

## Curriculum Vitae

### Gary J. Pielak

Department of Chemistry  
University of North Carolina at Chapel Hill  
Chapel Hill, NC 27599-3290  
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Home page: [www.chem.unc.edu/people/faculty/pielak/group/](http://www.chem.unc.edu/people/faculty/pielak/group/)

### Research Interests:

Protein chemistry and biophysics, especially in living cells.

### Employment:

#### July 2015-

Kenan Distinguished Professor of Chemistry

#### August 2013-

Vice Chair of Facilities in Chemistry

#### July 2013-July 2015

Glen H. Elder, Jr. Distinguished Term Professor of Research & Undergraduate Education

#### January 2013-December 2014

Program Director, Molecular Biophysics Cluster, Division of Molecular and Cellular Sciences, Directorate for Biological Sciences, the National Science Foundation, Arlington, NC

#### 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

#### July 1998 - July 1999

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

#### January 1995-December 1999

Associate Professor of Chemistry, UNC

#### January 1989-June 2016

Co-director UNC Biomolecular NMR Facility

#### January 1989 - December 1994

Assistant Professor, UNC  
Member UNC Integrative Program for Biological & Genome Sciences (previously Program in Molecular Biology and Biotechnology)

#### June 1986 - January 1989

N.I.H. Postdoctoral Fellow: R.J.P. Williams, F.R.S., M.B.E, deceased  
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, deceased  
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/Mentoring:**

**Past Postdocs and Their Current Employer**

Dr. Guifang Wang (Pennsylvania State University)  
Dr. Conggang Li (Chinese Academy of Sciences, Wuhan)  
Dr. Austin Smith (KBI)  
Dr. Thomas Boothby (U. Wyoming)

**Current Postdocs**

None

**Current Graduate Students**

Ms. Julia Brom  
Ms. I-Te Chu  
Mr. Jonathan (Jack) Eicher  
Ms. Claire Stewart  
Mr. Joseph (Joey) Thole  
Ms. Candice Crilly

**Past Graduate Students and Their Current Employer**

Dr. Shannon Speer, (KBI)  
Dr. Samantha (Sam) Stadmiller (Lindy Biosciences)  
Dr. Samantha (Pixie) Piszkiwicz (UC Berkeley)  
Dr. Alex Guseman (Pitt)  
Dr. Annelise Gorensek (Davidson College)  
Dr. Rachel Cohen (Pfizer)  
Dr. Austin Smith (KBI)  
Ms. Torii Sutherland (US Coast Guard)  
Dr. William Monteith (Alector)  
Dr. Mohona Sarkar (St. Judes)  
Dr. Jillian Tyrrell (Biocare Medical)  
Dr. Yaqiang Wang (Chemistry & Biochemistry, UCLA)  
Ms. Laura Benton (Holy Orders)  
Dr. Imola-Gabriela Zigoneanu (Biomedical Engineering, UNC)  
Dr. Alex Schlesinger (AgBiome)  
Dr. Andrew Miklos (NIH)  
Mr. Christopher Barnes, M.A. (Caltech)  
Dr. Rebecca Ruf  
Mr. Matthew Hrabak, M.S. (Naval Surface Warfare Center)  
Dr. Kristin Slade (Hobart and William Smith Colleges)  
Dr. Lisa Charlton (ERT)

***Past Graduate Students and Their Current Employer, cont'd***

Dr. Brian McNulty (Athenix)  
Dr. Julie Bryant (Merck)  
Dr. Alina Olteanu (Private practice, Houston)  
Dr. Dana Albon (Moses Cone Mem. Hosp.)  
Dr. Fang Yi (Centocor)  
Dr. Chetan Patel (Lilly)  
Dr. Artemiza Morar (GlaxoSmithKline)  
Mr. Xuming Wang, M.A. (Intel)  
Dr. Gresham Weatherly (AbbVie)  
Dr. Paula Davis-Searles (Diosynth)  
Dr. Jennifer Waldner  
Ms. Devon Allen, M.S. (Diosynth)  
Dr. David Cohen (Advanced Liquid Logic)  
Dr. Aleister Saunders (Drexel)  
Dr. Jennifer Marmorino  
Dr. Donald Doyle (Georgia Tech.)  
Dr. James Beasley, (Venenum)  
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. (Synermore Biologics)

***Past STEM Teacher-researcher Fellows***

Ms. Candice Jackson, Thomasville High School (2011)  
Mr. Oryan Lowry, South Robeson High School (2012)

***Current Undergraduate Students***

Ms. Penelope Mewborn  
Mr. Owen Warmuth  
Mr. Francis Lauzier  
Ms. Shikun 'Rinco' Wang  
Ms. Sophia Hazlett

***Past Undergraduates and Where They Went Next***

Mr. Octavio Origel (Northwestern)  
Mr. Owen Warmuth  
Ms. Shreya Nakkala (UNC)  
Mr. Jhoan Aguilar (Postbac UNC)  
Mr. Gustavo Panduro (UNC)  
Mr. Gerardo Perez (MIT)  
Mr. Cody Weyhrich (Virginia Tech)  
Mr. Aakash Mehta (NIEHS)  
Mr. Anthony Arrington (UNC Pembroke)  
Mr. Kenny Nguyen (GSK)  
Mr. Luis Acosta (Actuarial School)  
Mr. Thomas Lanier (UNC)  
Mr. Larry Zhou (NIH)  
Mr. Eduardo Guizan (Pharmacy School, UNC)  
Mr. Emilio Guzman (Med. School, UNC)  
Mr. Joe Lu (Actuary School)  
Ms. Beth Williard (Disney World)  
Mr. Vishavpreet 'Ricky' Singh (Med. School, UNC)  
Mr. Alexander Krois (Grad. School, Scripps)

***Past Undergraduates and Where They Went Next, cont'd***

Ms. Yuri Yang (Technician, U. Toronto)  
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, Chemistry, 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, Chemistry, UNC)  
Mr. Joseph Batchelor (University of California, Berkeley)  
Mr. Matthew Dedmon (Grad. School, 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, 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, Biochemistry, Scripps)  
Mr. Mark Dransfield (Med. School, UNC)  
Ms. Jennifer Fencl (Grad. School, Chemistry, UNC)  
Ms. Tori Williams (Grad. School, Yale)

***Past High School Students and Where They Went Next***

Ms. Malika Rauf (back to North Chapel Hill High)  
Ms. Melanie Wiley (U. Maryland, then MD/PhD program, U. South Carolina)  
Ms. Ashlee Propst (NC State)  
Ms. Hanna Qu (back to Research Triangle High)

**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**

Executive Committee  
Staff Awards/Recognition  
Approximately 10 Ph.D. Committees  
Approximately 5 Undergraduate Honors Committees

**Past Committee Assignments in Biochemistry & Biophysics**

Biophysics Search Committees; Campbell, Lee, and Kuhlman  
Biomolecular NMR core director search, 2018  
Assistant Professor search, UNC Biochemistry & Biophysics, 2019

