduate Recruiting Committee, 2010-
Approximately 10 Ph.D. Committees
Approximately 5 Undergraduate Honors Committees

Past Committee Assignments in Biochemistry & Biophysics

Biophysics Search Committees; Campbell, Lee, and Kuhlman

Past Committee Assignments in Chemistry

Strategic Planning Committee, 2009 - 2010
2010 Departmental Program Review Committee
NMR Committee
Undergraduate Studies Committee, 1992-2008
Inorganic Search Committee, 2009
Vice Chair of Undergraduate Studies, 2000-2005, 2007- 2008
Chair Selection Committee, 2007
Ad hoc member Parking Committee
Search Committees; Forbes, Thorp, Erie, Morken, and Weeks
Genomics Search Committee, 2001
Several Promotion/Tenure Committees

University Service

Chair, Curriculum Review Committee, Miscellaneous Subcommittee, 2010
University Research Day Judge, 2010

University Service, cont'd

Chair, Admissions Committee, Biological & Biomedical Sciences Program, 2008
Administrative Boards of the General College, 2003-
Mock interviews for the Gates-Cambridge and Churchill Fellowships through the
Office of Distinguished Scholarships, 2007
Reviewer, Smallwood Undergraduate Summer Research Grants, 2006
Reviewer, Summer Undergraduate Research Fellowships, 2007, 2008, 2009,
2010,
Mock interviews for the Gates-Cambridge and Churchill Fellowships through the
Office of Distinguished Scholarships, 2007
Undergraduate Orientation (CTOPS) Professor's Perspective sessions, 2006,
2007, 2008
Financial Exigency and Program Change Committee, 2006-2008
Reviewer, Postdoctoral Awards for Research Excellence,
Office of Postdoctoral Services, 2005
Division of Natural Sciences Curriculum Committee
General Education Implementation Committee for the New Undergraduate
Curriculum, 2002 - 2003
UNC Curriculum Review, Committee N
Faculty Council
Rhodes Scholarship Mock Interview Committee
Churchill Scholarship Selection Committee
Admissions Committee, Program in Molecular & Cellular Biophysics
Advisory Committee, Curriculum in Applied Sciences
Biomolecular NMR Facility Committee
Macromolecular Interactions Facility Committee
Summer Undergraduate Research Program Selection Committee
Graduate Student Committees:
Environmental Sciences
Engineering, Biochemistry & Biophysics,
Immunology/Microbiology
Cell & Developmental Biology
Presenter, Project Uplift
Presenter, NC Renaissance Program

Regional/National Service; Faculty Search Committee

Biochemistry, Washington State University, 2003

Ph.D. Committees

Duke, Georgia Tech., University of Barcelona

Manuscript Referee

Angewandte Chemie
Archives of Biochemistry and Biophysics
Biochemistry
Biochimica et Biophysica Acta
Biomacromolecules
Biophysical Chemistry
Biophysical Journal
Biopolymers
BioTechniques
Biotechnology
ChemBioChem
Coordination Chemistry Reviews

FEBS Letters

Manuscript Referee, cont'd

Folding and Design
Inorganica Chimica Acta
Inorganic Biochemistry
Journal of the American Chemical Society
Journal of Biological Chemistry
Journal of Biological Inorganic Chemistry
Journal of Biomolecular NMR
Journal of Chromatography
Journal of Inorganic Biochemistry
Journal of Chromatography
Journal of Magnetic Resonance
Journal of Molecular Biology
Journal of Proteome Research
Journal of Physical Chemistry
Macromolecules
Molecular Pharmaceutics
Nature
Nature Methods
Nature Structural Biology
Nucleic Acids Research
Protein Science
Proteins: Structure, Function, Genetics/Bioinformatics
Proceedings of the National Academy of Sciences, U.S.A.
Scientific Reports

Editorial Duties

1998-1999 Paper Alerts contributor, *Current Opinions in Structural Biology*
2011- Editorial Advisor, *BMC Biophysics*

Proposal Review:

