

M. KEVIN BROWN

Indiana University
Department of Chemistry
800 E. Kirkwood Ave. Bloomington, IN

Office Phone: 812-856-9114
e-mail: brownmkb@indiana.edu

APPOINTMENTS Associate Professor, 2017-present
Indiana University, Bloomington, IN
Department of Chemistry

Assistant Professor, 2011-2017
Indiana University, Bloomington, IN
Department of Chemistry

National Institutes of Health Postdoctoral Fellow, 2008-2011
Harvard University, Boston, MA
Research Advisor: Professor E. J. Corey

Graduate Research Assistant, 2002-2008
Boston College, Boston, MA
Research Advisor: Professor Amir H. Hoveyda

Undergraduate Research Assistant (NSF/REU Program), Summer 2001
University of Wyoming, Laramie, WY
Research Advisor: Professor Robert C. Corcoran

Undergraduate Research Assistant, Merck/American Association for the
Advancement of Science Program, Summer 2000
Hamilton College, Clinton, NY
Research Advisor: Professor Ian J. Rosenstein

EDUCATION Boston College, Boston, MA
Ph.D., Organic Chemistry, 2002-2008
Thesis Advisor: Professor Amir H. Hoveyda

Hamilton College, Clinton, NY
B.A., Chemistry (Honors), 2002
Thesis Advisor: Professor Ian J. Rosenstein

AWARDS

- *Novartis Early Career Award*, 2016
- *Amgen Young Investigator Award*, 2016
- *National Science Foundation CAREER Award*, 2016

- *Sloan Research Fellowship*, 2015
- *IU Trustees Teaching Award*, 2014
- *Thieme Chemistry Journal Awardee*, 2013
- *National Institutes of Health, Ruth L. Kirschstein National Research Service Award*, Harvard University, 2008-2011
- *ESF Research Conference on Natural Products Chemistry, Biology and Medicine III, Travel Award*. European Science Foundation, 2010
- *Bristol-Myers Squibb Graduate Fellowship in Synthetic Organic Chemistry*, Sponsored by Bristol-Myers Squibb, 2006-2007
- *Graduate School of Arts and Sciences Academic Achievement Award* Boston College, 2006
- *Excellence in Chemistry Award*, Roche Biosciences, 2006
- *Graduate Fellowship in Organic Chemistry*, American Chemical Society, Sponsored by Schering-Plough, 2005-2006
- *Underwood Prize in Chemistry*, Hamilton College, 2002
- *Elihu Root Fellowship*, Hamilton College, 2002
- *Sigma Xi Scientific Research Society*, Hamilton College, 2002

SERVICE AND OUTREACH

- Local Co-chair of the 2019 ACS National Organic Symposium
- Member-at-Large ACS Division of Organic Chemistry (2019-2021)
- 2015 Outreach Volunteer of the Year, Southern Indiana Local Section
- Designed, developed and installed a chemistry themed exhibit titled, "Smells Like Nano" at WonderLab (Local Children's Museum in Bloomington, IN) (See publication #18)
- Chair-Elect (2012, 2015, 2017) and Chair (2013, 2016, 2018) of the Southern Indiana Section of the ACS
- Presented at WonderCamp (summer camp run by WonderLab) 2012 and 2013
- Organized "ACS On Campus" (Networking event for undergraduate and graduate students), 2014
- Co-chair of session at ACSCERM2016 (With Prof. Anita Mattson, The Ohio State University).
- Session chair at Organic Reactions and Processes GRC, 2015
- Grant reviewer for American Chemical Society (2012-present) and National Science Foundation (2015-present), National Institutes of Health (2017-present)
- Safety Committee, 2011-current
- Graduate Admissions Committee, 2011-current
- Chemistry Department Website Design Committee, 2012

SEMINARS

- 102) *University of Basel*, November 2020
- 101) *Novartis Basel*, November 2020