**Past Committee Assignments in Chemistry**

CHEM 550L Efficacy Committee, 2019-2019  
X-Ray Core Director Search, 2018  
NMR Core Search, 2018, 2019  
Mass Spec Core Search, 2018  
Vice Chair of Chemical Research Instrumentation Teaching & Core Laboratories,  
2014-2018  
Lecturer Search, 2016-2017  
Mass Spectroscopy Core Director Search, 2014  
Post Tenure Review Committee, 2011-2012  
Graduate Studies Committee, 2010-2011  
Graduate Recruiting Committee, 2010-2011  
Strategic Planning Committee, 2009 - 2010  
2010 Departmental Program Review Committee  
NMR Committee  
Undergraduate Studies Committee, 1992-2008, 2012-2013

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**

University Teaching Awards Committee, 2018, 2019, 2020  
University Distinguished Professorship Committee, 2017  
Distinguished Dissertation Faculty Review, 2014, 2015  
COI Monitoring Committee (Redinbo), 2014  
Cross-listed Courses Task Force, 2012  
Independent Studies Task Force, 2011  
Chair, Curriculum Review Committee, Miscellaneous Subcommittee, 2010  
University Research Day Judge, 2010  
Chair, Admissions Committee, Biological & Biomedical Sciences Program, 2008  
Administrative Boards of the General College, 2003-2013  
Mock interviews for the Gates-Cambridge and Churchill Fellowships through the Office of Distinguished Scholarships, 2007  
Reviewer, Smallwood Undergraduate Summer Research Grants, 2006  
Summer Undergraduate Research Fellowship Committee, 2007-2010, 2015, 2018  
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, 2015, 2016, 2017  
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/International Service**

2019 Judge Annual Biomedical Research Conference for Minority Students (ABRCMS)  
2016 Outside Honors Examiner, Hobart and William Smith Colleges  
2016 Chair, Biophysics *in vivo* subgroup of the Biophysical Society  
2015 Chair-elect, Biophysics *in vivo* subgroup of the Biophysical Society

***Regional/National/International Service, continued***

2011-2015, Member at Large, Biophysics *in vivo* subgroup of the Biophysical Society  
2013-2014 Program Director, Molecular Biophysics Cluster, Division of Molecular and Cellular Sciences, Directorate for Biological Sciences, the National Science Foundation  
Faculty Search Committee Biochemistry, Washington State University, 2003  
One or more tenure/promotion letters per year

***Ph.D. Committees***

Duke, Georgia Tech., University of Barcelona, Yale

***Manuscript Referee***

ACS Chemical Biology  
Angewandte Chemie  
Archives of Biochemistry and Biophysics  
Biochemistry  
Biochimica et Biophysica Acta  
Accounts of Chemical Research  
Biochimie  
Biomacromolecules  
Biophysical Chemistry  
Biophysical Journal  
Biopolymers  
BioTechniques  
Biotechnology  
BMC Biology  
ChemBioChem  
Chemical Neuroscience  
Chemical Physics Letters  
Coordination Chemistry Reviews  
Crystal Growth & Design  
FEBS Letters  
Folding and Design  
Frontiers of Molecular Biosciences  
*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 Physical Chemistry  
Journal of Physical Chemistry Letters  
Journal of Proteome Research  
Macromolecules  
Molecular Pharmaceutics  
Nature  
Nature Methods  
Nature Structural Biology  
Nucleic Acids Research

Physical Chemistry Chemical Physics  
Protein Science

***Manuscript Referee, continued***

Proteins: Structure, Function, Genetics/Bioinformatics  
Proceedings of the National Academy of Sciences, U.S.A.  
Scientific Reports  
Softmatter

***Editorial Duties***

1998-1999 Paper Alerts contributor, *Current Opinions in Structural Biology*  
2011- Editorial Advisor, *BMC Biophysics*  
2017- Editorial Advisory Board. *Protein Science*  
2021- Editorial Board, *Magnetic Resonance Letters*

***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***

Czech Science Foundation  
Danish Council for Independent Research  
Experimental Program to Stimulate Competitive Research,  
French National Research Agency (ANR)  
Israel Science Foundation  
National Science Centre Poland  
Netherlands Organisation for Scientific Research  
NSERC Canada  
Petroleum Research Fund  
Research Corporation  
Switzerland: ETH Zurich Research Commission  
UK: BBSRC, MRC, Wellcome  
U.S.: AAAS Research Competitiveness Program, Cottrell NSF, Nebraska  
Wellcome trust/DBT India Alliance

***Meetings Organized/Convened***

8<sup>th</sup> International Symposium on the Higher Order Structure of Protein  
Therapeutics (HOS), San Mateo, 2019  
Program Committee, Protein Society Symposium, Barcelona, 2015  
Program Committee Chair, 26<sup>th</sup> Annual Protein Society Symposium, 2012  
Biophysics Society Subgroup, Biopolymers in vivo, 2012



Chemistry Spectrum: recruiting high school students interested in science to  
UNC, 2008

***Meetings Organized/Convened, continued***

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**

- Protein stabilizers from tardigrades  
Source: National Institutes of Health 1 R01 GM127291-01A1  
Total award amount: \$1,172,000  
Total period covered: 12/01/2018 - 11/30/2021
- MRI: Purchase of a 600 MHz Spectrometer for high-sensitivity NMR  
Source: NSF CHE 1828183  
Total award amount: \$444750  
Total period covered: 08/01/18 - 07/31/2020
- Impact of cosolutes on protein folding  
Source: United States - Israel Binational Science Foundation  
Total award amount: \$216,000  
Total period covered: 08/01/18-07/31/22
- Protein stabilizers from tardigrades  
Integrative Program for Biological and Genome Sciences  
Total award amount: \$30,000  
Total period covered: 09/01/2018-08/31/2019
- Tardigrade proteins as Novel Pharmaceutical Excipients  
Source: North Carolina Biotechnology Center  
Total award amount: \$75,000  
Total period covered: 07/01/18-06/30/19
- MRI: Acquisition of a Mass Spectrometer (Co-PI)  
Source: NSF 1726291  
Total award amount: \$1,157,551  
Total period covered: 08/15/2017 - 07/31/2020
- Macromolecular Crowding and Protein Stability In Vitro and in Cells  
Source: NSF MCB 1410854  
Total award amount: \$ 990,000  
Total period covered: 09/01/14-08/31/19
- Encapsulation and Protein Stability  
Source: NSF CHE 1607359  
Total award amount: \$ 353927  
Total period covered: 07/01/2016-06/30/2018

**Recent Grants**

- Intergovernmental Mobility Award  
Source: NSF 1410854  
Total award amount: \$171,167  
Total period covered: 12/31/12 – 06/31/13
- 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
- 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