Panels

Graduate Women in Science Scholarships
Internal Review for Lockheed Martin 2010 University Research Initiative
University Cancer Research Fund, 2009
NIH New Innovators Award, 2008, 2009
NSF Molecular Biochemistry Review Panel, 2007, 2009, 2011
NIH Special Emphasis Panel to review proposals in response to RFQ NIH
ES2007006, entitled "Scientific Research Analysis," 2007
NIH NIH-NIDDK, Kidney, Urologic and Hematologic Diseases D
Sub Committee, 2007
Gordon Research Foundation, 2005
NIH Physical Biochemistry Study Section, Ad hoc, 1996
NIH Metallobiochemistry Study Section, Ad hoc, 2001
NIH Special Emphasis Panel: Technology Development for Biomedical
Applications, 2001
NIH Macromolecular Structure & Function A Study Section, Ad hoc, 2011

Ad Hoc, Mail/Email Reviews

U.S.: NSF, PRF, Research Corporation
Canada: NSERC
UK: BBSRC, MRC, Wellcome
Switzerland: ETH Zurich Research Commission

Czech Science Foundation

Meetings Organized/Convened:

Program Committee Chair, 26th Annual Protein Society Symposium, 2012
Biophysics Society Subgroup, Biopolymers in vivo, 2012
Chemistry Spectrum: recruiting high school students interested in science to
UNC, 2008
Co-chair Proteins Gordon Research Conference, 2007
Vice Co-chair Proteins Gordon Research Conference, 2005
Triangle Biophysics Symposium, 1998
Glaxo-Wellcome UNC Symposium, 1989, 1998
Protein Structure Minisymposium, 1993
Southeastern Magnetic Resonance Conference, 1993
Second Carolina Conference on Protein Engineering, 1989

Research:

Current Grants

E.T.S. Walton Visitor Award: Protein Chemistry in Living Cells
Source Science Foundation of Ireland
Total award amount: \$ 57,484
Total period covered: 01/01/12-12/30/12

Macromolecular Crowding and Protein Stability In Vitro and in Cells
Source: NSF MCB 1051819
Total award amount: \$ 792,597.00
Total period covered: 02/01/11-01/31/14

Recent Grants

In-Cell NMR of Disease-Related Proteins
NIH Pioneer Award 5DP1OD783
Total award amount: \$3,750,000
Total period covered: 10/01/2006 – 09/31/2011

Protein Biophysics in Cells, Source
NSF MCB 0516547
Total award amount: \$592,931
Total period covered: 03/01/2006 – 02/28/2009

Electron Transfer Proteins
Source: NIH R01GM020488 (Francis Millett, PI)
Total award amount: \$87,300 (to my laboratory)
Total period covered: 08/01/03 – 07/31/08
This was a subcontract to Professor Francis Millett's NIH grant. Prof. Millett is at the University of Arkansas. Our laboratories have collaborated on protein electron transfer for over 10 years. The funds support our work to produce cytochrome c variant proteins.

Perturbation Calorimetry & Protein Surface Area
Source: PRF 42748-AC4
Total award amount: \$80,000
Total period covered: 05/01/05-08/31/07

Protein Biophysics in Cells
Source: NSF MCB 0212939
Total award amount: \$446,735
Total period covered: 09/01/02 – 08/31/05

Patterned Library Analysis
Source: NIH R01GM058665 (Marshall Edgell, PI)
Total award amount: \$ 873,000
Total period covered: 07/01/00 – 06/30/04
co-PI with Marshall Edgell on this grant.

Free Radicals, Proteins Aggregates & Parkinson's Disease
Source: NIH R21 ES 10774
Total award amount: \$290,000

Total period covered: 10/01/00 – 9/30/02

Cytochrome c & Apoptosis

Source: NSF MCB0109366

Total award amount: \$145,000

Total period covered: 9/01/01-8/31/02

Expansion of the UNC Macromolecular Interactions Facility

Source: North Carolina Biotechnology Center

Total award amount: \$88,895

Total period covered: 7/01/2001-6/30/2003

Protein Hydrogen Bonding and NMR Redox Shifts of Cytochrome c

Source: PRF

Total award amount: \$60,000

Total period covered: 6/01/00-5/31/02

Replacement of a Failed Centrifuge Rotor

Source: University Research Council

Total award amount: \$4,000

Total period covered: 6/01/00-5/31/02

Bringing State-of-the-art NMR to UNC

Source: University Research Council

Total award amount: \$2,500

Total period covered: 1/01/00-12/31/01

Honors:

DuPont Young Faculty Award

Morrow Young Faculty Award

Folding & Binding Paper Alert selector for *Current Opinions in Structural Biology*, 1997-1998

Underwood Fund Award (BBSRC, U.K.)

