Gary Alan John Meints, Ph.D.

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Education

Postdoctoral Research Fellow, University of Illinois, Urbana, IL, 2001-2004
Advisor: Professor Eric Oldfield
Postdoctoral Research Associate, University of Washington, Seattle, WA, 2000-2001
Advisor: Professor Gary Drobny
PhD, Physical Chemistry, University of Washington, Seattle, WA, 2000
Advisor: Professor Gary Drobny
B.A., Physics, Philosophy, Macalester College, St. Paul, MN, 1992

Professional/Educational Experience

Adjunct Professor of Chemistry and Biochemistry, University of Tulsa, Tulsa, OK, 2011 – 2015
Associate Professor, Missouri State University, Springfield, MO, 2010-present
Assistant Professor, Missouri State University, Springfield, MO, 2004-2010
Lecturer, University of Washington, Seattle, WA, 2001

Courses Taught

Introductory Physical Chemistry for Biologists (CHEM 355 at Washington)
Chemistry for the Citizen Laboratory (CHM 107)
General Chemistry I, II (CHM 160, 170)
General Chemistry Laboratory (CHM 175)
Fundamentals of Physical Chemistry (CHM504 & CHM 505)
Physical Chemistry I & II (CHM506 & CHM507)
Physical Chemistry Laboratory I &II (CHM 508 & 509)
Chemical Symposium (CHM 398)
Undergraduate Research (CHM 399, 499)
Chemistry Careers (CHM 498)
Chemistry Colloquium/Chemistry Seminar (CHM 700/701)
Advanced Topics in Chemistry: Physical Biochemistry (CHM 690)
Fundamentals of Applied Mathematics for Physical Chemistry (CHM597/697)
Chemical Kinetics (CHM770)

Honors and Awards

CNAS Student Award for Faculty Excellence, awarded 2014, 2022
CNAS Student Award for Faculty Excellence, nominated 2012-2014, 2018, 2020, 2022
Board of Governors Faculty Excellence in Public Affairs Awards, 2021
NACADA Outstanding Advising Award, Global - Faculty Academic Advising, 2020
Curtis P. Lawrence Award for Faculty Excellence in Advising, 2020
College of Natural and Applied Sciences Excellence in Teaching Award, 2019-2020
Honoree at Maroon and White Banquet, Spring 2013

Signature Bank Academic Spotlight, February 10, 2007
College of Natural and Applied Sciences Excellence in Research Award, 2005-2006
NIH Ruth L. Kirschstein NRSA Post-Doctoral Fellowship, GM65782, 2001-2004
NIH Pre-Doctoral Fellowship in Molecular Biophysics, GM32681, 1997-1998
Macalester College Physics Department Award, 1992
William Bell Scholarship, 1992
Rexall Drug Scholarship, 1991
Colgate-Palmolive Scholarship, 1991

Professional Memberships
American Chemical Society
Biophysical Society
National Science Teachers Association
Council on Undergraduate Research
National Education Association

Related Professional Experiences
Research Specialist, University of Wisconsin-Madison, 1993-1994
Supervisor: Professor Paul Ludden
Research Technician, University of Nebraska-Lincoln, 1992-1993
Supervisor: Professor Amit Mitra
Laboratory Assistant, University of Nebraska-Lincoln, 1991
Supervisor: Professor James L. Van Etten

Research Interests
Nuclear magnetic resonance (NMR) spectroscopy
DNA repair and biomedical applications
DNA dynamics and energetics
DNA-protein interactions
Applications of DNA and materials

Pedagogical Interests
Physical chemistry education
Gifted education
Flipped classroom
3D printing in education

Funding
2005 Summer Faculty Fellowship; SMSU Graduate College; $5000
2005 Cottrell College Science Award (CCSA 6362); Research Corporation; $35,684
2006 Faculty Research Grant, Missouri State Graduate College; $7342
2007 Faculty Research Grant, Missouri State Graduate College; $6950
2008 Provost's Research Incentive Program, Missouri State Provost's Office, $190,000
2008 AREA (R15) grant, National Institute of Health, $175,099
2008 Chemical Instrumentation, National Science Foundation, $580,720 (Co-PI)
2011 Faculty Research Grant, Missouri State Graduate College; $6500
2014 National High Magnetic Field Laboratory Instrument Time
2015 Faculty Research Grant, Missouri State Graduate College; $7420
2018 National High Magnetic Field Laboratory Instrument Time
2020 Faculty Research Grant, Missouri State Graduate College; $7150
2021 Jean Dreyfus Lectureship, $18,500