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, 2011  
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  
Plenary Speaker, Beijing Conference & Exhibition on Instrumental Analysis, 2011  
Program Committee Chair, 26<sup>th</sup> Annual Protein Society Symposium, 2012  
Science Foundation of Ireland, E.T.S. Walton Visitor Award  
Invited Speaker, Molecular Crowding: Chemistry & Physics Meet Biology (Switzerland), 2012  
Invited Speaker, 12th Chianti/INSTRUCT Workshop on BioNMR (Italy) 2012  
Invited Speaker, EUROMAR (Dublin, Ireland), 2012  
Glen H. Elder, Jr. Distinguished Term Professor of Research and Undergraduate Education, 2013-  
Invited Speaker, Annual Protein Society Symposium, 2013  
Invited Speaker, American Chemical Society National Meeting, New Orleans, April 7-11, 2013  
Invited Speaker Graduate School Solvation Science Summer School, Bochum Germany, June 10-13, 2014  
Invited Speaker Annual Meeting of the Biophysical Society of Japan. September 25-27, 2014

**Honors, continued**

TC Wang Lecturer, Wuhan Institute of Physics and Mathematics, Chinese Academy of Sciences, March 18, 2015  
Kenan Distinguished Professorship 2015-2016 Chair, Biophysics *In Vivo* subgroup of the Biophysical Society  
Invited Speaker, EMBO Conference on The Biochemistry and Chemistry of Biocatalysis: From Understanding to Design, Oulu, Finland, June, 2016  
Carl Brändén Award from the Protein Society, 2016  
Invited Speaker, Intrinsically Disordered Proteins: Structure, Function & Interactions, Philadelphia, August 23  
Invited Speaker, Nobel Symposium on Protein Folding: From Mechanisms to Impact on Cells, Stockholm, Sweden, June 11-14, 2017  
University Mentor Award for Lifetime Achievement from UNC-CH. 2017  
Invited Speaker, First International Symposium on Chemistry for Multimolecular Crowding Biosystems, Kobe, Japan, December 12-13, 2017  
Invited Speaker, Physical and Quantitative Understanding of Cells at Molecular Level, Chemical Society of Japan, Kyoto, December 14-16, 2017  
Invited Speaker, Mini-workshop on Protein Biophysics: Interplay Between Experiments and Theories, Kyoto University, December 18, 2017  
Invited Speaker, EMBO Workshop, *In situ* methods in Cell Biology and Cellular Biophysics, Berlin, July 26-28, 2018  
Invited Speaker, Gibbs Conference on Biothermodynamics, Carbondale, IL, October 6-9, 2018  
Invited Speaker, 11<sup>th</sup> Biennial Carolina Biophysics Symposium, October 25, 2018  
Invited Speaker, Intrinsically Disordered Protein Subgroup Symposium, Biophysical Society Meeting, Baltimore, March 2, 2019  
Bradley University 2018 College of Liberal Arts and Sciences Distinguished Alumnus Award  
UNC-CH 2019 Excellence in Basic Science Mentoring Award  
Invited Speaker, 20th Conversation in Biomolecular Structure and Dynamics, Albany, June 13 & 14, 2019 (2 talks)  
Invited Speaker, Workshop on Macromolecular Crowding, Telluride, CO, July 16-20, 2019  
Invited Speaker, Workshop on Intrinsically-Disordered Proteins, Telluride, CO, July 16-20, 2019  
Invited Speaker, ACS Fall National Meeting, San Diego, August 25-29  
Invited Speaker, The Dr. and Mrs. Satti Paddi and Parvarti Reddy Public Lecture, Understanding Protein Behaviour in Living Cells, Memorial University, St. John's, Newfoundland, Canada, October 17  
Invited Speaker, Protein Folding Dynamics Gordon Research Conference, Galveston, TX, January 5-9, 2020  
Invited Speaker, German Biophysical Society (DGfB) Meeting Konstanz, Germany, September 2021  
Plenary Lecture, EUROMAR (Portorož, Slovenia), 2021  
Keynote Lecture, 70th Symposium on Macromolecules, 6-8 September, Tokyo, online.

**Research Seminars:**

**May 1, 2022-April 30, 2023**

German Biophysical Society (DGfB) Meeting Konstanz, Germany,  
September 20-23

**May 1, 2021-April 30, 2022**

EUROMAR, Portorož, Slovenia, July 4-8  
Keynote Lecture, 70th Symposium on Macromolecules, 6-8 September,  
Tokyo, online.

**May 1, 2020-April 30, 2021**

ACS Fall National Meeting (virtual), August 17  
BASF (virtual), September 23

**May 1, 2019-April 30, 2020**

20<sup>th</sup> Conversation in Biomolecular Structure and Dynamics, Albany,  
June 13 & 14 (2 talks)  
Workshop on Macromolecular Crowding, Telluride, CO, July 16-20  
Workshop on Intrinsically-Disordered Proteins, Telluride, CO, July 16-20  
ACS Fall National Meeting, San Diego, August 25-29  
The Dr. and Mrs. Satti Paddi and Parvarti Reddy Public Lecture, Understanding  
Protein Behaviour in Living Cells, Memorial University, St. John's,  
Newfoundland, Canada, October 17  
Department of Chemistry, Memorial University, St. John's, Newfoundland,  
Canada, October 18  
Protein Folding Dynamics Gordon Conference, Galveston, TX, January 5-9  
University of Colorado, Denver, CO, March 6.

**May 1, 2018-April 30, 2019**

Suzhou Institute of Biomedical Engineering, Suzhou, China, May 10  
Soochow University, Suzhou, China, May 11  
Wuhan Institute of Physics and Mathematics, Chinese Academy of Sciences,  
Wuhan, China, May 17  
EMBO Workshop, *In situ* methods in Cell Biology and Cellular Biophysics,  
Berlin, July 26-28  
2018 Gibbs Conference on Biothermodynamics, Carbondale, IL, October 6-9  
Appalachian State University, Boone, NC, October 19  
11<sup>th</sup> Biennial Carolina Biophysics Symposium, October 25  
Bradley University, November 19  
Weizmann Institute, Rehovot, Israel, January 29  
Fritz Haber Lecture, Hebrew University, Jerusalem, January 31  
2019 Intrinsically Disordered Protein Subgroup Symposium, Biophysical Society  
Meeting, Baltimore, March 2, 2019  
Wuhan Institute of Physics and Mathematics, Chinese Academy of Sciences,  
Wuhan, China, March 27

**May 1, 2017-April 30, 2018**

China-Japan Joint Symposium on Functional Supramolecular Systems, Wuhan  
China, May 16  
Wuhan Institute of Physics and Mathematics, Chinese Academy of Sciences,  
Wuhan, China, May 19  
Nobel Symposium on Protein Folding: From Mechanisms to Impact on Cells,  
Stockholm, Sweden, June 11-14  
New England Biolabs, December 7  
First International Symposium on Chemistry for Multimolecular Crowding  
Biosystems, Kobe, Japan, December 12-13

Physical and Quantitative Understanding of Cells at Molecular Level, Chemical Society of Japan, Kyoto, December 14-16  
Mini-workshop on Protein Biophysics: Interplay Between Experiments and Theories, Kyoto University, December 18  
Penn State University, February 22  
UNC-CH, Department of Biochemistry and Biophysics, April 24

