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EDUCATIONAL AND PROFESSIONAL HISTORY

Education

- 2013 – 2015 **NIH Postdoctoral Fellow**, University of Michigan
Project: C-H Functionalization of Saturated N-Heterocycles
Project: Radiofluorination of Diaryliodonium Salts
Research Advisor: Professor Melanie S. Sanford
- 2012 – 2013 **Postdoctoral Scholar**, University of Iowa
Project: Resurrection of Organophosphate-Inhibited Acetylcholinesterase
Research Advisor: Professor Daniel M. Quinn
Project: Iridium Catalyzed Fluorination of Allylic Trichloroacetimidates
Research Advisor: Professor Hien M. Nguyen
- 2007 – 2011 **Ph.D., Organic Chemistry**, University of Iowa
Thesis: *Cascade Cyclizations and the Schweinfurthins*
Ph.D. Advisor: Professor David F. Wiemer
- 2003 – 2007 **B.S., Chemistry, magna cum-laude**, University of Wisconsin at Parkside
Undergraduate Thesis: *Aerosol-Phase Assisted Digestion for the Analysis of Lead in Sweeteners*
Undergraduate Advisor: Professor Lori B. Allen

Positions

- 2015 – Present Assistant Professor, University of Minnesota Department of Chemistry
- 2013 – 2015 NIH NRSA Postdoctoral Fellow, University of Michigan
- 2012 – 2013 Postdoctoral Scholar, University of Iowa
- 2011 Adjunct Instructor, University of Iowa
- 2010 – 2011 ACS Division of Medicinal Chemistry Predoctoral Fellow
- 2009 – 2010 Research Assistant, University of Iowa
- 2007 – 2009 Teaching Assistant, University of Iowa
- 2004 – 2007 Research Assistant, University of Wisconsin at Parkside

SCHOLARSHIP AND TEACHING

Awards and Honors

- 2019 Thieme Chemistry Journal Awardee
- 2017 National Institutes of Health Maximizing Investigator's Research Award (MIRA)

- 2013 National Institutes of Health NRSA F32 Postdoctoral Fellowship
2010 American Chemical Society Division of Medicinal Chemistry Predoctoral Fellow
2010 A. Lynn Anderson Award for Excellence in Graduate Research
2009 Department of Chemistry Outstanding Teaching Assistant
2007 Shriner Graduate Scholarship
2007 Outstanding Graduate (Among the Top 1% of UW-Parkside Graduates)

Courses Taught

- 2019 – Spring Honors Organic Chemistry II
2018 – Fall Organic Synthesis
2018 – Spring Honors Organic Chemistry II
2017 – Fall Organic Synthesis
2017 – Spring Honors Organic Chemistry II
2016 – Fall Organic Synthesis
2015 – Fall Organic Synthesis
2011 – Fall General Chemistry II

Professional Organizations

- 2005 – Present American Chemical Society
2013 – Present American Association for the Advancement of Science
2017 – Present American Society of Pharmacognosy

Research Grants Funded

- 2016 – 2018 American Chemical Society Petroleum Research Foundation DNI
2017 – 2022 National Institute of General Medical Sciences – MIRA
2018 – 2019 American Cancer Society Institutional Research Grant

Bibliometric Data

I object to using bibliographical data as a metric of scientific impact. Data is provided here with reservation. For more information, please see <https://doi.org/10.1371/journal.pone.0194903>.

H-Index = 12, Citations = 624, Average Citations per Item = 21.0 (Web of Science, 11/7/18)

Independent Research Publications and Patents

13) Beaumier, E. P.; Davis-Gilbert, Z. W.; Ott, A. A.; Wheeler, A.; Goodpaster, J. D.; Topczewski, J. J.; Tonks, I. A.* “Ring-opening oxidative amination of methylenecyclopropanes with diazenes via TiIV/TiIII redox catalysis” *in preparation*.

12) Liu, E.-C.; Topczewski, J. J. “Enantioselective Copper Catalyzed Alkyne-Azide Cycloaddition by Dynamic Kinetic Resolution” *submitted*.