- 100) *TU Berlin*, November 2020
- 99) *St. Andrews University*, October 2020
- 98) *University of Manchester*, October 2020
- 97) *University of Bristol*, October 2020
- 96) *University of Oxford*, October 2020
- 95) *University of Cambridge*, October 2020
- 94) *University of Munster*, October 2020
- 93) *ICIQ*, October 2020
- 92) *Boron in the Americas Conference*, June 2020
- 91) *ACS CERM Meeting (2)*, May 2020
- 90) *ACS CERM Meeting (1)*, May 2020
- 89) *Illinois State University*, April 2020
- 88) *ACS Meeting*, March 2020
- 87) *FloHet Conference*, March 2020
- 86) *ISMMS-5 Conference, Japan*, November 2019
- 85) *Kyoto University*, November 2019
- 84) *University of Tokyo*, November 2019
- 83) *Waseda University*, November 2019
- 82) *Boston College*, May 2019
- 81) *Togni University*, May 2019
- 80) *Shanghai Institute of Organic Chemistry*, May 2019
- 79) *Fudan University*, May 2019
- 78) *East China Normal University*, May 2019
- 77) *Zhejiang University*, May 2019
- 76) *University of Science and Technology of China*, May 2019
- 75) *Saint Louis University*, April 2019
- 74) *Hope College*, March 2019
- 73) *Calvin College*, March 2019
- 72) *Grand Valley State University*, March 2019
- 71) *Celgene*, December 2018
- 70) *University of Alberta*, October 2018
- 69) *Corteva Agriscience*, August 2018
- 68) *University of Pennsylvania*, May 2018
- 67) *Drexel University*, May 2018
- 66) *Temple University*, May 2018
- 65) *Yale University*, March 2018
- 64) *IISc Bangalore*, December 2017
- 63) *Indo-US Bilateral Meeting on Organometallic Chemistry*, December 2017
- 62) *IIT Bombay*, December 2017
- 61) *SERMACS*, November 2017
- 60) *Boston University*, “*Novartis Lecture*”, October 2017
- 59) *Relay Therapeutics*, July 2017

- 58) *Novartis Early Career Award Symposium*, June 2017
- 57) *Dartmouth College*, May 2017
- 56) *Amgen Young Investigator Award Symposium*, October 2016
- 55) *University of Illinois*, October 2016
- 54) *Watanabe Symposium*, October 2016
- 53) *Chicago Organic Symposium*, October 2016
- 52) *Gilead Seattle / University of Washington Lecture Series*, September 2016
- 51) *Gordon Research Conference on Organic Reactions and Processes*,
July 2016
- 50) *French-American Chemical Society Meeting*, June 2016
- 49) *University of Michigan*, May 2016
- 48) *Princeton University*, April 2016
- 47) *Vanderbilt University*, April 2016
- 46) *University of Illinois at Chicago*, April 2016
- 45) *Northwestern University*, April 2016
- 44) *University of California – Irvine*, April 2016
- 43) *Pfizer – La Jolla*, April 2016
- 42) *Scripps Research Institute – La Jolla*, April 2016
- 41) *Duke University*, March 2016
- 40) *University of North Carolina – Chapel Hill*, March 2016
- 39) *North Carolina State*, March 2016
- 38) *Massachusetts Institute of Technology*, March 2016
- 37) *University of Wisconsin*, March 2016
- 36) *University of Minnesota*, March 2016
- 35) *Colorado State University*, February 2016
- 34) *Pennsylvania State University*, February 2016
- 33) *University of Texas – Austin*, January 2016
- 32) *Baylor University*, January 2016
- 31) *University of Texas Southwestern Medical Center*, January 2016
- 30) *Notre Dame*, January 2016
- 29) *Biogen*, November 2015
- 28) *University of Utah*, October 2015
- 27) *University of Pittsburgh*, October 2015
- 26) *UCLA “Pfizer-UCLA Lectureship”*, October 2015
- 25) *California Institute of Technology*, October 2015
- 24) *University of Iowa*, October 2015
- 23) *Iowa State University*, October 2015
- 22) *Scripps Research Institute – Jupiter*, October 2015
- 21) *The Ohio State University*, September 2015
- 20) *Eli Lilly and Co.*, August 2015
- 19) *JOC/OL Symposium, ACS Meeting Boston*, August 2015
- 18) *Young Academic Investigators Symposium*,