2022 MRI proposal for ICP-MS, National Science Foundation, $383,538 (Sr. Personnel)

Ongoing Service (as of 2022)

Chemistry Department service:
Undergraduate Curriculum Committee, 2006-present; Chair 2009 – 2015
Departmental NMR Administrator, 2004 – present
Master student advisor (Honors College chemistry majors), 2010 – present
Proactive student advisor, 2019 – present

College of Natural and Applied Sciences service:
Student Awards and Scholarships Committee, 2006-present
Recruitment Committee; Fall 2017 – present

University service:
Degrees Committee; Fall 2018 – present
First Generation Student Success Advisory Council, 2020 - present
Strategic Enrollment Management Student Success Committee, 2021 – present
Interviews of Presidential Scholarship applicants, annually
BearsLEAD, faculty panelist, fall 2021 - present

Professional Service:
ACS Ozarks' Local Section Treasurer, 2006-present
ACS Midwest award, jury member, summer 2022

Community Service
Science Olympiad coach, Central HS 2019-present
ACS Science Coach, 2021-present

Additional Past Service (2011 – 2021)

Chemistry Department service:
Biochemistry faculty search committee, Fall 2011
Equipment Committee, 2005-2011
Wall of Fame *ad hoc* committee, Chair, Spring 2012
Evaluation Committee, Fall 2011- 2014, Chair 2013-2014
Merit Evaluation Committee, Fall 2011-2015

College of Natural and Applied Sciences service:
Bull Shoals Field Station Committee, 2005-2011
Faculty Mentor for Department of Physics, Astronomy and Materials Science, 2015-2017

University service:
STEM LLC Committee, 2017-2018
Public Affairs Conference Organizing Committee 2019, 2020

Professional Service:
Treasurer for Midwest Regional Meeting of the ACS, 2013
Preparing Future Faculty mentor and shadowing, Fall 2013
Physical Chemistry general session chair and organizer, MWRM 2013
ACS on Campus Networking Panel, 2013

Treasurer for Midwest Regional Meeting of the ACS, 2021
Biophysical Chemistry and Nucleic Acids session chair and organizer, MWRM 2021
Midwest ACS Award reviewer, 2020
Reviewed three grant proposals
Reviewed two book chapters
Reviewed eight manuscripts

Community Service:
Chemistry Olympiad Proctor, 2013
Discovery Center Summer Science Series, 2014
Demonstrations for student from Phelps Center for Gifted Education, 2014-2020
Demonstration for K-12 visiting students, seven visits between 2011-2021
Demonstrations for VOICE program (https://oac.ac/voice-experience/), 2017-2018

Master's Theses

Monica Kinde-Carson; July 2006; "Investigating Local Motions in Oxidatively Damaged DNA Base Pairs using Solid State NMR."

Mallory Clark; July 2009; "A Study of Oxidative Lesions within DNA Using NMR Spectroscopy."

Sarah Nichols; April 2011; "Analysis of DNA Dynamics Using Deuterium Solid-State NMR with Magic Angle Spinning."

Brianna Medrano; July 2011; "^{1}H NMR examination of DNA Structure Containing 1,N^{6}-ethenodeoxyadenosine."

Melissa Hayes; May 2012; "Deuterium Solid State Nuclear Magnetic Resonance of DNA Containing Single Base Lesions."

Stephen Kramer; August 2012; "1H NMR Examination of DNA Structure Containing Uracil and Abasic Site Lesions."

Aaron Proctor, June 27, 2014: "Dynamic analysis of DNA containing 1,N^{6}-ethenoadenine using deuterium solid-state nuclear magnetic resonance"

Chunling Cao, July 1, 2014: "Effect of 3,N^{4}-etheno-2'-deoxycytidine on DNA structure"

Chris Reynolds, August 2016: "Modeling the 3-Dimensional structure of d(C-G-C-G-A-A-T-T-C-G-C-G) and its 8-oxo-dA5 adduct with 1H NMR NOESY refinements."