Invited Speaker, Proteins Gordon Conference, 2001

Invited Speaker, Biopolymers Gordon Conference, 2002, 2010

Invited Speaker, RASMB Gordon Conference, 2002

Invited Speaker FASEB Meeting: Protein Folding in the Cell, 2002

Invited Speaker, Toronto Chemical Biophysics Symposium, 2003

Invited Speaker 13th Conversation in Biomol. Stereodynamics, 2003

Invited Speaker, 18th Annual Gibbs Conference on Biothermodynamics, 2004

Invited Speaker, Eighth Johns Hopkins Folding Meeting, 2005

Invited Speaker, Colorado Protein Stability Conference, 2005

Invited Speaker, Cellular Osmoregulation: Sensors, Transducers & Regulators
GRC, 2005

Invited Speaker Trends in Microcalorimetry 2005

Session Chair, Proteins GRC, 2005

Vice co-chair Proteins Gordon Research Conference, 2005

NIH Pioneer Award, 2006

Co-chair Proteins Gordon Research Conference, 2007

Invited Speaker, Southeast Magnetic Resonance Conference, 2007

Invited Speaker, Ions & Osmolytes Symposium, Salt Lake City ACS meeting,
2008

Invited Speaker, Biopolymers Gordon Research Conference, 2010

Plenary Speaker, Toronto Chemical Biophysics Symposium, 2011

Plenary Speaker, Beijing Conference & Exhibition on Instrumental Analysis, 2011
Program Committee Chair, 26th Annual Protein Society Symposium, 2012
Science Foundation of Ireland, E.T.S. Walton Visitor Award

Research Seminars:

May 1, 2012-April 30, 2013

Molecular Crowding: Chemistry and Physics meet Biology (Switzerland), June 12
12th Chianti/INSTRUCT Workshop on BioNMR (Italy) June 18
EUROMAR, Dublin, Ireland, July 1
ACS Southeastern Regional Meeting (SERMACS). Raleigh, NC, November 16

May 1, 2011-April 30, 2012

Yale, March 19
King's College London, January 20
National Institute for Medical Research (UK), January 19
Oxford (UK), January 17
National Institutes of Health Pioneer Symposium, September 21
Beijing Conference & Exhibition on Instrumental Analysis, Oct 13
National Science Foundation, June 8
University of Minnesota Duluth, May 26

May 1, 2010-April 30, 2011

U. Toronto, June 3
Biopolymers Gordon Conference, June 6-11
IRB Barcelona, July 2
Swedish Royal Academy of Sciences, August 26
James Madison, September 3
Biological Diffusion & Brownian Dynamics Brainstorm 2, Heidelberg, October 11
University of Indiana, October 25
National Science Foundation, November 10
University of Wisconsin, Madison, November 23
Toronto Chemical Biophysics Symposium, April 9

May 1, 2009 – April 30, 2010

University of Richmond, September 4
UCLA, March 11
Davidson, January 29

May 1, 2008 – April 30, 2009

Biophysical Society Workshop on Protein Folding, Stability, and Aggregation,
Boston, March 3
Symposium on the Influence of Ions & Osmolytes on Aqueous Macromolecules,
ACS Meeting, Salt Lake City, March 23
UNC Wilmington, September 28
Appalachian State University, November 21

May 1, 2007– April 30, 2008

UNC Chemistry, September 12
NIH Pioneer Symposium, September 19
University of Kansas, October 5
Southeastern Magnetic Resonance Conference, U. Alabama November 10
Honors Chemistry, UNC, November 19