- ACS Meeting Boston, August 2015
- 17) *Bristol-Myers Squibb – Process Chemistry Department*, August 2015
 - 16) *Bristol-Myers Squibb – Discovery Chemistry Department*, August 2015
 - 15) *Gordon Research Conference on Natural Products*, July 2015
 - 14) *Canadian Society of Chemistry Conference*, June 2015
 - 13) *Hamilton College*, November 2014
 - 12) *SUNY Buffalo*, November 2014
 - 11) *University of Rochester*, November 2014
 - 10) *Syracuse University*, November 2014
 - 9) *Butler University*, October 2014
 - 8) *Gordon Research Conference on Stereochemistry*
(Poster and “Poster Talk”), July 2014
 - 7) *Illinois Wesleyan University*, April 2014
 - 6) *Indiana University Purdue University Indianapolis*, March 2014
 - 5) *Olivet Nazarene University*, February 2014
 - 4) *Hunter College, CUNY* October 2013
 - 3) *Brooklyn College, CUNY* September 2013
 - 2) *DePauw University*, September 2013
 - 1) *Western Kentucky University*, October 2012

RESEARCH SUPPORT

- National Institutes of Health: R35GM131755 “*Methods and Strategies for Chemical Synthesis*” 4/19-4/24.
- Novartis Early Career Award, 2016
- Amgen Young Investigator Award, 2016
- National Science Foundation: CAREER Award - 1554760. “*New Methods for Cu-Catalyzed Cross-Coupling Reactions*” 4/16-4/21.
- National Institutes of Health: 1R01GM110131. “*Stereoselective Reactions for the Chemical Synthesis of Bioactive Compounds.*” 7/15-7/19.
- National Institutes of Health: 1R01GM114443. “*Development of New Catalytic Reactions for Chemical Synthesis.*” 4/15-4/20.
- Sloan Foundation Fellowship. 9/15-9/18
- American Chemical Society, Petroleum Research Fund: “*Cu-Catalyzed Vicinal Dicarbofunctionalization of Simple Alkenes.*” 7/14-7/16

PUBLICATIONS

INDEPENDENT CAREER:

- 41) “Evolution of a Strategy for the Enantioselective Synthesis of (-)-Cajanusine”
Renyu Guo, Brittany P. Witherspoon, and M. Kevin Brown* *J. Am. Chem. Soc.* **2020**, *ASAP*

- 40) "Lessons in Strain and Stability: An Enantioselective Synthesis of (+)-[5]-Ladderanoic Acid" Erin N. Hancock, Erin L. Kuker, Dear J. Tantillo and M. Kevin Brown* *Angew. Chem. Int. Ed.* **2020**, *59*, 436
- 39) "Ni-Catalyzed 1,2-Benzylboration of 1,2-Disubstituted Unactivated Alkenes" Seewon Joung, Allison M. Bergmann and M. Kevin Brown* *Chem. Sci* **2019**, *10*, 10944.
- 38) "Nickel-Catalyzed Arylboration of Alkenylarenes: Synthesis of Boron-Substituted Quaternary Carbons and Regiodivergent Reactions" Liang-An Chen, Alan R. Lear, Dr. Pin Gao, and M. Kevin Brown* *Angew. Chem. Int. Ed.* **2019**, *58*, 10956.
- 37) "Regioselective Arylboration of 1,3-Butadiene" Allison M. Bergmann, Stephen R. Sardini, Kevin B. Smith. *Isr. J. Chem.* **2019** (Special issue to honor Professors Buchwald's and Hartwig's receipt of the Wolf Prize)
- 36) "(Hetero)arylboration of Alkynes: A Strategy for the Synthesis of a,a-bis(hetero)arylktones" Yuan Huang, Allison M. Bergmann and M. Kevin Brown. *Org. Biomol. Chem.* **2019**, *17*, 5913 (Special issue for Trends in Organoboron Chemistry)
- 35) "Thioallenoates in Catalytic Enantioselective [2+2]-Cycloadditions with Unactivated Alkenes" Michael L. Conner, Johannes M. Wiest, and M. Kevin Brown* *Tetrahedron* **2019**, *75*, 3625. (Special issue to honor Professor Ryan Shenvi's receipt of the Tetrahedron Young Investigator Award)
- 34) "Ni-Catalyzed Arylboration of Unactivated Alkenes: Scope and Mechanistic Studies" Stephen R. Sardini, Alison L. Lambricht, Grace L. Trammel, Humair M. Omer, Peng Liu,* and M. Kevin Brown* *J. Am. Chem. Soc.* **2019** *141*, 9391.
- 33) "Synthesis of Biheteroarylalkanes by Heteroarylboration: Development and Application of a Pyridylidene-Cu Complex" Yuan Huang and M. Kevin Brown* *Angew. Chem. Int. Ed.* **2019** *58*, 6048.
- 32) "Recent Advances in the Synthesis of gem-Dimethylcyclobutane Natural Products" Erin N. Hancock, Johannes M. Wiest and M. Kevin Brown* *Nat. Prod. Rep.* **2019**, *36*, 1383

