WILLIAM C. POMERANTZ, Ph.D.
wpomeran@umich.edu

EDUCATION

University of Michigan
NIH NRSA Postdoctoral Research Fellow (2009-present)
Research Advisor: Professor Anna Mapp

University of Wisconsin-Madison
Ph.D. Organic Chemistry, (2003-2008), Cumulative GPA 4.0/4.0
Research Advisors: Professor Sam Gellman and Professor Nick Abbott

Swiss Federal Institute of Technology, ETH, Zürich, Switzerland
Seydel/Fulbright Fellow, Department of Chemistry (2002-2003)
Research Advisors: Professor François Diederich and Professor Emeritus Jack Dunitz

Ithaca College
B.S. Chemistry (1998-2002), *Summa cum laude*
Research Advisor: Professor Heinz Koch

PROFESSIONAL EXPERIENCE

Gordon Research Seminar (GRS) chair:
High-Throughput Chemistry and Chemical Biology GRS-2011
Fully subscribed conference
Active fundraising (~ $10,000)
PI on NIH R13 Grant

Organic Chemistry Lecturer
CHEM210, First semester organic chemistry (~300 students)
University of Michigan, Fall 2011

University of Notre Dame, research assistant:
Advisor Prof. Olaf Wiest, summer 2002

Sandia National Labs, Livermore, intern:
Advisor Dr. James McElhanon, summer 2001

University of Ulm, undergraduate research assistant:
Advisor Prof. Gerhardt Maas, summer 2000

TEACHING EXPERIENCE

University of Michigan: Completed a certified short course on teaching science at the university and college level focusing on pedagogy, course development, and technology (2009). Independently developed research projects and mentored 4 incoming graduate students for semester long rotations (2008-2010) and 1 REU student 2011.

University of Wisconsin-Madison: Substitute taught organic chemistry honors course, (2008), co-taught student run organic chemistry course, "Organic Basic Training" (2006), undergraduate research mentor (2005-2008), teaching assistant-(TA) organic chemistry and lab component, (2003-2004)

Ithaca College: Undergraduate TA for junior level inorganic/organometallic lab (2002), undergraduate TA for general chemistry discussion session (1999-2000)

HONORS

2009 NIH NRSA Postdoctoral Fellowship, University of Michigan, Ann Arbor
2008 Goering student fellowship, University of Wisconsin-Madison Chem. Dept.

2003-2004 Samuel M. McElvain Fellowship, University of Wisconsin-Madison
2002-2003 Fulbright Fellowship, Zürich, Switzerland
2002 Inducted into Sigma Xi, honor society, Ithaca College
2001 Inducted into Phi Kappa Phi, honor society Ithaca College
1999 Inducted into Oracle Society, Ithaca College

RESEARCH INTERESTS

I am interested in modulating the function of protein-protein interactions through the use of small molecules and bio-inspired peptide scaffolds. Specifically, my research will use organic synthesis, biophysical, biochemistry and molecular biology techniques to investigate the folding/misfolding and disease pathways of intrinsically disordered proteins (IDPs). ^{19}F is a bioorthogonal nucleus that can be incorporated sequence selectively into proteins resulting in simplified 1D-NMR spectra devoid of background signals. My research interests exploit this bioorthogonality and the hypersensitivity of fluorine to changes in chemical environment for probing important protein-protein interactions of structurally challenging proteins and to ultimately explore their behavior in cells (in-cell NMR). This research will be complemented with established biophysical techniques, organic synthesis of chemical probes, and new peptide-based strategies for preorganization and cellular delivery for studying challenging IDPs under physiological conditions.

SCIENTIFIC AFFILIATIONS
Member of *Sigma Xi*, *Phi Kappa Phi*, *Oracle Society*, *American Chemical Society, American Peptide Society, Materials Research Society, Gordon Research Conference for High Throughput Chemistry and Chemical Biology*

FUNDING SOURCES
F32 NRSA NIH Postdoctoral Reasrch Fellowship, NIGMS (2010-2012)
R13 NIH Conference Support Grant, NIGMS, 2011

PUBLICATIONS

"A lichen depside blocks activator interactions in the KIX domain of CBP", J. W. Hojfeldt, C. Majmudar, **W.C. Pomerantz**, S. P. Rowe, C. Arevang, T. Cierpicki, D. H. Sherman, A. K. Mapp, (*In preparation)*

"PrOF"iling transcription complexes via Protein observed ^{19}F NMR", **W.C. Pomerantz,** N. K. Wang; A. K. Lipinksi, T. Cierpicki, A. K. Mapp. ***(Submitted and available upon request)***

"Lyotropic Liquid Crystals from ACHC-Rich β-peptides", **W. C. Pomerantz,** V. M. Yuwono, R. Drake, J. D. Hartgerink, N. L. Abbott, S. H. Gellman, *J. Am. Chem. Soc*. **2011**, *133,* 13604-13.