Ben Boyd, July 2019: "Effects of the Dihydrouracil Lesion on DNA using ^{1}H/^{31}P 1D and 2D Solution NMR."

Publications

23. Bakker, Michael; Ehrhardt, William; Hagan, Chad; Reynolds, Christopher; Roy, Arkanil; Yarbrough, Melissa; Meints, Gary; Siebert, Matthew, "Comprehensive Analysis of DNA Nucleoside Vibrational Modes" Under revision to *J. Phys Chem. B*.

22. M. N. Westwood, C. C. Johnson, Nathan A. Oyler, and Gary A. Meints, "Kinetics and thermodynamics of BI-BII interconversion altered by T:G mismatches in DNA," *Biophysical J*. **2022**, 121, *9*, 1691-1703. Available online. https://doi.org/10.1016/j.bpj.2022.03.031.

21. Westwood, M. N., Ljunggren, K. D., Boyd, B., Becker, J., Dwyer, T. J., and Meints, G. A., J., "Single Base Lesions and Mismatches Alter the Backbone Conformational Properties in DNA," *Biochemistry* **2021**, 60, 873-885. doi: 10.1021/acs.biochem.0c00784

20. Bakker, M., Boyd, B., and Meints, G. A., "3D Printed NMR spectra: From 1D and 2D acquisition to 3D visualization," *Concepts in Magnetic Resonance A, 2019;47A:e21470,* published online April 2, 2019, https://doi.org/10.1002/cmr.a.21470.

19. Dou, X., Meints, G. A., and Sedaghat-Herati, R., "New Insights into the Interactions of a DNA Oligonucleotide with mPEGylated-PAMAM by Circular Dichroism and Solution NMR," *J. Phys. Chem. B*. **2019**. *123 (3);* 666-674. https://doi.org/10.1021/acs.jpcb.8b08517.

18. Pederson, K., Echodu, D. C., Emani, P., Olsen, G. L., Bardaro, M. F., Shajani, Z., Meints, G. A., Miller, P. A., Varani, G., and Drobny, G. P., "Unifying Solution and Solid-State NMR Studies of Nucleic Acid Dynamics," in *Encyclopedia of Magnetic Resonance* (R. K. Harris and Wasylishen R. E., eds.), Chichester: John Wiley, Mar. 2010.

17. Kinde-Carson, M., Ferguson, C., Oyler, N. A., Harbison, G., and Meints, G. A., "Solid State ^{2}H NMR Analysis of Furanose Ring Properties in DNA Containing Uracil," *J. Phys. Chem. B,* **2010,** *114,* 3285–3293. https://doi.org/10.1021/jp9091656.

16. Hardin, J. L., Oyler, N. A., Meints, G. A., and Steinle, E. D., "Spectroscopic Analysis of Interactions between Alkylated Silanes and Alumina Nanoporous Membranes," *Journal of Colloid and Interface Science,* **2010**, *342*, 614–619.

15. Echodu, D., Goobes, G., Shajani, Z., Pederson, K., Meints, G., Varani,G., and Drobny, G., "Furanose Dynamics in the *Hha*I Methyltransferase Target DNA Studied by Solution and Solid-State NMR Relaxation," *J. Phys. Chem.,* **2008**, *112*, 13934–13944.

14. Pederson, K., Meints, G. A., Shajani, Z., Miller, P. A., and Drobny, G. P., "Backbone Dynamics in the DNA *HhaI* Protein Binding Site," *J. Am. Chem. Soc*, **2008**, *130*, 9072-9079. https://doi.org/10.1021/ja801243d.

13. Meints, G. A., Miller, P. A., Pederson, K., Shajani, Z., and Drobny, G. P., "Solid-State Nuclear Magnetic Resonance Spectroscopy Studies of Furanose Ring Dynamics in the DNA *Hha*I Binding Site," *J. Am. Chem. Soc*, **2008**, *130*, 7305-7314. https://doi.org/10.1021/ja075775n.