May 1, 2006– April 30, 2007

UNC, Chemistry, September 6
Duke, Biochemistry, October 2
University of Pennsylvania, Biophysics, October 18
Drexel University, Bioscience and Biotechnology, October 19

Virginia Tech, Chemistry, January 26
Biophysical Society, Intrinsically Disordered Proteins Subgroup, Baltimore,
March 3
Seeing is Believing: The Future of Molecular and Biomolecular Imaging Meeting,
Duke, March 11
UNC, Biochemistry & Biophysics, April 17

May 1, 2005 – April 30, 2006

Colorado Protein Stability Conference, Breckenridge, CO
Trends in Microcalorimetry, Boston, MA
Cellular Osmoregulation: Sensors,
Transducers & Regulators GRC, Newport, RI
UNC Chemistry, Chapel Hill, NC
UNC Biochemistry & Biophysics, Chapel Hill, NC
Cold Spring Harbor Meeting on the Intracellular Molecular Environment,
Cold Spring Harbor, NY
University of Pittsburgh, Pittsburgh, PA
University of Denver, Denver, CO
University of Colorado, Health Sciences, Denver, CO
U. Massachusetts, Amherst, MA
NIH, Bethesda, MD

May 1, 2004 – April 30, 2005

Northern Illinois University, DeKalb, IL
Rutgers University, New Jersey
Johns Hopkins Folding Meeting, St. Michaels, MD
Duke University, Durham
University of Richmond, Chemistry
Gibbs Conference, Carbondale, IL

May 1, 2003 – April 30, 2004

Microcalorimetry Conference, Atlanta
Yale University, Molecular Biophys. & Biochemistry
Emory University, Chemistry
University of Kentucky, Biochemistry
Wake Forest University, Physics
UNC-Chapel Hill, Chemistry
13th Conversation in Biomolecular Stereodynamics, SUNY Albany

May 1, 2002 – April 30, 2003

Biopolymers Gordon Conference
FASEB Protein Folding in the Cell Meeting
Toronto Biophysics Symposium
Rensselaer Polytechnic, Chemistry
Penn. State, Chemistry
Washington University, Biochemistry

May 1, 2002 – April 30, 2003, cont'd

UNC-Chapel Hill, Biochemistry & Biophysics
NC State University, Biochemistry
UNC-Chapel Hill, Chemistry
Drexel University, Biology
University of Pennsylvania, Biophysics

May 1, 2001 – April 30, 2002

Proteins Gordon Conference
Reversible Assoc. in Structural Molecular Biology Gordon Conference
Boston ACI Proteomics Symposium
University of Virginia, Biophysics
Washington State University, Chemistry
Sunesis, Inc., South San Francisco
Stanford University, Biochemistry
Georgia Tech., School of Chemistry and Biochemistry.
Georgia State University, Chemistry

Patent:

Filed 4/1/2010, Application No. PCT/US2010/029297
Device for particulate NMR samples in fluid
Pielak GJ, Barnes C, Sharaf N, Young G, Pinero F, Charlton L, Seagle C

Publications:

Wang Y, Li C, Pielak GJ. 2012. In-cell protein magnetic resonance spectroscopy. *Chinese Journal of Magnetic Resonance*, 29: in press.

Pielak GJ, Tian F. 2012. Membrane proteins, magic-angle spinning, and in-cell NMR. *Proceedings of the National Academy of Sciences of the United States of America* 109: in press.

Zigoneanu IG, Pielak GJ 2012. Interaction of α -synuclein and a cell penetrating fusion peptide with higher eukaryotic cell membranes assessed by ^{19}F NMR. *Molecular Pharmaceutics* 9: in press.

Zigoneanu IG, Yang YJ, Krois AS, Haque Md E, Pielak GJ. 2011. Interaction of α -synuclein and its A30P variant with vesicles of composition similar to mitochondrial membranes. *Biochimica et Biophysica Acta* 1818: 512-519.

Fu R, Wang X, Li C, Santiago-Miranda A, Pielak GJ, Tian F. 2011. *In situ* Structural characterization of a recombinant protein in native *Escherichia coli* membranes with solid-state MAS NMR. *Journal of the American Chemical Society* 133: 12370-12373.