"Lyotropic liquid crystalline phases from helical β-peptides as alignment media", C. Thiele; **W. C. Pomerantz**, N. L. Abbott; S. H. Gellman, *Chem. Comm.*, **2011**, *47*, 502-4

"Transcriptional Tools: Small Molecules for Modulating CBP KIX-dependent Transcriptional Activators", C. A. Bates; **W. C. Pomerantz;** A. K. Mapp; *Biopolymers*, **2011**, *95,* 17-23

"Streamlined monitoring of backbone thioester exchange by ^{19}F NMR" **W. C. Pomerantz**,* E. B. Hadley,* C. G. Fry, S. H. Gellman, * These authors contributed equally. *ChemBioChem* **2009**,*10*, 2177-81.

"Pre-clinical development of a bi-functional, cancer cell homing, PKC-epsilon inhibitory peptide for treatment of head and neck cancer." L. W. Bao, M. A. Gorin, M. Zhang, A. C. Ventura, **W. C. Pomerantz**, S. D. Merajver, T. N. Teknos, A. K. Mapp, Q. Pan *Cancer Res.* **2009**, *69*, 5829-34.

"Effect of sequence and structural properties on 14-helical β-peptide activity against *Candida albicans* planktonic cells and biofilms" A. J. Karlsson, **W. C. Pomerantz**, K. J. Neilsen, S. H. Gellman, S. P. Palecek, *ACS Chem. Biol.* **2009**, *4*,

567-79.

"A Rationally Designed Aldolase Foldamer" M M. Müller, M. A. Windsor, **W. C. Pomerantz**, S. H. Gellman, D. Hilvert, *Angew. Chem. Int. Ed.* **2009**, *48*, 922-5.

"Characterization of nanofibers formed by self-assembly of β-peptide oligomers using small angle x-ray scattering." C. L. Pizzey, **W. C. Pomerantz,** B.-J. Sung, V. M. Yuwono, J. D. Hartgerink, A. Yethiraj, S. H. Gellman, N. L. Abbott, *J. Chem. Phys.,* **2008**, *129*, 095103-1-8.

"Distinctive circular dichroism signature for 14-helix-bundle formation by β-peptides." **W. C. Pomerantz,** T. L. Grygiel, J. R. Lai, S. H. Gellman, *Org. Lett.* **2008**, *10*, 1799-1802.

"Nanofibers and lyotropic liquid crystals from a class of self-assembling β-peptides**" W. C. Pomerantz,** C. L. Pizzey, V. M. Yuwono, J. D. Hartgerink, N. L. Abbott, S. H. Gellman**,** *Angew. Chem.,* **2008**, *47*, 1241-4.

"Origins of the high 14-helix propensity of cyclohexyl-rigidified residues in β-peptides." M.-R. Lee, T. L. Raguse, M. Schinnerl, **W. C. Pomerantz,** X. Wang, P. Wipf, S. H. Gellman, *Org. Lett*. **2007**, *9*, 1801-4.

"Sequence dependent behavior of amphiphilic β-peptides on gold surfaces." **W. C. Pomerantz,** K. D. Cadwell, Y.-J. Hsu, S. H. Gellman, N. L. Abbott, *Chem. Mater.* **2007**, *19*, 4436-41.

"Practical synthesis of enantiomerically pure β-amino acids via proline-catalyzed diastereoselective aminomethylation of aldehydes." Y. Chi, E. P. English, **W. C. Pomerantz,** W. S. Horne, L. A. Joyce, L. R. Alexander, W. S. Fleming, E. A. Hopkins, S. H. Gellman, *J. Am. Chem. Soc.* **2007**, *129*, 6050.

"Antifungal activity from 14-helical β-peptides." A. J. Karlsson, **W. C. Pomerantz,** S. H. Gellman, S. P. Palecek, *J. Am. Chem. Soc.* **2006**, *128*, 12630-1.

"Lyotropic liquid crystals from designed helical β-peptides." **W. C. Pomerantz,** S. H. Gellman, N. L. Abbott, *J. Am. Chem. Soc.* **2006**, *128*, 8730-1.

"Donor-substituted cyanoethynylethenes: pi-conjugation and band-gap tuning in strong charge-transfer chromophores." N. N. P. Moonen; **W. C. Pomerantz,** R. Gist, C. Boudon, J.-P. Gisselbrecht, T. Kawai, A. Kishioka, M. Gross, M. Irie, F. Diederich, *Chem. Eur. J.*, **2005**, *11*, 3325-41.

"Comparing isotope effects and rates for the methanolic sodium methoxide reactions of 9-R-fluorene to those for *p*-$CF_3C_6H_4CHClR$ (R = CH_2Cl, CH_2F and CF_3)." H. F. Koch, **W. C. Pomerantz,** E. L. Ruggles, M. Van Laren, A.-M. Van Roon, *CCCC*., **2002**, *67*, 1505-16.