11) Ott, A. A.; Topczewski, J. J. “On the Winstein Rearrangement: Equilibrium and Mechanism” *Arkivoc* **2019**, *submitted*.

Invited Submission

10) Ott, A. A.; Topczewski, J. J. “Catalytic Racemization of Activated Organic Azides” *Org. Lett.* **2018**, *20*, 7253. (DOI: 10.1021/acs.orglett.8b03168)

9) Divakaran, A.; Talluri, S. K.; Ayoub, A. M.; Mishra, N.; Cui, H.; Widen, J. C.; Berndt, N.; Zhu, J.-Y.; Carlson, A. S.; Topczewski, J. J.; Schonbrunn, E. K.; Harki, D. A.*; Pomerantz, W. C. K.* “Molecular Basis for the N-Terminal Bromodomain and Extra Terminal (BET) Family Selectivity of a Dual Kinase-Bromodomain Inhibitor” *J. Med. Chem.* **2018**, *61*, 9316. (DOI:10.1021/acs.jmedchem.8b01248).

8) Daley, R. A.; Topczewski, J. J. “Palladium-catalyzed salt free double decarboxylative aryl allylation” *Org. Biomol. Chem.* **2019**, Advance article (DOI:10.1039/C8OB01806E).

Featured: New Talent Issue

7) Ott, A. A.; Packard, M. H.; Ortuño, M. A.; Johnson, A.; Suding, V. P.; Cramer, C. J.; Topczewski, J. J. “Evidence for a Sigmatropic and an Ionic Pathway in the Winstein Rearrangement” *J. Org. Chem.* **2018**, *83*, 8214. (DOI: 10.1021/acs.joc.8b00961)

6) Topczewski, J. J.; Porter, M. R. “It’s a (Kinetic) Trap!” – Selectively Differentiating Allylic Azide Isomers” *Synlett* **2018**, *29*, 1537. (DOI:10.1055/s-0037-1609479) **Invited Submission**

5) Carlson, A. S.; Calcanas, C.; Brunner, R. M.; Topczewski, J. J. “Regiocontrolled Wacker Oxidation of Cinnamyl Azides” *Org. Lett.* **2018**, *20*, 1604. (DOI: 10.1021/acs.orglett.8b00344)

4) Porter, M. R.; Shaker, R. M.; Calcanas, C.; Topczewski, J. J. “Stereoselective Dynamic Cyclization of Allylic Azides: Synthesis of Tetralins, Chromanes, and Tetrahydroquinolines” *J. Am. Chem. Soc.* **2018**, *140*, 1211. (DOI: 10.1021/jacs.7b11299)

Journal Cover: http://pubs.acs.org/subscribe/covers/jacsat/jacsat_v140i004-3.jpg?0.7866935640091663

Highlighted: *Synfacts* **2018**, *14*, 376. (DOI: 10.1055/s-0037-1609356)

Highlighted: <https://www.organic-chemistry.org/Highlights/2018/12November.shtm>

3) Packard, M. H.; Cox, J. H.; Suding, V. P.; Topczewski, J. J. “The Effect of Proximal Functionality on the Allylic Azide Equilibrium” *Eur. J. Org. Chem.* **2017**, *2017*, 6365. (DOI: 10.1002/ejoc.201700693)

Journal Cover: DOI: 10.1002/ejoc.201701430

2) Ott, A. A.; Goshey, C. S.; Topczewski, J. J. “Dynamic Kinetic Resolution of Allylic Azides via Asymmetric Dihydroxylation” *J. Am. Chem. Soc.* **2017**, *139*, 7737. (DOI: 10.1021/jacs.7b04203)

Highlighted: *Synfacts* **2017**, *13*, 849. (DOI: 10.1055/s-0036-1590669)

1) Goswami, P. P.; Suding, V. P.; Carlson, A. S.; Topczewski, J. J. “Direct Conversion of Aldehydes and Ketones to Azides via Sequential Nucleophilic Addition & Substitution” *Eur. J. Org. Chem.* **2016**, *2016*, 4805. (DOI: 10.1002/ejoc.201600856)