- 31) "Catalyst-Controlled 1,2- and 1,1-Arylboration of α -Alkyl Alkenylarenes" Allison M. Bergman, Stanna K. Dorn, Kevin B. Smith, Kaitlyn M. Logan and M. Kevin Brown* *Angew. Chem. Int. Ed.* **2019** 58, 1719.
- 30) "Allenoates in Enantioselective [2+2] Cycloadditions: From a Mechanistic Curiosity to a Stereospecific Transformation" Johannes M. Wiest, Michael L. Conner and M. Kevin Brown* *J. Am. Chem. Soc.* **2018** 140, 15943.
- 29) "Nickel-Catalyzed Stereoselective Diarylation of Alkenylarenes" Pin Gao, Liang-An Chen and M. Kevin Brown* *J. Am. Chem. Soc.* **2018** 140, 10653.
- 28) "Copper-Catalyzed Cross-Coupling of Aryl-, Primary Alkyl-, and Secondary Alkylboranes with Heteroaryl Bromides" Allison M. Bergmann, Adam M. Oldham Wei You and M. Kevin Brown* *Chem. Commun.* **2018** 54, 5381.
- 27) "Copper-Catalyzed Heteroarylboration of 1,3-Dienes with 3-Bromopyridines by an Unusual Cine-Substitution" Kevin B. Smith, Yuan Huang and M. Kevin Brown* *Angew. Chem. Int. Ed.* **2018** 57, 6146.
- 26) "Synthesis of (-)-Hebelophyllene E: An Entry to geminal Dimethylcyclobutanes by [2+2] Cycloaddition of Alkenes and Allenoates" Johannes M. Wiest, Michael L. Conner and M. Kevin Brown* *Angew. Chem. Int. Ed.* **2018** 57, 4647.
- 25) "Nickel-Catalyzed Stereoselective Arylboration of Unactivated Alkenes" Kaitlyn M. Logan, Stephen R. Sardini, Sean D. White and M. Kevin Brown* *J. Am. Chem. Soc.* **2018**, 140, 159-162.
- 24) "Synthesis of *ent*-[3]-Ladderanol: Development and Application of Intramolecular Chirality Transfer [2+2] Cycloadditions of Allenic Ketones and Alkenes" Nathan J. Line, Brittany P. Witherspoon, Erin N. Hancock and M. Kevin Brown* *J. Am. Chem. Soc.* **2017**, 139, 14392-14395
- 23) "Cu-Catalyzed Borylacylation of Activated Alkenes with Acid Chlorides" Yuan Huang, Kevin B. Smith and M. Kevin Brown* *Angew. Chem. Int. Ed.* **2017**, 56, 13314
- 22) "Catalyst Controlled Regiodivergent Arylboration of Dienes" Stephen R. Sardini and M. Kevin Brown* *J. Am. Chem. Soc.* **2017**, 139, 9823