12. Miller, P. A.; Shajani, Z.; Meints, G. A.; Caplow, D.; Goobes, G.; Varani, G.; Drobny, G. P., "Contrasting Views of the Internal Dynamics of the *HhaI* Methyltransferase Target DNA Reported by Solution and Solid-State NMR Spectroscopy," *J. Am. Chem. Soc*, **2006**, *128*, 15970-15971. https://doi.org/10.1021/ja066329n.

11. Mao, J., Mukherjee, S., Zhang, Y., Cao, R., Sanders, J. M., Song, Y., Zhang, Y., Meints, G. A., Gao, Y. G., Mukkamala, D., Hudock, M. P., and Oldfield, E., "A Solid State NMR, Crystallographic and Computational Investigation of Bisphosphonates and

Farnesyl Diphosphate Synthase-Bisphosphonate Complexes," *J. Am. Chem. Soc*, **2006**, *128*, 14485-14497.

10. Sanders, J. M.; Song, Y.; Chan, J. M. W.; Zhang, Y.; Jennings, S.; Kosztowski, T.; Odeh, S.; Flessner, R.; Schwerdtfeger, C.; Kotsikorou, E.; Meints, G. A.; Gomez, A. O.; Gonzalez-Pacanowska, D.; Raker, A. M.; Wang, H.; van Beek, E. R.; Papapoulos, S. E.; Morita, C. T.; Oldfield, E.. "Pyridinium-1-yl Bisphosphonates are Potent Inhibitors of Farnesyl Diphosphate Synthase and Bone Resorption," *J. Med. Chem.*, **2005**, *48*, 2957-2963.

9. Garzoni, L. R.; Caldera, A.; de Nazareth L. Meirelles, M.; de Castro, S. L.; Docampo, R.; Meints, G. A.; Oldfield, E.; Urbina, J., "Selective in vitro effects of the farnesyl pyrophosphate synthase inhibitor risedronate on Trypanosoma cruzi," *Int. J. Antimicrob. Agents*, **2004**, *23*, 273-85.

8. Sanders, J. M.; Ghosh, S.; Chan, J. M.; Meints, G. A.; Song, Y.; Colantino, A.; Burzynska, A.; Kafarski, P.; Morita, C. T.; Oldfield, E., "Quantitative Structure-Activity Relationships for γδ T Cell Activation by Bisphosphonates," *J. Med. Chem.* **2004**, *47*, 375-384. https://doi.org/10.1021/jm0303709.

7. Ghosh, S.; Chan**,** J. M. W.; Lea, C. R.; Meints, G. A.; Lewis, J. C.; Tovian, Z. S.; Flessner, R. M.; Loftus, T. C.; Bruchhaus, I.; Kendrick, H.; Croft, S. L.; Kemp, R. G.; Kobayashi, S.; Nozaki, T.; Oldfield, E., "Effects of Bisphosphonates on the Growth of *Entamoeba histolytica* and *Plasmodium* species *in vitro* and *in vivo*," *J. Med. Chem.* **2004**, *47*, 175-187.

6. Sanders, J. M.; Mao, J.; Meints, G. A.; van Brussel, E. M.; Burzyska, A.; Kafarski, P.; González-Pacanowska, D.; Oldfield, E., "3-D QSAR Investigations of the Inhibition of *Leishmania major* Farnesyl Pyrophosphate Synthase by Bisphosphonates," *J. Med. Chem.* **2003**, *46*, 5171-5183.

5. Martin, M. B.; Sanders, J. M.; Kendrick, H.; de Luca-Fradley, K.; Lewis, J. C.; Grimley, J. S.; Van Brussel, E. M.; Olsen, J. R.; Meints, G. A.; Burzynska, A.; Kafarski, P.; Croft, S. L.; Oldfield, E.; "Activity of Bisphosphonates against *Trypanosoma brucei rhodesiense*," *J. Med. Chem.*, **2002**, *45*, 2904-2914. https://doi.org/10.1021/jm0102809.

4. Meints, G. A.; Karlsson, T.; Drobny, G. P., "Modeling Furanose Ring Dynamics in DNA," *J. Am. Chem. Soc*, **2001**, *123*, 10030-10038. https://doi.org/10.1021/ja010721d.

3. Meints, G. A.; Drobny, G. P., "Dynamic Impact of Methylation at the M. *HhaI* Target Site: A Solid-State Deuterium NMR Study," *Biochemistry*, **2001**, *40*, 12436-12443. https://doi.org/10.1021/bi0102555.