Mentored Research Publications and Patents

23) Quinn, D. M.; Topczewski, J. J.; Yasapala, N. Y.; Lodge, A. M. “Why is Aged Acetylcholinesterase So Difficult to Reactivate?” *Molecules* **2017**, *22*, 1464. (DOI: 10.3390/molecules22091464)

22) Topczewski, J. J.; Topczewski, A. M.; Tang, H.; Kendhammer, L. K.; Pienta, N. J. “NMR Spectra through the Eyes of a Student: Eye Tracking Applied to NMR Items” *J. Chem. Ed.* **2017**, *94*, 29. (DOI:10.1021/acs.jchemed.6b00528)

21) Topczewski, J. J.; Cabrera, P. J.; Saper, N. I.; Sanford, M. S. “Palladium-Catalyzed Transannular C–H Functionalization of Alicyclic Amines” *Nature* **2016**, *531*, 220. (DOI:10.1038/nature16957)

Highlighted: De Sarkar, S. *Angew. Chem. Int. Ed.* **2016**, DOI:10.1002/anie.201604404.

20) Morril, J. A.; Topczewski, J. J.; Lodge, A. M.; Yasapala, N. Y.; Quinn, D. M. “Development of quantitative structure activity relationships for the binding affinity of methoxypyridinium cations for human acetylcholinesterase” *J. Mol. Graphics Modell* **2015**, *62*, 181. (DOI:10.1016/j.jmgs.2015.09.016)

19) Zhang, Q.; Stockdale, D.; Mixdorf, J. C.; Topczewski, J. J.; Nguyen, H. M. “Iridium-Catalyzed Enantioselective Fluorination of Racemic, Secondary Allylic Trichloroacetimidates” *J. Am. Chem. Soc.* **2015**, *137*, 11912. (DOI: 10.1021/jacs.5b07492)