PATENTS

"β-Peptide lyotropic liquid crystals." **W. C. Pomerantz**, S. H. Gellman, N. L. Abbott, *U.S. patent application filed*, **2007**

"Helical β-peptides with antifungal activity."A. J. Karlsson, **W. C. Pomerantz**, S. H. Gellman, S. P. Palecek, *U.S. patent application filed*, **2007**

"Practical synthesis of enantiomerically pure β-amino acids via proline-catalyzed enantioselective and diastereoselective aminomethylation" Y. Chi, E. P. English, **W. C. Pomerantz**, W. S. Horne, S. H. Gellman, *U.S. patent application filed,* **2007**

PRESENTATIONS

"Structural Paradigms: PrOF"iling transcriptional complexes via Protein observed ^{19}F NMR", **W.C. Pomerantz**, invited research seminar, Janelia Farms, VA **2011**.

"PrOF"iling transcriptional complexes via Protein observed ^{19}F NMR", **W.C. Pomerantz**; C. Majmudar, N. Wang, A. Lipinski, J. D. Sadowsky. T. Cierpicki, J. A. Wells, A. K. Mapp, Oral presentation, Fall ACS National Meeting, Denver, CO, **2011**.

"Small Molecule Modulators of KIX-Dependent Transcriptional Activators" **W.C. Pomerantz**; C. Majmudar, N. Wang, A. Lipinski, J. D. Sadowsky. T. Cierpicki, J. A. Wells, A. K. Mapp, Poster presentation: GRC: High Throughput Chemistry and Chemical Biology, New London, NH, **2011.**

"Probing the Function and Mechanism of Small Molecule Artificial Transcriptional Regulators", **W.C. Pomerantz**; C. A. Bates; L. N. Makley; A M. Bopra; A. K. Mapp, Poster presentation: GRC: High Throughput Chemistry and Chemical Biology, Les Diablerets, Switzerland, **2010.**

"Probing the Function and Mechanism of Small Molecule Artificial Transcriptional Regulators", **W.C. Pomerantz**, Oral Presentation at the Keystone: New Directions in Small Molecule Drug Discovery, Whistler, BC, Canada, **2010**

"Identification and Characterization of Binding Partners of Artificial Transcriptional Activators via NMR and Photo Cross-linking" C. A. Bates, **W. C. Pomerantz,** S. Buhrlage, A. K. Mapp, Poster presentation Steenbock Symposium, Madison, WI, **2009**.

"Association behavior of ACHC-rich β-peptide foldamers: Rules, tools, and nanostructure" **W. C. Pomerantz**, Oral presentation, Ithaca College **2009**.

"New strategies in molecular self-assembly: Lyotropic liquid crystals from designed helical β-peptides" **W. C. Pomerantz,** Oral presentation, Materials Research Society Meeting Fall **2007**.

"Lyotropic liquid crystals from designed helical β-peptides" **W. C. Pomerantz,** C. L. Pizzey, V. Yuwono, S. Paramanov, J. D. Hartgerink, N. L. Abbott, S. H. Gellman, Poster presentation, American Peptide Society Conference, Montreal, Canada, June **2007**

"Lyotropic liquid crystals from designed helical β-peptides" **W. C. Pomerantz**, C. L. Pizzey, V. Yuwono, J. D. Hartgerink, N. L. Abbott, S. H. Gellman, Oral presentation, annual NSF site visit Spring, **2005-2007**

"Lyotropic liquid crystals from designed helical β-peptides" **W. C. Pomerantz**, C. L. Pizzey, N. L. Abbott, S. H. Gellman, Poster presentation, International Liquid Crystal Conference, Keystone, CO, July **2006**

"Toward cyano-substituted donor-acceptor expanded radialenes and vinylic tricyanoethene systems: Fine tuning the electronic band gap." **W. C. Pomerantz,** N. P. Moonen, C. Boudon, J.- P. Gisselbrecht, M. Gross, F. Diederich, Poster presentation, 6th International Symposium on Functional Π-Systems, Ithaca, NY **2004**

"Mechanistic Investigation of Proton Transfer in a Highly Π-Delocalized System". **W. C. Pomerantz**, oral presentation, National Conference for Undergraduate Research, (NCUR), Whitewater, WI, **2002**

"Kinetic Study of Proton Transfer in Highly Conjugated and Aromatic Systems" **W. C. Pomerantz, W. C.**, Oral presentation, James J. Whalen Student Symposium, Ithaca, NY **2001**

"Functional Polymers for Electronic Microactuators and Removable Foam Encapsulants" **W. C. Pomerantz,** L. Whinnery, J. McElhanon, Abstract for poster, Sandia National Laboratories 2nd Annual Student Symposium, oral presentation for Sandia's 8700 Materials and Microsystems Division. Livermore, CA, **2001**