2. Geahigan, K. B.; Meints, G. A.; Hatcher, M. E.; Drobny, G. P., "The Dynamic Impact of CpG Methylation in DNA," *Biochemistry*, **2000**, *39*, 4939-4946. https://doi.org/10.1021/bi9917636.

1. Hatcher, M. E.; Mattielo, D. L.; Meints, G. A.; Orban, J.; Drobny, G. P., "A Solid-State Deuterium NMR Study of the Localized Dynamics at the C9pG10 Step in the DNA Dodecamer [d(CGCGAATTCGCG)]$_2$," *J. Am. Chem. Soc*., **1998**, *120*, 9850-9862. https://doi.org/10.1021/ja971266h.

Presentations

Invited Talks

"Impact of DNA Damage on Backbone Conformational Equilibrium and a Possible Role in Damage Recognition," University of Missouri - St. Louis, February 28, 2022, hosted by Mike Nichols.

"Base Damage Alters Conformational Properties of DNA Backbone," ACS MWRM, October 2021, Springfield, MO.

"Alteration of BI/BII Backbone Conformations in DNA by Mismatches and Single Base Lesions," *Cancelled due to COVID-19. Originally scheduled for April 8, 2020*. University of Arkansas, Invitation by Suresh Kumar Thallapuranam, University of Arkansas.

"Alteration of BI/BII Backbone Conformations in DNA by Mismatches and Single Base Lesions," 2019 Great Plains Regional Annual Symposium on Protein and Biomolecular NMR (GRASP), November 23, 2019, University of Kansas, Lawrence, KS, Invitation by Moriah Beck, Wichita State University.

"Supporting Low Income Youth through Collaborative Intervention," Gary Meints, Conference on Gifted Education by the Gifted Association of Missouri (GAM), Springfield, MO, October 19, 2018.

"Using Multiple Spectroscopic Techniques to Determine Fundamental Properties of Damaged DNA," Missouri State University Department of Chemistry, September 6, 2017, hosted by Keiichi Yoshimatsu.

"Flipping the Gifted Classroom," Gary Meints, Conference on Gifted Education by the Gifted Association of Missouri (GAM), Springfield, MO, October 18, 2014.

"Using Multiple Spectroscopic Techniques to Determine Fundamental Properties of Damaged DNA," ACS MWRM, October 2012, Omaha, NE, Invitation by Julie Soukup, Creighton University.

"Using Multiple Spectroscopic Techniques to Determine Fundamental Properties of Damaged DNA," Missouri State University Department of Chemistry, January 25, 2012, hosted by Reza Herati.

"Using Multiple Spectroscopic Techniques to Determine Fundamental Properties of Damaged DNA," Missouri State University Department of Physics, Astronomy and Materials Science, October 27, 2011, hosted by Lifeng Dong.

"Applications of Solid-State NMR to DNA Dynamics and Silane Attachment to Alumina Nanomembranes," Missouri University of Science and Technology, Department of Chemistry, April 13, 2009, hosted by Frank Blum.

"Solid-State 2H NMR Dynamics Studies of Uracil Mismatches in DNA," 2008 ACS MWRM, October 2008, University of Nebraska-Kearny, Kearny, NE, Invitation by Brent Znosko, St. Louis University.

"Solid-State Deuterium NMR Studies of Dynamics in Damaged DNA," 2008 GRASP NMR Conference, October 2008, University of Kansas, Lawrence, KS, Invitation by Roberto De Guzman, University of Kansas.

"Solid-State Deuterium NMR Studies of Dynamics in Damaged DNA," 2008 Experimental NMR Conference, March 2008, Pacific Grove, CA, Invitation by Kathleen Howard, Swarthmore College.

"Using Solid-State NMR to Explore the Dynamics and Energetics of DNA Repair," University of Missouri-Kansas City, Department of Chemistry, April 12, 2007, hosted by Nathan Oyler.

"Does DNA Assist its Own Repair: An NMR Study of DNA Dynamics," College of the Ozarks, March 16, 2007, hosted by Jerry Easdon.