- 18) Ichiishi, N.; Brooks, A. F.; Topczewski, J. J.; Rodnick, M. E.; Sanford, M. S.; Scott, P. J. H. “[18F]Fluorination of (Mesityl)(Aryl)Iodonium Salts” *Radiochemical Syntheses* **2015**, Ch.14. (DOI: 10.1002/9781118834114.ch14)
- 17) Topczewski, J. J.; Sanford, M. S. “Carbon-Hydrogen (C-H) Bond Activation at Pd(IV): A Frontier in Catalysis” *Chem. Sci.* **2015**, *6*, 70. (Invited Review) (DOI: 10.1039/c4sc02591a)
- 16) Brooks, A. F.; Topczewski, J. J.; Ichiishi, N.; Sanford, M. S.; Scott, P. J. H. “Late-stage [18F]Fluorination: New Solutions to Old Problems” *Chem. Sci.* **2014**, *5*, 4545. (DOI: 10.1039/C4SC02099E)
- 15) Ichiishi, N.; Brooks, A. F.; Topczewski, J. J.; Rodnick, M. E.; Sanford, M. S.; Scott, P. J. H. “Copper-Catalyzed [18F]Fluorination of (Mesityl)(aryl)iodonium Salts” *Org. Lett.* **2014**, *16*, 3224. (DOI: 10.1021/ol501243g)
- 14) Scott, P. J. H.; Sanford, M. S.; Ichiishi, N.; Brooks, A. F.; Rodnick, M. E., Topczewski, J. J. "Copper Catalyzed [18F]Fluorination of Iodonium Salts" U.S. Patent WO2015157597 A1, October 15, 2015.
- 13) Quinn, D. M., Topczewski, J. J. "Compounds and Methods to Treat Organophosphorus Poisoning" U. S. Patent Number US9,249,100B2, issued 2 February 2016.
- 12) Topczewski, J. J.; Lodge, A. M.; Yasapala, S. N.; Payne, M. K.; Keshavarzi, P. M.; Quinn, D. M. “Reversible Inhibition of Human Acetylcholinesterase by Methoxypyridinium Species” *Bioorg. Med. Chem. Lett.* **2013**, *23*, 5786. (DOI:10.1016/j.bmcl.2013.09.008)
- 11) Kodet, J. G.; Topczewski, J. J.; Gardner, K. D.; Wiemer, D. F. “Electrophilic Prenylation via Cascade Cyclization” *Tetrahedron* **2013**, *44*, 9212. (DOI: 10.1016/j.tet.2013.08.056)
- 10) Topczewski, J. J.; Quinn, D. M. “Kinetic Assessment of N-Methyl-2-Methoxypyridinium Species as Phosphonate Anion Methylating Agents” *Org. Lett.* **2013**, *15*, 1084. (DOI: 10.1021/ol400054m)
- 9) Topczewski, J. J.; Tewson, T. J.; Nguyen, H. M. “Iridium-Catalyzed Allylic Fluorination of Trichloroacetimidates” *J. Am. Chem. Soc.* **2011**, *133*, 19318. (DOI: 10.1021/ja2087213)
- 8) Topczewski, J. J. “Cascade Cyclizations and the Schweinfurthins” Ph.D. Thesis, University of Iowa, Iowa City, IA, **2011**.
- 7) Topczewski, J. J.; Callahan, M. P.; Kodet, J. G.; Inbarasu, J. D.; Mente, N. R.; Beutler, J. A.; Wiemer, D. F. “Relevance of the C-5 Position to Schweinfurthin Induced Cytotoxicity” *Bioorg. Med. Chem.* **2011**, *19*, 7570. (DOI: 10.1016/j.bmc.2011.10.034)
- 6) Topczewski, J. J.; Wiemer, D. F. “First Total Synthesis of (+)-Vedelianin, a Potent Anti-proliferative Agent” *Tetrahedron Lett.* **2011**, *52*, 1628. (DOI:10.1016/j.tetlet.2011.01.137)
- 5) Topczewski, J. J.; Kodet, J. G.; Wiemer, D. F. “Exploration of Cascade Cyclizations Terminated by Tandem Aromatic Substitution: Total Synthesis of (+)-Schweinfurthin A” *J. Org. Chem.* **2011**, *76*, 909. (DOI: 10.1021/jo1022102)
- 4) Topczewski, J. J.; Kuder, C. H.; Neighbors, J. D.; Hohl, R. J.; Wiemer, D. F. “Fluorescent Schweinfurthin B and F Analogs with Anti-proliferative Activity” *Bioorg. Med. Chem.* **2010**, *18*, 6734. (DOI: 10.1016/j.bmc.2010.07.056)
- 3) Topczewski, J. J.; Callahan, M. P.; Neighbors, J. D.; Wiemer, D. F. “A Tandem Cascade Cyclization-Electrophilic Aromatic Substitution: Application in the Total Synthesis of (+)-Angelichalcone” *J. Am. Chem. Soc.* **2009**, *131*, 14630. (DOI: 10.1021/ja906468v)
- 2) Topczewski, J. J.; Neighbors, J. D.; Wiemer, D. F. “Total Synthesis of (+)-Schweinfurthins B and E” *J. Org. Chem.* **2009**, *74*, 6965. (DOI: 10.1021/jo901161m)
- 1) Neighbors, J. D.; Topczewski, J. J.; Swenson, D. C.; Wiemer, D. F. “Synthesis of the Cis-Fused Hexahydroxanthene System via Cationic Cascade Cyclization” *Tetrahedron Lett.* **2009**, *50*, 3881. (DOI:10.1016/j.tetlet.2009.04.052)