**May 1, 2016-April 30, 2017**

Appalachian State University, April 21  
University of Wisconsin, March 3  
Loyola University New Orleans, February 13  
ACS Fall National Meeting, Philadelphia, August 21-25  
Annual Protein Society Symposium, Baltimore, July 16-19  
Ruhr-University Bochum, Germany, June 23  
Leibniz-Institut für Molekulare Pharmakologie (FMP), Berlin, June 20  
EMBO Conference on The Biochemistry and Chemistry of Biocatalysis: From Understanding to Design, Oulu, Finland, June 12-15

**May 1, 2015-April 30, 2016**

Higher Order Structure Conferences, Long Beach, CA, April 11-13  
Hobart and William Smith Colleges, April 28

**May 1, 2014-April 30, 2015**

Workshop on Macromolecular Crowding, Telluride, CO, June 23-27  
Washington Area NMR Group, December 4  
California Separation Science Society, Higher Order Structure (CASSS-HOS)  
April 11-13

**May 1, 2014-April 30, 2015**

Graduate School Solvation Science Summer School, Bochum Germany, June 10-13  
Novartis, Emeryville, July 22  
Annual Meeting of the Biophysical Society of Japan, Sapporo, September 26  
Tokyo Metropolitan University, September 30  
University of North Carolina-Chapel Hill, October 8  
University of Virginia, November 7  
School of Life Sciences, U. of Science & Technology of China, Hefei, March 13  
TC Wang Lecturer, Wuhan Institute of Physics and Mathematics, Chinese Academy of Sciences, March 18

**May 1, 2013-April 30, 2014**

Workshop on Macromolecular Crowding, Telluride, CO, June 25-29  
Annual Protein Society Symposium, Boston, July 20-24  
National Institute of Environmental Health Science, RTP, NC, September 5  
University of Maryland, November 18  
University of Puerto Rico, Rio Piedras Campus, November 22  
Simon Fraser University, Vancouver, BC Canada, December 6  
University of British Columbia, Vancouver, BC Canada, December 9  
Florida State University, Tallahassee, January 21  
Johns Hopkins, March 10  
UNC Greensboro, March 28

**May 1, 2012-April 30, 2013**

University of Durham (UK), June 1  
National University of Ireland, Galway, May 28  
Molecular Crowding: Chemistry and Physics meet Biology (Switzerland), June 12

12th Chianti/INSTRUCT Workshop on BioNMR (Italy) June 18  
EUROMAR (Dublin, Ireland), July 1  
University of Tennessee, October 17  
ACS Southeastern Regional Meeting (SERMACS). Raleigh, NC, November 16  
Drexel University, February 18  
University of Pennsylvania, Hershey, March 18  
American Chemical Society National Meeting, New Orleans, April 7-11

**May 1, 2011-April 30, 2012**

Yale, March 19  
King's College London, January 20  
National Institute for Medical Research (UK), January 19  
University of 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**

University of 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, Germany)  
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  
Workshop on Macromolecular Crowding, Telluride, CO, July 6-10  
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

***May 1, 2003 – April 30, 2004***

Gibbs Conference, Carbondale, IL  
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  
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

**Patents:**

Tardigrade disordered proteins as protein stabilizers  
US provisional patent application 62/375,238, August 15, 2016  
Boothby T, Goldstein B, Pielak GJ, Piszkiwicz S, Brozena A

Device for particulate NMR samples in fluid  
US 8,773,130 B2  
Pielak GJ, Barnes C, Sharaf N, Young G, Pinero F, Charlton L, Seagle C

**Publications: [168 total, >10300 citations, h-index (Google Scholar) 58]**

Gruebele M, Pielak GJ. 2021. Dynamical spectroscopy and microscopy of proteins in cells. *Current Opinion in Structural Biology*, 70: 1-7.

Speer SL, Zheng W, Jiang X, Chu I-T, Guseman AJ, Liu M, Pielak GJ, Li C. 2021. The intracellular environment affects protein-protein interactions. *Proceedings of the National Academy of Sciences U S A* 118: e2019918118.

Thole J, Fadero T, Bonin J, Stadmiller S, Giudice J, Pielak G. 2021. *Danio rerio* oocytes for eukaryotic in-cell NMR. *Biochemistry* 60: 451-459.

Crilly C, Brom J, Kowalewski M, Piszkiwicz S, Pielak, GJ. 2021. Dried protein structure revealed at the residue level by liquid-observed vapor exchange NMR. *Biochemistry* 60: 152-159.

Stadmiller SS, Pielak, GJ. 2020. Protein-complex stability in cells and in vitro under crowded conditions. *Current Opinion in Structural Biology*, 66: 183-192.

Stadmiller SS, Aguilar JS, Parnham S, Pielak GJ. 2020. Protein-peptide binding energetics under crowded conditions. *Journal of Physical Chemistry*, 42: 9297–9309.

Esterly, H. J.; Crilly, C. J.; Piszkiwicz, S.; Shovlin, D. J.; Pielak, G. J.; Christian, B. E. 2020. Toxicity and immunogenicity of a tardigrade cytosolic abundant heat soluble protein in mice. *Frontiers in Pharmacology*, 11, 565969.

Stadmiller SS, Aguilar, JS, Waudby C, Pielak GJ. 2020. Rapid quantification of protein-ligand binding via <sup>19</sup>F NMR lineshape analysis. *Biophysical Journal*, 118: 2333-2335.

Chu I-T, Speer SL, Pielak GJ. 2020. Rheostatic control of protein expression using Tuner cells. *Biochemistry*, 59: 733-735.

Pielak G, Piszkiwicz S 2019. Protecting enzymes from stress-induced inactivation *Biochemistry* 58: 3825-3833.

Ye Y, Wu Q, Zheng W, Jiang B, Pielak G, Liu M, Li C. 2019. Positively-charged tags impede protein mobility in cells as quantified by <sup>19</sup>F NMR. *Journal of Physical Chemistry*, 123: 4527-4533.

Speer SL, Guseman AJ, Patteson JB, Ehrmann BM, & Pielak GJ. 2019. Controlling and quantifying protein concentration in *Escherichia coli*. *Protein Science* 28: 1307-1311.

Jiang X, Zhang Z, Cheng K, Wu Q, Jiang L, Pielak GJ, Liu M, & Li C. 2019. Membrane-mediated disorder-to-order transition of SNAP25 flexible linker facilitates its interaction with syntaxin-1 and snare-complex assembly. *The FASEB Journal*, 33: 7985-7994.

Piszkiwicz S, Gunn KH, Warmuth O, Propst A, Mehta A, Nguyen KH, Kuhlman E, Guseman AJ, Stadmiller SS, Boothby TC, Neher SB, & Pielak GJ. 2019. Protecting activity of desiccated

enzymes. *Protein Science* 28, 941-951.

Carter C, Wolfenden R, Caplow M, Lentz B, Pielak G, Watenpaugh K, Hu H, & Puett D. 2019. Jan Hermans (1933-2018): Red-blooded biophysicists study hemoglobin. *Proteins* 87:171-173.