"Using Solid-State NMR to Explore the Dynamics and Energetics of DNA Repair," Missouri State University Department of Physics, Astronomy and Materials Science, March 15, 2007, hosted by Mani Manivannan.

"Using Solid-State NMR to Explore the Role of Dynamics in DNA Repair," University of Missouri - St. Louis, September 25, 2006, hosted by Mike Nichols.

"Using Solid-State NMR to Explore the Role of Dynamics in DNA Repair," St. Louis University, October 6, 2006, hosted by Brent Znosko.

"An Investigation of Local DNA Dynamics in Bacterial Restriction Sites by Solid-State Deuterium NMR," Center for Gene Research and Biotechnology Seminar Series, Oregon State University, December 6, 2000, Hosted by Professor Victor Hsu

Posters (presenter in bold)

"^{1}H and ^{31}P solution NMR analysis of an 8mer non-palindromic DNA sequence containing a U:G mismatch," **Autumn Pilarski,** Einhellig Graduate Interdisciplinary Forum, May 2022.

"Identification of Sugar-Base Proton Interactions using NOESY 2D NMR in Dickerson-Drew Dodecamer, T9 and 8mer T4 GpG," Samia T. Mahmud, CNAS Undergraduate Research Day, May 2022.

"Biophysical Studies of DNA Backbone Interconversion and Dynamic Properties via NMR," Krusha Bhakta, CNAS Undergraduate Research Day, May 2022. **1st place poster in chemistry**.

"NMR Investigation of single-base lesions in DNA," **Westwood, Megan,** Fall 2021 Gordon Research Conference: Understanding and Targeting the DNA Repair Pathways, Ventura, CA.

"^{1}H and ^{31}P solution NMR investigation of G:T mismatches in DNA," **Megan N. Westwood**, Gary A. Meints. Midwest Regional Meeting of the ACS; October 2021. Springfield, MO.

"Kinetics and thermodynamics of BI-BII conformational states in T:G mismatches," **Collin Johnson**, Midwest Regional Meeting of the ACS; October 2021. Springfield, MO.

"^{1}H and ^{31}P solution NMR analysis of an 8mer non-palindromic DNA sequence containing a U:G mismatch," **Autumn Pilarski,** Gary A. Meints. Midwest Regional Meeting of the ACS; October 2021. Springfield, MO.

"^{1}H and ^{31}P solution NMR analysis of an 8mer non-palindromic DNA sequence containing a U:G mismatch," **Autumn Pilarski,** CNAS Undergraduate Research Day, May 2021, **1st place poster in chemistry**.

"Solution NMR analysis of backbone dynamics and conformational properties of single base lesions and mismatches in DNA," **Westwood, Megan,** 2021 Spring National Meeting of the American Chemical Society. Virtual.

"Kinetics and thermodynamics of BI-BII conformational states in T:G mismatches," **Collin Johnson**, 2021 Spring National Meeting of the American Chemical Society. Virtual.

"^{1}H and ^{31}P solution NMR analysis of an 8mer non-palindromic DNA sequence containing a U:G mismatch," **Autumn Pilarski,** 2021 Spring National Meeting of the American Chemical Society. Virtual.

"Solution NMR analysis of backbone dynamics and conformational properties of single base lesions and mismatches in DNA," **Westwood, Megan,** 2021 Experimental NMR Conference. Virtual.

"Kinetics and thermodynamics of BI-BII conformational states in T:G mismatches," **Collin Johnson**, 2021 Experimental NMR Conference. Virtual.

"^{1}H and ^{31}P solution NMR investigation of G:T mismatches in DNA," **Megan N. Westwood**, Gary A. Meints. 2019 Great Plains Regional Annual Symposium on Protein and Biomolecular NMR (GRASP), November 23, 2019, University of Kansas, Lawrence, KS. **Best Poster Award for 2019.**

"^{1}H and ^{31}P NMR analysis of a 1,N6-ethenoadenine lesion incorporated in DNA," **Koby D. Ljunggren,** Gary A. Meints. 2019 Great Plains Regional Annual Symposium on Protein and Biomolecular NMR (GRASP), November 23, 2019, University of Kansas, Lawrence, KS.