Meeting Presentations

- 30) Topczewski, J. J. "On the Allylic Azide Rearrangement" Midwest Regional Meeting of the American Chemical Society, Iowa State University, Ames IA, October 21-23, 2018
- 29) Topczewski, J. J. "Controlling the Allylic Azide Rearrangement" Gordon Research Conference in Organic Reactions and Processes, Stonehill College, Easton MA, July 15-20, 2018.
- 28) Topczewski, J. J. "Harnessing the Winstein Rearrangement" Gordon Research Conference in Heterocyclic Compounds, Salve Regina University, Newport, RI, June 17-22, 2018.
- 27) Topczewski, J. J. "Harnessing the Dynamic Winstein Rearrangement via Selective Functionalization" 18th Florida Heterocyclic and Synthetic Chemistry Conference, Gainesville FL, March 4-7, 2018.
- 26) Topczewski, J. J. Attendee National Organic Symposium, UC Davis, Davis, CA, June 25-30, 2017.
- 25) Topczewski, J. J.; Ott, A. A.; Packard, M. H.; Porter, M. R. "Harnessing the Winstein Rearrangement For Dynamic Kinetic Resolution" Gordon Research Conference in Heterocyclic Compounds, Salve Regina University, Newport, RI, June 18-23, 2017.
- 24) Topczewski, J. J.; Cabrera, P.; Sanford, M. S. "Synthesis of C-4 Arylated Piperidines via Distal C-H Activation" Gordon Research Conference in Heterocyclic Compounds, Salve Regina University, Newport, RI, June 21-26, 2015.
- 23) Topczewski, J. J.; Ichiishi, N.; Brooks, A. F.; Scott, P. J. H.; Sanford, M. S. "Copper Catalyzed Radiofluorination of Diaryliodonium Salts and Application to PET Imaging" Gordon Research Conference in Heterocyclic Compounds, Salve Regina University, Newport, RI, June 15-20, 2014.
- 22) Topczewski, J. J., Lodge, A.; Quinn, D. M. "Resurrection of an Aged Acetylcholinesterase-Organophosphate Complex" 3rd Postdoctoral Research Symposium, University of Illinois at Urbana Champaign, Champaign, IL, January 25, 2013.
- 21) Topczewski, J. J.; Quinn, D. M. "Potential resurrection of aged AChE-OP adducts: design of bio-compatible methyl transfer agents" 47th Midwest Regional Meeting of the American Chemical Society, Omaha, NE, October 24-27, 2012.
- 20) Lodge, A. M.; Topczewski, J. J.; Quinn, D. M. "Synthesis and evaluation of human Acetylcholinesterase inhibitors" 47th Midwest Regional Meeting of the American Chemical Society, Omaha, NE, October 24-27, 2012.
- 19) Topczewski, J. J.; Nguyen, H. M. "Enantioselective Allylic Fluorination of Branched Trichloroacetimidates by an Enantioconvergent Process" Gordon Research Conference in Stereochemistry, Salve Regina University, Newport, RI, July 29-August 3, 2012.
- 18) Topczewski, J. J.; Quinn, D. M. "Design of simple pyridines to resurrect aged acetylcholinesterase organophosphate adducts" 2012 CounterACT Annual Meeting, San Francisco, CA, June 26-28, 2012.
- 17) Topczewski, J. J.; Nguyen, H. M.; Tewson, T. J. "Iridium-catalyzed allylic fluorination using fluorine-18 fluoride" Society of Nuclear Medicine Annual Meeting, Miami, FL, June 9-13, 2012. (Meeting Highlight)
- 16) Topczewski, J. J.; Nguyen, H. M.; Tewson, T. J. "The Application of Iridium-Catalyzed Allylic Fluorination to the Synthesis of [18-F]-Radiotracers" 50th MIKI Medicinal Chemistry Meeting-In-Miniature, Iowa City, IA, April 13-15, 2012.
- 15) Tang, H.; Topczewski, J. J.; Topczewski, A. M.; Pienta, N. J. "Permutation Test for Groups of Scanpaths Using Normalized Levenshtein Distances and Application in NMR Questions" Symposium: Eye Tracking Research & Applications, Santa Barbara, CA, March 28-30, 2012.
- 14) Topczewski, J. J.; Topczewski, A. M.; Pienta, N. J. "What students see in an NMR spectra: Eye tracking applied to NMR questions" 242nd National Meeting of the American Chemical Society, Denver, CO, August 28-September 1, 2011.