- 21) "Intramolecular Chirality Transfer [2+2] Cycloaddition of Allenates and Alkenes" Yao Xu, Dean J. Tantillo and M. Kevin Brown* *Org. Lett.* **2017**, *19*, 3703
- 20) "Regioselective Arylboration of Isoprene and its Derivatives by Cu/Pd Cooperative Catalysis" Kevin B. Smith and M. Kevin Brown* *J. Am. Chem. Soc.* **2017**, *139*, 7721
- 19) "Catalytic Enantioselective Arylboration of Alkenylarenes" Kaitlyn M. Logan and M. Kevin Brown* *Angew. Chem. Int. Ed.* **2017**, *56*, 851
- 18) "Bringing Organic Chemistry to the Public: Structure and Scent in a Science Museum" M. Kevin Brown* and Laura C. Brown* *J. Chem. Ed.* **2017**, *94*, 251
- 17) "Synthesis of Cyclobutanes by Lewis Acid-Promoted Ketene-Alkene [2+2] Cycloadditions" Christopher M. Rasik, Eleni M. Salyers and M. Kevin Brown* *Org. Syn.* **2016**, *93*, 401
- 16) "Synthesis of 1,3-Substituted Cyclobutanes by Allenate Alkene [2+2] Cycloaddition" Michael L. Conner and M. Kevin Brown* *J. Org. Chem.* **2016**, *81*, 8050
- 15) "An Unexpected Lewis Acid Catalyzed Diels-Alder Cycloaddition of Aryl Allenes and Acrylates" Michael L. Conner and M. Kevin Brown* *Tetrahedron*, **2016**, *72*, 3759. (*Special issue to honor Professor Neil Garg's receipt of the Tetrahedron Young Investigator Award*)
- 14) "Collaborative Total Synthesis: Routes to Hippolachnin A Enabled by Quadricyclane Cycloaddition and Late-Stage C-H Oxidation" Monica E. McCallum, Christopher M. Rasik, John L. Wood,* and M. Kevin Brown* *J. Am. Chem. Soc.* **2016**, *138*, 2437
- 13) "Lewis Acid-Promoted [2+2] Cycloadditions of Alkenes with Aryl Ketenes" Emily M. Rigsbee, Chen Zhou, Christopher M. Rasik, Adam Z. Spitz, Adam J. Nichols and M. Kevin Brown* *Org. Biomol. Chem.* **2016**, *14*, 5477. (*Invited Submission for "New Talent Issue"*)
- 12) "Catalytic Enantioselective Diarylation of Alkenes" Wei You and M. Kevin Brown* *J. Am. Chem. Soc.* **2015** *137*, 14578

- 11) "Cyclobutane and Cyclobutene Synthesis by Catalytic Enantioselective [2+2] Cycloaddition" Yao Xu and Michael L. Conner and M. Kevin Brown* *Angew. Chem. Int. Ed.* **2015**, *54*, 11918 (*Angew. Chem. MiniReview*)
- 10) "Catalytic Enantioselective Allene-alkene [2+2] Cycloadditions," Michael L. Conner, Yao Xu and M. Kevin Brown* *J. Am. Chem. Soc.* **2015** *137*, 3482
- 9) "Syn- and Anti-Selective Carboboration of Alkenes Achieved by Cu/Pd-Synergistic Catalysis," Kaitlyn M. Logan, Kevin B. Smith and M. Kevin Brown* *Angew. Chem. Int. Ed.* **2015**, *54*, 5228
- 8) "Diarylation of Alkenes by a Cu-Catalyzed Migratory Insertion/Cross Coupling Cascade," Wei You, and M. Kevin Brown* *J. Am. Chem. Soc.* **2014**, *136*, 14730
- 7) "Total Synthesis of Gracilioether F: Development and Applications of Lewis Acid-Promoted Ketene-Alkene [2+2]-Cycloadditions and Late Stage C-H Oxidation," Christopher M. Rasik and M. Kevin Brown* *Angew. Chem. Int. Ed.* **2014**, *53*, 14522
- 6) "Origins of Diastereoselectivity in Lewis Acid-Promoted Ketene-Alkene [2+2] Cycloadditions," Christopher M. Rasik, Young J. Hong, Dean J. Tantillo,* and M. Kevin Brown* *Org. Lett.* **2014**, *16*, 5168
- 5) "Alkene Carboboration Enabled by Synergistic Catalysis," Kevin B. Smith, Kaitlyn M. Logan, Wei You and M. Kevin Brown* *Chem. Eur. J.* **2014**, *20*, 12032
- 4) "Copper-Catalyzed Cross-Coupling of Aryl Boronic Esters with Aryl Iodides and Application to a Carboboration of Alkynes and Allenes," Yiqing Zhou, Wei You, Kevin P. Smith and M. Kevin Brown* *Angew. Chem., Int. Ed.* **2014**, *53*, 3475
- 3) "Intermolecular Ketene-Alkene [2+2] Cycloadditions: The Significance of Lewis Acid-Promoted Variants," Christopher M. Rasik and M. Kevin Brown* *Synlett.* **2014**, *25*, 760 (*Invited Synfact Review*)
- 2) "Stereoselective Synthesis of All-Carbon Tetrasubstituted Alkenes from *In Situ* Generated Ketenes and Organometallic Reagents," Wei You, Yan Li and M. Kevin Brown* *Org. Lett.* **2013** *15*, 1610