"Effect of Uracil in Different Base-Pairing and Sequence Contexts on DNA Properties by 2D 1H and 31P Solution NMR," **Jaclyn Becker**, Gary A. Meints, 2019 Great Plains Regional Annual Symposium on Protein and Biomolecular NMR (GRASP), November 23, 2019, University of Kansas, Lawrence, KS.

"1H and 31P solution NMR investigation of G:T mismatches in DNA," **Megan N. Westwood**, Gary A. Meints. 2019 Conference for Undergraduate Women in Physical Sciences, November 9, 2019, Lincoln, NE.

"1H and 31P solution NMR investigation of G:T mismatches in DNA," **Megan N. Westwood**, Gary A. Meints. October 19, 2019, Midwest Regional Meeting of the American Chemical Society, Wichita, KS.

"1H and 31P NMR analysis of a 1,N6-ethenoadenine lesion incorporated in DNA," **Koby D. Ljunggren,** Gary A. Meints. October 19, 2019, Midwest Regional Meeting of the American Chemical Society, Wichita, KS.

"Effect of Uracil in Different Base-Pairing and Sequence Contexts on DNA Properties by 2D 1H and 31P Solution NMR," **Jaclyn Becker**, Autumn Pilarski, and Gary A. Meints, October 19, 2019, Midwest Regional Meeting of the American Chemical Society, Wichita, KS.

"NMR Analysis of the Effect of G-T Mismatches in Different Sequence Contexts on 1H/ 31P Chemical Shifts and NOE Intensities," **Koby Ljunggren**, Gary A. Meints, April 3, 2019, ACS National Meeting, Orlando, FL. **Best Undergraduate Physical Chemistry Poster**.

"Effect of Uracil in Different Sequence Contexts on 2D NMR Properties in DNA," **Jaclyn Becker**, Gary A. Meints, April 3, 2019, ACS National Meeting, Orlando, FL.

"Study of the effects of dihydrouracil lesion in DNA on non-exchangeable chemical shifts and NOE intensities using two dimensional NMR spectroscopy. **B. Boyd**, G.A. Meints. April 3, 2019, ACS National Meeting, Orlando, FL.

"Study of the effects of dihydrouracil lesion in DNA on non-exchangeable chemical shifts and NOE intensities using two dimensional NMR spectroscopy. **B. Boyd**, G.A. Meints. October 22, 2018, Midwest Regional Meeting of the American Chemical Society, Ames, IA.

"New Insights into the Interaction of a DNA Oligonucleotide with mPEGylated-PAMAM by Circular Dichroism and solution NMR," Xiaozheng Dou, Reza Sedaghat-Herati, and **Gary A. Meints**, October 12, 2018, Great Plains Regional Annual Symposium on Protein and Biomolecular NMR, Lawrence, KS.

"Single Base Lesions in DNA Alter Non-Exchangeable Proton Chemical Shifts, NOE intensities, and DQFCOSY Coupling Patterns Near Lesion Site," Stephen Kramer, Brianna Medrano, Chunling Cao, Aaron Proctor, Chris Reynolds, Mallory Clark, Amy Terbrock, Juliano de Oliveira Silveira and **Gary A. Meints**. October 12, 2018, Great Plains Regional Annual Symposium on Protein and Biomolecular NMR, Lawrence, KS.

"Study of the Effects of Dihydrouracil Lesion in DNA on Non-Exchangeable 1H and 31P Chemical Shifts and NOE Intensities Using Two-Dimensional NMR Spectroscopy," **Ben Boyd** and Dr. Gary Meints. October 12, 2018, Great Plains Regional Annual Symposium on Protein and Biomolecular NMR, Lawrence, KS.

NMR Analysis of the Effect of G-T Mismatches in Different Sequence Contexts on 1H Chemical Shifts and NOE Intensities," **Koby Ljunggren**, Gary A. Meints. October 12, 2018, Great Plains Regional Annual Symposium on Protein and Biomolecular NMR, Lawrence, KS.

"Single Base Lesions in DNA Alter Non-Exchangeable Proton Chemical Shifts and NOE intensities Near Lesion Site," Stephen Kramer, Brianna Medrano, Chunling Cao, Chris

Reynolds, Mallory Clark, Amy Terbrock, Juliano de Oliveira Silveira and **Gary A. Meints**. Experimental NMR Conference, April 2015, Pacific Grove, CA.