- 13) Topczewski, J. J.; Beutler, J. A.; Wiemer, D. F. "Schweinfurthins: Development of their antiproliferative activity" 242nd National Meeting of the American Chemical Society, Denver, CO, August 28-September 1, 2011. (MEDI award symposium)
- 12) Topczewski, J. J.; Wiemer, D. F. "Cascade Cyclizations and the Schweinfurthins" ACS Division of Organic Chemistry Graduate Research Symposium, UC Santa Barbara, Santa Barbara, CA, July 14-17, 2011.
- 11) Topczewski, J. J.; Wiemer, D. F. "Divergent Synthesis of the Schweinfurthins via Cascade Cyclization Terminated by Aromatic Substitution" Gordon Research Conference in Medicinal Chemistry, Colby-Sawyer College, New London, NH, August 8-13, 2010. (Poster Selected for Oral Presentation)
- 10) Topczewski, J. J.; Wiemer, D. F. "On The Path to Schweinfurthin A" 2nd Symposium on Schweinfurthin Related Natural Products, The National Cancer Institute, Frederick, MD, December 14, 2009.
- 9) Topczewski, J. J.; Ulrich, N. C.; Callahan, M. P.; Wiemer, D. F. "Epoxide-Initiated Cascade Cyclizations Terminated Via Tandem Electrophilic Aromatic Substitution: Scope, Limitation, and Application" 44th Midwest Regional Meeting of the American Chemical Society, Iowa City, IA, October 21-24, 2009.
- 8) Topczewski, J. J.; Wiemer, D. F. "First total synthesis of (+)-Schweinfurthins B and E" 238th National Meeting of the American Chemical Society, Washington, DC, August 16-20, 2009.
- 7) Topczewski, J. J.; Wiemer, D. F. "In Pursuit of a 3-Hydroxy Hexahydroxanthene" 1st Symposium on Schweinfurthin Related Natural Products, The National Cancer Institute, Frederick, MD, December 12, 2008.
- 6) Topczewski, J. J.; Mente, N. R.; Callahan, M. P.; Wiemer, D. F. "Efficient Synthesis of Hexahydroxanthene Aldehydes: The Benzyl Methyl Ether as a Latent Benzaldehyde" 236th National Meeting of the American Chemical Society, Philadelphia, PA, August 17-21, 2008.
- 5) Neighbors, J. D.; Kuder, C. H.; Topczewski, J. J.; Hohl, R. J.; Wiemer, D. F. "Probing the Mechanism of Schweinfurthin Action: Synthesis and Biological Action of Fluorescent Schweinfurthin Analogs" 37th Northeast Regional Meeting of the American Chemical Society, Burlington, VT, June 29-July 2, 2008.
- 4) Topczewski, J. J.; Neighbors, J. D.; Beutler, J. A.; Wiemer, D. F. "Synthesis of (2*R*, 4*aR*, 9*aS*)-3-Deoxyschweinfurthin B: Cascade Cyclization to Produce a Cis-Fused Hexahydroxanthene." 46th MIKI Medicinal Chemistry Meeting-In-Miniature, Iowa City, IA, April 25-27, 2008.
- 3) Neighbors, J. D.; Topczewski, J. J.; Wiemer, D. F. "A Shi Epoxidation Strategy for Synthesis of Cis-Fused Hexahydroxanthenes" 42nd Midwest Regional Meeting of the American Chemical Society, Kansas City, MO, November 7-10, 2007.
- 2) Topczewski, J. J.; Allen, L. B. "Aerosol-Phase Assisted Digestion for the Analysis of Lead in Sweeteners by ICP-AES" 57th Pittsburg Conference, Orlando, FL, March 12-17, 2006.
- 1) Allen, L. B.; Topczewski, J. J. "Aerosol Phase Digestion in Atomic Spectrometry" 32nd Meeting of the Federation of Analytical Chemistry and Spectroscopy Sciences, Portland, OR, October 3-7, 2004.

REFERENCES

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