Stadtmiller SS, Pielak GJ. 2018. The expanding zoo of in-cell protein NMR. *Biophysical Journal*. 115: 1628-1629

Cheng K, Wu Q, Zhang Z, Pielak GJ, Liu M, Li C. 2018. Crowding and confinement can oppositely affect protein stability. *ChemPhysChem* 19: 1-7.

Guseman AJ, Perez Goncalves GM, Speer SL, Young GB, Pielak GJ. 2018. Protein shape modulates crowding effects. *Proceedings of the National Academy of Sciences of the United States of America*, 115: 10965-10970.

Stadtmiller SS Pielak GJ. 2018. Enthalpic stabilization of an SH3 domain by D<sub>2</sub>O. *Protein Science*, 27: 1710-1716.

Rydeen AE, Brustad EM, Pielak GJ. 2018. Osmolytes and Protein-Protein interactions. *Journal of the American Chemical Society*. 140: 7441-7444.

Guseman SJ, Speer SL, Perez Goncalves GM, Pielak GJ. 2018. Surface charge modulates protein-protein interactions in physiologically relevant environments. *Biochemistry*, 57: 1681-1684.

Ye Y, Wu Q, Zheng W, Jiang B, Pielak GJ, Liu M, Li C. 2017. Quantification of size effect on protein rotational mobility in cells by <sup>19</sup>F NMR spectroscopy. *Analytical and Bioanalytical Chemistry*, 410: 869-874.

Acosta LC, Perez Goncalves GM, Pielak GJ, Gorenssek-Benitez AH. 2017. Large cosolutes, small cosolutes and dihydrofolate reductase activity. *Protein Science*, 26: 2417-2425.

Boothby TC, Pielak GJ. 2017. Intrinsically disordered proteins and desiccation tolerance: elucidating functional and mechanistic underpinnings of anhydrobiosis. *BioEssays*, 39 (11).

Gorenssek-Benitez AH, Smith AE, Stadtmiller SS, Perez Goncalves GM, Pielak GJ. 2017. Cosolutes, crowding, and protein folding kinetics. *Journal of Physical Chemistry B*, 121: 6527-6537.

Cohen RD, Pielak GJ 2017. Protein quinary interactions with an unfolded state ensemble. *Protein Science*, 26: 1698-1703.

Boothby TC, Tapia H, Brozena AH, Piszkiwicz S, Smith AE, Giovannini I, Rebecchi L, Pielak GJ, Koshland D, & Goldstein B. 2017. Tardigrades use intrinsically disordered proteins to survive desiccation. *Molecular Cell*, 65: 975-984. *Featured by National Public Radio, The BBC, The New York Times, The Christian Science Monitor, The Telegraph, The New Scientist, Chemical and Engineering News, Trends in Biochemical Sciences and the Faculty of 1000.*

Guseman, GJ, Pielak GJ 2017. Cosolute and crowding effects on a side-by-side protein dimer. *Biochemistry*, 56: 971-976.

Li C, Zhao J, Zhang X, Zhou X, Pielak GJ, Liu M, Cheng K, Ge Y, Wu Q, Ye Y, Xu G, Zhang Z, Zheng W 2017. Magnetic resonance spectroscopy as a tool for assessing macromolecular structure and function in living cells. *Annual Review of Analytical Chemistry* 10: 157-182.

Cohen RD, Pielak GJ 2017. A cell is more than the sum of its (dilute) parts: a brief history of quinary structure. *Protein Science* 26: 403-413.

Bia J, Pielak GJ, Li C 2017. Macromolecular and small molecular crowding have similar effects on

$\alpha$ -synuclein structure. *ChemPhysChem*, 18, 55-58.

Cohen RD, Pielak GJ 2016. Electrostatic contributions to protein quinary structure. *Journal of the American Chemical Society* 138: 13139–13142.

Senske M, Smith A, Pielak GJ 2016. Protein stability in reverse micelles. *Angewandte Chemie* 55, 3586-3589.

Smith AE, Zhou LZ, Gorenssek AH, Senske M, Pielak GJ 2016. In-cell thermodynamics and a new role for protein surfaces. *Proceedings of the National Academy of Sciences of the United States of America*, 113, 1725-1730. **Featured by Faculty of 1000.**

Zhaia Z, Wua Q, Zheng W, Liu M, Pielak GJ, Li C 2016. Roles of structural plasticity in chaperone HdeA activity are revealed by <sup>19</sup>F NMR. *Chemical Science*, 7, 2222–2228.

Tyrrell J, Weeks, KM, Pielak GJ 2015. Challenge of mimicking the influences of the cellular environment on RNA structure by PEG-induced macromolecular crowding. *Biochemistry*, 54: 6447–6453. **Featured by Faculty of 1000.**

Cohen RD, Guseman AJ, Pielak GJ 2015. Intracellular pH modulates quinary structure. *Protein Science*, 24: 1748–1755.

Spitzer J, Pielak GJ, Poolman B. 2015. Emergence of life: Physical chemistry changes the paradigm. *Biology Direct*, 10: 33.

Smith AE, Zhou Z, Pielak GJ. 2015. Hydrogen exchange of disordered proteins in *Escherichia coli*. *Protein Science*, 24: 706-713. **Featured by Faculty of 1000.**

Monteith WB, Cohen RD, Smith AE, Guzman-Cisneros E, Pielak GJ. 2015. Quinary structure modulates protein stability in cells. *Proceedings of the National Academy of Sciences of the United States of America*, 112: 1739-1742. **Featured in C&EN Concentrates.**

Smith AE, Zhang Z, Pielak GJ, Li C 2015. NMR studies of protein folding and binding in cells and cell-like environments. *Current Opinion in Structural Biology*. 30: 7-16.

Sarkar M, Pielak GJ 2014. An osmolyte mitigates the destabilizing effect of protein crowding. *Protein Science* 23: 1161-1164. **Cover article.**

Monteith WB, Pielak GJ 2014. Residue level quantification of protein stability in living cells. *Proceedings of the National Academy of Sciences of the United States of America* 111: 11335-11340. **Featured by Faculty of 1000.**

Theillet F-X, Binolfi A, Frembgen-Kesner T, Hingorani K, Sarkar M, Kyne C, Li C, Crowley P, Gierasch L, Pielak G, Elcock A, Gershenson A, Selenko P. 2014. Physicochemical properties of cells and their effects on intrinsically disordered proteins (IDPs). *Chemical Reviews* 13: 6661-6714.

Xu G, Ye Y, Liu X, Cao S, Wu Q, Cheng K, Liu M, Pielak GJ, Li C. 2014. Strategies for Protein NMR in *Escherichia coli*. *Biochemistry* 53: 1971-1981.

Sarkar M, Lu J, Pielak GJ. 2014. Protein-crowder charge and protein stability. *Biochemistry* 53: 1601-1606.