"Dynamic analysis of DNA containing etheno adenine using deuterium solid-state nuclear magnetic resonance," **Aaron Proctor**, Gary Meints, National Meeting of the ACS, Dallas, TX, March 19, 2014.

"Determining the Effect of 3,N^4-etheno-2'-deoxycytidine on DNA Structure by Using ^{1}H, ^{31}P Solution NMR," **Chunling Cao**, Gary Meints, Missouri State Graduate Interdisciplinary Forum, April, 2014.

"Dynamic Analysis of DNA Containing Etheno Adenine Using Deuterium Solid-state Nuclear Magnetic Resonance," **Aaron Proctor**, Gary Meints, Missouri State Graduate Interdisciplinary Forum, April, 2014.

"Conformation Mapping and Characterization of 8-Oxo-Adenosine Lesions in Oligomeric DNA," **Chris Reynolds**, Gary Meints, Missouri State Graduate Interdisciplinary Forum, April, 2014.

"Analysis of Conformation Change in DNA Double Helix by 8oxoG Single Base Modifications," **Juliano D.O. Silveira**, CNAS Undergraduate Research Day, May 2013, 1st place in chemistry.

"Raman Scattering of Deuterated DNA Nucleosides and Solid DNA Structures," **Chad Hagan,** Missouri State Graduate Interdisciplinary Forum, April, 2012.

"Synthesis of site specific deuterium labeled DNA nucleosides for Characterization using Solid-State NMR and Raman Scattering," **Melissa Hayes**, Missouri State Graduate Interdisciplinary Forum, April, 2012.

"Investigation of Local Dynamics of Damaged DNA by Analysis of Deuterium Labeled Nucleosides with Solid State Nuclear Magnetic Resonance and Raman Spectroscopy," **Aaron Proctor**, CNAS Undergraduate Research Day, March 2012.

"Characterizing Helical Distortions in DNA with Single Base Lesions," **Chris Reynolds**, CNAS Undergraduate Research Day, March 2012.

"Raman Scattering of Deuterated DNA nucleosides and Solid DNA Structure," **Chad Hagan**, **Melissa Hayes**, Sarah Nichols, Gary Meints, Midwest ACS, October 2011, St. Louis, MO.

"Assignment of Proton Resonances for Damaged DNA using Two-Dimensional Nuclear Magnetic Resonance," **Stephen P. Kramer**, Brianna Medrano, Gary Meints, Midwest ACS, October 2011, St. Louis, MO.

"Examination of Damaged DNA Structure Using ^{1}H And ^{31}P Solution State NMR," **Brianna Medrano**, Missouri State Graduate Interdisciplinary Forum, April, 2011.

"Examination of DNA structure containing 1,N6-ethenodeoxyadenosine using 1H and 31P solution state NMR ," **Brianna Medrano**, Dr. Gary Meints , Midwest ACS, October 2010, Wichita, KS.

"A deuterium solid-state NMR study of the furanose ring dynamics in DNA containing 1,N6-ethenoadenine," **Sarah Nichols** and Gary A. Meints, Missouri State Graduate Interdisciplinary Forum, April, 2010.

"The investigation of the DNA backbone through the use of two dimensional NMR," **Jason Davenport** and Gary A. Meints, Missouri State Graduate Interdisciplinary Forum, April, 2010.

"Examination of DNA structure using ^{1}H and ^{31}P solution state NMR," **Brianna Medrano** and Gary A. Meints, Missouri State Graduate Interdisciplinary Forum, April, 2010.

"Investigation of the function of DNA base repair proteins using solid-state ^{2}H NMR," **Amos Hale** and Gary Meints, CNAS Undergraduate Research Day, March 2010.

"DNA Repair Protein Expression: Pyrimidine Dimer Glycosylase Coded by Chlorella Virus PBCV-1, **Melissa Hayes**, James Van Etten and Gary Meints, CNAS Undergraduate Research Day, March 2010. Winner, Best Poster in Chemistry

"Investigating the role of DNA conformation in the repair by 8-oxoguanine DNA glycosylase**."** **Mallory E. Clark** and Gary A. Meints, Missouri State Graduate Interdisciplinary Forum, April 13, 2009.

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