- 1) "Lewis Acid-Promoted Ketene-Alkene [2+2] Cycloadditions," Christopher M. Rasik and M. Kevin Brown* *J. Am. Chem. Soc.* **2013**, *135*, 1673

GRADUATE AND POSTDOCTORAL STUDIES:

- 8) "Mechanism of the Enantioselective Oxidation of Racemic Secondary Alcohols Catalyzed by Chiral Mn(III)-Salen Complexes," M. Kevin Brown, Megan M. Blewett, James R. Colombe and E. J. Corey, *J. Am. Chem. Soc.* **2010**, *132*, 11165
- 7) "Catalytic Enantioselective Formation of Chiral-Bridged Dienes Which Are Themselves Ligands for Enantioselective Catalysis," M. Kevin Brown and E. J. Corey, *Org. Lett.* **2010**, *11*, 172
- 6) "Enantioselective Total Synthesis of Clavirolide C. Applications of Cu-Catalyzed Asymmetric Conjugate Additions and Ru-Catalyzed Ring-Closing Metathesis," M. Kevin Brown and Amir H. Hoveyda, *J. Am. Chem. Soc.* **2008**, *130*, 12904
- 5) "Enantioselective Synthesis of All-Carbon Quaternary Stereogenic Centers by Catalytic Asymmetric Conjugate Additions of Alkyl and Aryl Aluminum Reagents to Five-, Six-, and Seven-Membered-Ring β -Substituted Cyclic Enones," Tricia L. May, M. Kevin Brown and Amir H. Hoveyda, *Angew. Chem., Int. Ed.* **2008**, *46*, 7358
- 4) "Highly Site- and Enantioselective Cu-Catalyzed Allylic Alkylation Reactions with Easily Accessible Vinylaluminum Reagents," Yunmi Lee, Katsuhiko Akiyama, Dennis G. Gillingham, M. Kevin Brown and Amir H. Hoveyda, *J. Am. Chem. Soc.* **2008**, *130*, 446
- 3) "All-Carbon Quaternary Stereogenic Centers by Enantioselective Cu-Catalyzed Conjugate Additions Promoted by a Chiral *N*-Heterocyclic Carbene," M. Kevin Brown, Tricia L. May, Carl A. Baxter and Amir H. Hoveyda *Angew. Chem., Int. Ed.* **2007**, *46*, 1097
- 2) "A Practical Method for Enantioselective Synthesis of All-Carbon Quaternary Stereogenic Centers through NHC-Cu-Catalyzed Conjugate Additions of Alkyl- and Arylzinc Reagents to β -Substituted Cyclic Enones," Kang-sang Lee, M. Kevin Brown, Alexander W. Hird and Amir H. Hoveyda *J. Am. Chem. Soc.* **2006**, *128*, 7182
- 1) "Highly Enantioselective Cu-Catalyzed Conjugate Additions of Dialkylzinc Reagents to Unsaturated Furanones and Pyranones. Preparation of Air Stable and Catalytically Active Cu-Peptide Complexes," M. Kevin Brown, Sylvia J. Degrado and Amir H. Hoveyda *Angew. Chem., Int. Ed.* **2005**, *44*, 5306