Tyrrell J, McGinnis JL, Weeks KM, Pielak GJ. 2013. The cellular environment stabilizes adenine riboswitch RNA structure. *Biochemistry*, 52: 8777–8785. **Featured by Faculty of 1000.**

Sarkar M, Smith AE, Pielak GJ. 2013. Impact of reconstituted cytosol on protein stability. *Proceedings of the National Academy of Sciences of the United States of America* 110: 19342-19347. **Featured by Faculty of 1000.**

Smith AE, Sarkar M, Young GB, Pielak GJ. 2013. Amide proton exchange of a dynamic loop in cell extracts. *Protein Science* 22: 1313-1319.

Ye Y, Liu X, Zhang Z, Wu Q, Jiang B, Jiang L, Zhang X, Liu M, Pielak GJ, C Li C. 2013. <sup>19</sup>F NMR as a probe of cytoplasmic viscosity and weak protein interactions in living cells. *Chemistry--A European Journal* 19: 12705-12710.

Sarkar M, Li C, Pielak GJ. 2013. Soft interactions and crowding. *Biophysical Reviews* 5: 187-194.

Benton LA, Smith AE, Young GB, Pielak GJ. 2012. Unexpected effects of macromolecular crowding on protein stability. *Biochemistry* 51: 9773-9775.

Wang Y, Sarkar M, Smith AE, Krois AS, Pielak, GJ. 2012. Macromolecular crowding and protein stability. *Journal of the American Chemical Society* 134: 16614-16618.

Wang Y, Benton L, Singh V, Pielak GJ. 2012. Disordered protein diffusion under crowded conditions. *Journal of Physical Chemistry Letters* 3: 2703-2706.

Wang Y, Li C, Pielak GJ. 2012. In-cell protein magnetic resonance spectroscopy. *Chinese Journal of Magnetic Resonance*, 29: 475-488.

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: 4715-4716.

Zigoneanu IG, Pielak GJ 2012. Interaction of  $\alpha$ -synuclein and a cell penetrating fusion peptide with higher eukaryotic cell membranes assessed by <sup>19</sup>F NMR. *Molecular Pharmaceutics* 9: 1024-1029.

Zigoneanu IG, Yang YJ, Krois AS, Haque Md E, Pielak GJ. 2011. Interaction of  $\alpha$ -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, Wang Y, Pielak GJ. 2011. Protein crowding tunes protein stability. *Journal of the American Chemical Society* 133: 7116-7120. **Featured by Faculty of 1000.**

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  $\alpha$ -synuclein with  $^{19}\text{F}$  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.  $^{19}\text{F}$  NMR studies of  $\alpha$ -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  $^{19}\text{F}$  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. **Cover article.**

Miklos AC, Li C, Pielak GJ. 2009. Using NMR-detected backbone amide  $^1\text{H}$  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.  $^{19}\text{F}$ -NMR studies of  $\alpha$ -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., Zigoneanu IG. 2009. Protein NMR under physiological conditions. *Biochemistry* 48: 226-234.

Ruf RA, Lutz EA, Zigoneanu IG, Pielak G J. 2008.  $\alpha$ -Synuclein conformation affects its tyrosine-dependent 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 alpha-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  $\alpha$ -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  $\alpha$ -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.

Daughdrill GW, Pielak GJ, Uversky VN, Cortese MS, Dunker AK. 2005. In *Protein Folding Handbook*; Buchner J, Kiefhaber T, Eds.; Wiley-VCH: Weinheim, p 275-357.

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  $\alpha$ -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. **Featured by Faculty of 1000.**

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.
- Engstrom G, Rajagukguk R, Saunders AJ, Patel CN, Rajagukguk S, Merbitz-Zahradnik T, Xiao K, Pielak GJ, Trumpower B, Yu C-A, Yu L, Durham B, Millett F. 2003. Design of a ruthenium-labeled cytochrome *c* derivative to study electron transfer with the cytochrome *bc1* complex. *Biochemistry* 42: 2816-2824.
- Dedmon MM, Patel CN, Young GB, Pielak GJ. 2002. FlgM gains structure in living cells. *Proceedings of the National Academy of Sciences of the United States of America* 99: 12861-12864. **Featured by Faculty of 1000.**
- Beasley JR, Doyle DF, Chen L, Cohen DS, Fine BR, Pielak GJ. 2002. Searching for quantitative entropy-enthalpy compensation among protein variants. *Proteins: Structure, Function, and Genetics* 49: 398-402.
- Patel CN, Noble S., Weatherly GT, Tripathy A, Winzor DJ, Pielak GJ. 2002. Effects of molecular crowding by saccharides on alpha-chymotrypsin dimerization. *Protein Science* 11: 997-1003.
- Morar AS, Pielak GJ. 2002. Crowding by trisaccharides and the 2:1 cytochrome *c*/cytochrome *c* peroxidase complex. *Biochemistry* 41: 547-551.
- Morar AS, Olteanu A, Young GB, Pielak GJ. 2001. Solvent-induced collapse of alpha-synuclein and acid denatured cytochrome *c*. *Protein Science* 10: 195-199.
- Patel C, Lind M, Pielak GJ. 2001. Characterization of horse cytochrome *c* expressed in *Escherichia coli*. *Protein Expression and Purification*: 22: 220-224.
- Davis-Searles PR, Saunders AJ, Erie DA, Winzor DJ, Pielak GJ. 2001. Interpreting the effects of small uncharged solutes on protein-folding equilibria. *Annual Review of Biophysics and Bioengineering* 30: 271-306.
- Morar AS, Wang X, Pielak GJ. 2001. Effects of crowding by mono-, di-, and tetrasaccharides on cytochrome *c* / cytochrome *c* peroxidase binding: comparing theory to experiment. *Biochemistry* 40: 281-285.
- Pielak GJ, Wang X. 2001. Interactions between yeast iso-1-cytochrome *c* and its peroxidase. *Biochemistry* 40: 422-428.
- Weatherly GT, Pielak GJ. 2001. Second virial coefficients as a measure of protein-osmolyte interactions. *Protein Science* 10: 12-16.
- Saunders AJ, Davis-Searles PR, Allen DL, Pielak GJ, Erie DA. 2000. Osmolyte-induced changes in protein conformational equilibria. *Biopolymers* 53: 293-307.
- Boyd J, Dobson CM, Morar AS, Williams RJP, Pielak GJ. 1999. <sup>1</sup>H and <sup>15</sup>N hyperfine shifts of cytochrome *c*. *Journal of the American Chemical Society* 121: 9247-9248.