Schlesinger AP, Wang Y, Tadeo X, Millet O, Pielak GJ. 2011 Macromolecular crowding fails to fold a globular protein in cells. *Journal of the American Chemical Society* 133: 8082-8085.

Miklos AC, Sarkar M, Li C, Pielak GJ. 2011. Proteins tune protein stability. *Journal of the American Chemical Society* 133: 7116-7120.

Miklos AC, Li C, Sorrell CD, Lyon LA, Pielak GJ. 2011. An upper limit for macromolecular crowding effects. *BMC Biophysics* 4:13.

Barnes CO, Monteith WB, Pielak GJ. 2011. Internal and global protein motion assessed with a fusion construct and in-cell NMR. *ChemBioChem* 12: 390-391.

Barnes CO, Pielak GJ. 2011. In-cell NMR and protein leakage. *Proteins: Structure, Function, and Bioinformatics* 79: 347-351.

Miklos AC, Pielak GJ 2010. Crowding and function reunite. *Proceedings of the National Academy of Sciences of the United States of America* 107: 17457-17458.

Li C, Wang G-F, Pielak GJ 2010. Probing the micelle-bound aggregation-prone state of α -synuclein with ^{19}F NMR. *ChemBioChem* 11: 1993-1996.

Miklos AC, Li C, Sharaf NG, Pielak GJ 2010. Volume exclusion and soft interaction effects on protein stability under crowded conditions. *Biochemistry* 49: 6894-6991.

Wang G-F, Li C, Pielak GJ. 2010. ^{19}F NMR studies of α -synuclein-membrane interactions. *Protein Science* 19: 1686-1691.

Wang Y, Li C, Pielak GJ. 2010. Effects of proteins on protein diffusion. *Journal of the American*

Chemical Society 132: 9392-9397.

Li C, Wang G-F, Wang Y, Creager-Allen R, Lutz EA, Scronce H, Slade K M, Ruf RA, Mehl RA Pielak GJ 2010. Protein ^{19}F NMR in *Escherichia coli*. *Journal of the American Chemical Society* 132: 321-327. Featured in *C&EN Concentrates*.

Sharaf NG, Barnes CO, Charlton LM, Young GB, Pielak GJ. 2010. A bioreactor for in cell protein NMR. *Journal of Magnetic Resonance*: 202: 140-146. Featured on cover.

Miklos AC, Li C, Pielak GJ. 2009. Using NMR-detected backbone amide ^1H exchange to assess macromolecular crowding effects on globular-protein stability. *Methods in Enzymology* 466: 1-18.

Li C, Wang Y, Pielak GJ. 2009. Translational and rotational diffusion of a small globular protein under crowded conditions. *Journal of Physical Chemistry B* 113: 13390-13392.

Li C, Lutz EA, Slade KM, Ruf RA, Wang G, Pielak GJ. 2009. ^{19}F -NMR studies of α -synuclein conformation and fibrillation. *Biochemistry* 48: 8578-8584.

Slade KM, Baker R, Chua M, Thompson NL, Pielak GJ. 2009. Effects of recombinant protein expression on green fluorescent protein diffusion in *Escherichia coli*. *Biochemistry* 48: 5083-5089.

Slade KM, Steele BL, Pielak GJ, Thompson NL. 2009. Quantifying GFP diffusion in *Escherichia coli* by using continuous photobleaching with evanescent illumination. *Journal of Physical Chemistry* 113: 4837-4845.

Li C, Pielak GJ 2009. Using NMR to distinguish viscosity effects from nonspecific protein binding under crowded conditions. *Journal of the American Chemical Society* 131: 1368-1369.

Pielak GJ, Li C, Miklos AC, Schlesinger AP, Slade K M, Wang G., Zgoneanu IG. 2009. Protein NMR under physiological conditions. *Biochemistry* 48: 226-234.

Ruf RA, Lutz EA, Zgoneanu IG, Pielak G J. 2008. α -Synuclein conformation affects its tyrosine-dependant oxidative aggregation. *Biochemistry* 47: 13604-13609.