- Chen L, Pielak GJ, Thompson NL. 1999. The cytoplasmic region of Fc( $\gamma$ )RIIb1, but not Fc( $\gamma$ )RIIb2, binds phospholipids membranes. *Biochemistry* 38: 2102-2109.
- Hostetter DR, Weatherly GT, Beasley JR, Bortone K, Cohen DS, Finger SA, Hardwidge P, Kakouras D, Saunders AJ, Trojak SK, Waldner JL, Pielak GJ. 1999. Partially formed native tertiary interactions in the A-state of cytochrome *c*. *Journal of Molecular Biology* 289: 639-644.
- Lahr SJ, Broadwater A, Carter CW, Jr., Collier ML, Hensley L, Waldner JL, Pielak GJ, Edgell MH. 1999. Patterned library analysis: a method for the quantitative assessment of hypotheses concerning the determinants of protein structure. *Proceedings of the National Academy of Sciences of the United States of America* 96: 14860-14865.
- Mei H, Wang K, Peffer N, Weatherly GT, Cohen DS, Pielak GJ, Durham B, Millett F. 1999. Role of configurational gating in intramolecular electron transfer from cytochrome *c* to the radical cation in cytochrome *c* peroxidase. *Biochemistry* 39: 6846-6854.
- Morar AS, Kakouras D, Young GB, Boyd J, Pielak GJ. 1999. Expression of  $^{15}\text{N}$ -labeled eukaryotic cytochrome *c* in *Escherichia coli*. *Journal of Biological Inorganic Chemistry* 4: 220-222.
- Waldner JL, Lahr SJ, Edgell MH, Pielak GJ. 1999. Nonideality and protein thermal denaturation. *Biopolymers* 49: 471-479.
- Wang X, Pielak GJ. 1999. Equilibrium thermodynamics of a physiologically-relevant heme-protein complex. *Biochemistry* 38: 16876-16881.
- Allen DL, Pielak GJ. 1998. Baseline length and automated fitting of denaturation data. *Protein Science* 7: 1262-1263.
- Davis-Searles PR, Morar AS, Saunders AJ, Erie DA, Pielak GJ. 1998. Sugar-induced molten-globule model. *Biochemistry* 37: 17048-17053.
- Fairris JL, Wang K, Geren L, Pielak GJ, Durham B, Millett F. 1998. Intramolecular electron transfer in yeast cytochrome *c* covalently bonded to ruthenium(II) polypyridine complexes at cys39. In: *Photochemistry and Radiation Chemistry: American Chemical Society Advances in Chemistry Series 254*. American Chemical Society: Washington DC pp. 99-110.
- Marmorino JL, Lehti M, Pielak GJ. 1998. Native tertiary structure in an A-state. *Journal of Molecular Biology* 275: 379-388.
- Waldner JL, Lahr SJ, Edgell MH, Pielak GJ. 1998. Effects of a polyhistidine terminal extension on eglin *c* stability. *Analytical Biochemistry* 263: 116-118.
- Wrobel JA, Chao S-F, Conrad MJ, Merker JD, Swanstrom R, Pielak GJ, Hutchison CA, III. 1998. A genetic approach for identifying critical residues in the fingers and palm subdomains of HIV-1 reverse transcriptase. *Proceedings of the National Academy of Sciences of the United States of America* 95: 638-645.
- Chen L, Thompson NL, Pielak GJ. 1997. Design, synthesis, and characterization of the genes for mouse Fc  $\gamma$  RIIb1 and Fc $\gamma$  RIIb2 cytoplasmic regions. *Protein Science* 6: 1038-1046.
- Pielak GJ. 1997. Review of "Circular dichroism and the conformational analysis of biomolecules." Fasman G.D., Ed., Plenum NY (1997). *American Scientist* 85: 391-392.

- Beasley JR, Pielak GJ. 1996. Requirements for perpendicular helix pairing. *Proteins: Structure Function and Genetics* 26: 95-107.
- Betz, SF, Marmorino JL, Saunders AJ, Doyle DF, Young GB, Pielak GJ. 1996. Unusual effects of an engineered disulfide on global and local protein stability. *Biochemistry* 35: 7422-7428.
- Doyle DF, Waldner JL, Parikh S, Alcazar-Roman L, Pielak GJ. 1996. Changing the transition state for protein (un)folding. *Biochemistry* 35: 7403-7411.
- Mei H, Wang K, McKee S, Wang X, Waldner JL, Pielak GJ, Durham B, Millett F. 1996. Control of formation and dissociation of the high-affinity complex between cytochrome *c* and cytochrome *c* peroxidase by ionic strength and the low-affinity binding site. *Biochemistry* 35: 15800-15806.
- Miller MA, Geren L, Han GW, Saunders A, Beasley J, Pielak GJ, Durham B, Millett F, Kraut J. 1996. Identifying the physiological electron transfer site of cytochrome *c* peroxidase by structure-based engineering. *Biochemistry* 35: 667-673.
- Pappa HS, Tajbaksh S, Saunders AJ, Pielak GJ, Poulos TL. 1996. Probing the cytochrome *c* peroxidase-cytochrome *c* electron transfer reaction using site specific crosslinking. *Biochemistry* 35: 4837-4845.
- Pielak GJ, Auld DS, Betz SF, Hilgen-Willis SE, Garcia LL. 1996. Nuclear magnetic resonance studies of class I cytochromes *c*. In: Scott RA, Mauk AG, eds. *Cytochromes c: A Multidisciplinary Approach*. Sausalito: University Science Books. pp. 203-284.
- Wang K, Mei H, Geren L, Miller MA, Saunders A, Wang X, Waldner JL, Pielak GJ, Durham B, Millett F. 1996. Design of a ruthenium-cytochrome *c* derivative to measure electron transfer to the radical cation and oxyferryl heme in cytochrome *c* peroxidase. *Biochemistry* 35: 15107-15119.
- Cohen DS, Pielak GJ. 1995. Entropic stabilization of cytochrome *c* upon reduction. *Journal of the American Chemical Society* 117: 1675-1677.
- Geren LM, Beasley JR, Fine BR, Saunders AJ, Hibdon S, Pielak GJ, Durham B, Millett F. 1995. Design of a ruthenium-cytochrome *c* derivative to measure electron transfer to the initial acceptor in cytochrome *c* oxidase. *Journal of Biological Chemistry* 270: 2466-2472.
- Marmorino JL, Pielak GJ. 1995. A native tertiary interaction stabilizes the A state of cytochrome *c*. *Biochemistry* 34: 3140-3143.
- Pielak GJ, Auld DS, Beasley JR, Betz, SF, Cohen DS, Doyle DF, Finger SA, Fredericks ZL, Hilgen-Willis S, Saunders AJ, Trojak SK. 1995. Protein thermal denaturation, side-chain models, and evolution: amino acid substitutions at a conserved helix-helix interface. *Biochemistry* 34: 3268-3276.
- Cohen DS, Pielak GJ. 1994. The stability of yeast iso-1-cytochrome *c* as a function of pH and temperature. *Protein Science* 3: 1253-1260.
- Auld DS, Young GB, Saunders AJ, Doyle DF, Pielak GJ. 1993. Probing weakly-polar interactions in cytochrome *c*. *Protein Science* 2: 2187-2197.

- Fredericks ZL, Pielak GJ. 1993. Exploring the interface between the N- and C-terminal helices of cytochrome *c* by random mutagenesis within the C-terminal helix. *Biochemistry* 32: 929-936.
- Hilgen-Willis S, Bowden EF, Pielak GJ. 1993. Dramatic stabilization of ferricytochrome *c* upon reduction. *Journal of Inorganic Biochemistry* 51: 649-653.
- Marmorino JL, Auld DS, Betz, SF, Doyle DF, Young GB, Pielak GJ. 1993. Amide proton exchange rates of oxidized and reduced *Saccharomyces cerevisiae* iso-1-cytochrome *c*. *Protein Science* 2: 1966-1974.
- Saunders AJ, Young GB, Pielak GJ. 1993. Polarity of disulfide bonds. *Protein Science* 2: 1183-1184.
- Greene RM, Betz, SF, Hilgen-Willis S, Auld DS, Fencel JB, Pielak GJ. 1993. Changes in global stability and local structure of cytochrome *c* upon substituting phenylalanine-82 with tyrosine. *Journal of Inorganic Biochemistry* 51: 663-676.
- Willie A, McLean M, Liu R-Q, Hilgen-Willis S, Saunders AJ, Pielak GJ, Sligar SG, Durham B, Millett F. 1993. Intracomplex electron transfer between ruthenium-65-cytochrome *b<sub>5</sub>* and position-82 variants of yeast iso-1-cytochrome *c*. *Biochemistry* 32: 7519-7525.
- Betz, SF, Pielak GJ. 1992. Introduction of a disulfide bond into cytochrome *c* stabilizes a compact denatured state. *Biochemistry* 31: 12337-12344.
- Gao Y, McLendon G, Pielak GJ, Williams RJP. 1992. Electron-proton coupling in cytochrome *c* studied using protein variants. *European Journal of Biochemistry* 204: 337-352.
- Auld DS, Pielak GJ. 1991. Constraints on amino acid substitutions in the N-terminal helix of cytochrome *c* explored by random mutagenesis. *Biochemistry* 30: 8684-8690.
- Concar DW, Whitford D, Pielak GJ, Williams RJP. 1991. The role of phenylalanine-82 in electron-exchange reactions of eukaryotic cytochromes *c*. *Journal of the American Chemical Society* 113: 2401-2406.
- Gao Y, Boyd J, Pielak GJ, Williams RJP. 1991. Proton nuclear magnetic resonance as a probe of differences in structure between the C102T and F82S;C102T variants of iso-1-cytochrome *c* from the yeast *Saccharomyces cerevisiae*. *Biochemistry* 30: 7033-7040.
- Gao Y, Boyd J, Pielak GJ, Williams RJP. 1991. Comparison of reduced and oxidized yeast iso-1-cytochrome *c* using proton paramagnetic shifts. *Biochemistry* 30: 1928-1934.
- Hilgen SE, Pielak GJ. 1991. The function of the *Saccharomyces cerevisiae* iso-1-cytochrome *c* gene is independent of the codon at invariant residue phe82 when the gene is present on a low copy number vector. *Protein Engineering* 4: 575-578.
- Thurgood AGP, Pielak GJ, Cutler RL, Davies AM, Greenwood C, Mauk AG, Smith M, Williamson DJ, Moore GR. 1991. Change in charge of an unvaried heme contact residue does not cause a major change of conformation in cytochrome *c*. *Federation of European Biochemical Societies Letters* 284: 173-177.
- Wang X, Pielak GJ. 1991. Temperature-sensitive variants of *Saccharomyces cerevisiae* iso-1-cytochrome *c* produced by random mutagenesis of codons 43 to 54. *Journal of Molecular Biology* 221: 97-105.

- Hildebrandt P, Pielak GJ, Williams RJP. 1991. Structural studies of yeast iso-1-cytochrome *c* mutants by resonance Raman spectroscopy. *European Journal of Biochemistry* 201: 211-216.
- Gao Y, Boyd J, Williams RJ, Pielak GJ. 1990. Assignment of proton resonances, identification of secondary structural elements, and analysis of backbone chemical shifts for the C102T variant of yeast iso-1-cytochrome *c* and horse cytochrome *c*. *Biochemistry* 29: 6994-7003.
- Liang N, Mauk AG, Pielak GJ, Johnson JA, Smith M, Hoffman BM. 1988. Regulation of interprotein electron transfer by residue 82 of yeast cytochrome *c*. *Science* 240: 311-313.
- Pielak GJ, Atkinson RA, Boyd J, Williams RJP. 1988. Two-dimensional NMR as a probe of structural similarity applied to mutants of cytochrome *c*. *European Journal of Biochemistry* 177: 179-185.
- Pielak GJ, Boyd J, Moore GR, Williams RJP. 1988. Proton NMR studies show that the THR 102 mutant of yeast iso-1-cytochrome *c* is a typical member of the cytochrome *c* family. *European Journal of Biochemistry* 177: 167-177.
- Cutler RL, Pielak GJ, Mauk AG, Smith M. 1987. Replacement of cysteine-107 of *Saccharomyces cerevisiae* iso-1-cytochrome *c* with threonine: improved stability of the mutant protein. *Protein Engineering* 1: 95-99.
- Liang N, Pielak GJ, Mauk AG, Smith M, Hoffman BM. 1987. Yeast cytochrome *c* with phenylalanine or tyrosine at position 87 transfers electrons to (zinc cytochrome *c* peroxidase)<sup>+</sup> at a rate ten thousand times that of serine-87 or glycine-87 variants. *Proceedings of the National Academy of Sciences of the United States of America* 84: 1249-1252.
- Pielak GJ, Concar DW, Moore GR, Williams RJP. 1987. The structure of cytochrome *c* and its relation to recent studies of long-range electron transfer. *Protein Engineering* 1: 83-88.
- Pielak GJ, Oikawa K, Mauk AG, Smith M, Kay CM. 1986. Elimination of the negative Soret Cotton effect of eukaryotic cytochromes *c* by replacement of an invariant phenylalanine residue by site-directed mutagenesis. *Journal of the American Chemical Society* 108: 2724-2727.
- Pielak GJ, Gurusiddiwiah S, Legg JI. 1986. The decomposition of azo lysine. *Analytical Biochemistry* 56: 403-405.
- Pielak GJ, Mauk AG, Smith M. 1985. Site-directed mutagenesis of cytochrome *c* shows that an invariant phe is not essential for function. *Nature* 313: 152-154.
- Pielak GJ, Urdea MS, Igi K, Legg JI. 1984. Azo protein analogs: synthesis and characterization of arsanilazo and sulfanilazo derivatives of tyrosine and histidine. *Biochemistry* 23: 589-596.
- Pielak GJ, Urdea MS, Legg JI. 1984. Preparation and characterization of arsanilazo and sulfanilazo proteins. *Biochemistry* 23: 596-603.
- Legg JI, Igi K, Pielak GJ, Warner BD, Urdea MS. 1980. Circular dichroism as a probe of metal ion interactions with azo proteins. In: Douglas BE, Yoshihiko S, eds. *Stereochemistry of Optically Active Transition Metal Compounds*. Washington DC: American Chemical Society pp. 195-205.