Li C, Charlton LM, Lakkavaram A, Seagle C, Wang G, Young GB, Macdonald JM, Pielak GJ. 2008. Differential dynamical effects of macromolecular crowding on an intrinsically disordered protein and a globular protein: implications for in-cell NMR. *Journal of the American Chemical Society* 130: 6310-6311.

Charlton LM, Barnes CO, Li C, Orans J, Young GB, Pielak GJ. 2008. Residue-level interrogation of macromolecular crowding effects on protein stability. *Journal of the American Chemical Society* 130: 6826-6830.

Pielak GJ, Patel CN, Winzor DJ. 2007. Reconsideration of sedimentation equilibrium distributions reflecting the effects of small inert cosolutes on the dimerization of α -chymotrypsin. *Biophysical Chemistry* 130: 89-92.

Charlton LM, Pielak GJ 2006. Peeking into living eukaryotic cells with high-resolution NMR, *Proceedings of the National Academy of Sciences of the United States of America* 103: 11817-11818.

Bryant JE, Lecomte JTJ, Lee AL, Young GB, Pielak GJ 2006. Cytosol has a small effect on protein backbone dynamics. *Biochemistry* 45: 10085-10091. Retracted: *ibid.* 46: 8206.

McCall S J, Nassar R, Malouf NN, Saunders AJ, Oakeley, AE, Henderson PM, Solaro RJ, Pielak GJ, Alexander KA, and Anderson PAW 2006. Development and cardiac contractility: cardiac troponin T isoforms and cytosolic calcium. *Pediatric Research* 60: 276-281.

Pielak GJ. 2006. Woes of proline: a cautionary kinetic tale. *Protein Science* 15: 393-394.

McNulty BC, Young GB, Pielak GJ. 2006. Macromolecular crowding in the *Escherichia coli* periplasm maintains α -synuclein disorder. *Journal of Molecular Biology* 355: 893-897.

McNulty BC, Tripathy A, Young GB, Orans J, Pielak GJ. 2006. Temperature-induced reversible conformational change in the first 100 residues of α -synuclein. *Protein Science* 15: 602-608.

Barrett DG, Minder CM, Mian MU, Whittington SJ, Cooper J, Fuchs KM, Tripathy A, Waters ML, Creamer TP, Pielak GJ. 2006. Pressure perturbation calorimetry of helical peptides. *Proteins: Structure Function and Bioinformatics*. 63: 322-326.

Bryant JE, Lecomte JTJ, Lee AL, Young GB, Pielak GJ. 2005. Protein dynamics in living cells. *Biochemistry* 44: 9275-9279. Retracted: *ibid.* 46: 8206.

Pielak GJ 2005. A model of cellular organization. *Proceedings of the National Academy of Sciences of the United States of America* 102: 5901-5902.

Yi F, Sims D, Pielak GJ, Edgell MH. 2005. The impact of robotics and instrument automation on protein stability measurements. *Journal of the Association for Laboratory Automation* 10: 98-101.

Olteanu A, Pielak GJ. 2004. Peroxidative aggregation of α -synuclein requires tyrosines. *Protein Science* 13: 2852-2856.

Batchelor JD, Olteanu A, Tripathy A, Pielak GJ 2004. Impact of protein denaturants and stabilizers on water structure. *Journal of the American Chemical Society* 126: 1958-1961.

Olteanu A, Patel CN, Dedmon MM, Kennedy S, Linhoff MW, Minder CM, Potts PR, Deshmukh M, Pielak GJ 2003. Stability and apoptotic activity of recombinant human cytochrome *c*. *Biochemical and Biophysical Research Communications* 312/3: 733-740.

Yi F, Sims DA, Pielak GJ, Edgell MH. 2003. Testing hypotheses about determinants of protein structure with high-precision high-throughput stability measurements and statistical modeling. *Biochemistry* 42: 7594-7603.

Edgell MH, Sims DA, Pielak GJ, Yi F. 2003. High-precision high-throughput stability determinations facilitated by robotics and a semi-automated titrating fluorometer. *Biochemistry* 42: 7587-7593.

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