Jeffrey B. Johnson

Department of Chemistry
Hope College
Holland, MI 49422
Phone: (616)-395-7083
jjohnson@hope.edu

Professional Experience

Professor of Chemistry, Hope College, Holland, MI — July 2018 - Present
- Schaap Research Fellow — Oct 2013 – Present
- Department Chair — July 2024 – Present
- Interim Department Chair — Jan 2022 – July 2022

Member, Editorial Board, *Organic Reactions* — January 2018 – Present

Associate Professor of Chemistry, Hope College — July 2013 – June 2018

Assistant Professor of Chemistry, Hope College — July 2007 – June 2013
- Towsley Research Scholar — Nov 2009 – Aug 2013

Postdoctoral Fellow — Jan 2005 – July 2007
NIH Postdoctoral Fellow (2006 – 2007)
Colorado State University, Fort Collins, CO
Prof. Tomislav Rovis

Enantioselective desymmetrization of meso carboxylic anhydrides – use in natural product synthesis
Development of carbon dioxide fixation methodology

Referee for over a dozen journals, including:
Journal of the American Chemical Society, Chemical Society Reviews, Chemical Communications, Journal of Organometallic Chemistry, Tetrahedron Letters, Organic and Biomolecular Chemistry, Nature: Chemistry, *Organometallics, Synthesis, Organic Letters, ACS Catalysis*

Reviewer for several granting agencies, including:
National Science Foundation, American Chemical Society Petroleum Research Fund, Research Corporation, Murdoch Trust

Education

Ph. D. in Chemistry — Sept 2000 – Dec 2004
University of Wisconsin-Madison
Advisor: Prof. Charles P. Casey
Thesis Title: Analysis of a Hydroxycyclopentadienyl Ruthenium Hydride Ligand-Metal Bifunctional Catalyst: Reactivity, Mechanistic Studies and the Development of More Active and Selective Catalysts

B.A. in ACS Chemistry (*Magna cum laude*) — Sept 1996 – May 2000
Gustavus Adolphus College, St. Peter, MN
Advisor: Prof. Brian A. O'Brien

Supervised Research Experience

Doctoral Research
University of Wisconsin-Madison with Prof. Charles P. Casey — Sept 2000 – Dec 2004

Reaction mechanism elucidation of hydrogenation catalysis through kinetic and isotopic labeling studies
Development of more active and selective hydrogenation catalysts

Stockholm University, Stockholm, Sweden with Prof. Jan-E. Bäckvall — April – July 2001

Mechanistic elucidation of alcohol dehydrogenation reaction

Undergraduate Research
Gustavus Adolphus College with Prof. Brian A. O'Brien Feb 1998 – May 2000
Includes Moissan Summer Undergraduate Research Fellowship (ACS Fluorine Division)

Development of synthetic route to primary alkyl phosphines via phospha-Gabriel reaction

Colorado State University with Prof. Frank R. Stermitz June – Aug 1999
National Science Foundation-Research Experience for Undergraduates

Synthesis of analogues of naturally occurring flavonolignans for testing of biological activity

Honors and Awards

Vanderbush-Weller Award for "extraordinary contributions to lives of students" (Hope College), 2022

Janet Anderson Excellence in Teaching Award (Hope College), 2020

Thieme Chemistry Journal Award, 2018

Named a Fellow of the American Association for Advancement of Science, 2017

Selected by Hope College Chapter of Mortar Board to give "Last Lecture", December 2016

Ruth and John Reed Faculty Achievement Award (Hope College), 2016

Henry Dreyfus Teacher Scholar Award, 2015

Research Corporation Cottrell Scholar, 2015 (Retroactive to Class of 2008)

Inaugural Hope College Schaap Research Fellow, Hope College, 2013 – 2023 (renewable)

NSF Faculty Early CAREER Development Award, 2012-2017

Selected for Young Academic Investigators Symposium, 244th ACS National Meeting, Philadelphia, PA, August 21, 2012. Only representative (of 16) from a Primarily Undergraduate Institution.

Men in Mentoring Award from Michigan State Sen. Wayne Kuipers, May 2010

Hope College Towsley Research Scholar, 2009 – 2013

Research Corporation Cottrell College Science Award, 2009

Camille and Henry Dreyfus Faculty Start-Up Award, 2007

ACS Organic Division Graduate Fellow – Emmanuil Troyansky Fellowship, 2003 – 2004

McElvain Scholarship (University of Wisconsin), 2000 – 2001

Phi Beta Kappa, inducted 1999

Barry M. Goldwater Scholar, 1999 – 2000

Sigma Xi, inducted 1999

National Merit Scholar, 1996 – 2000

Research Mentor

To date, 124 students have participated in research within the Johnson Lab, accounting for a cumulative 361 semesters/summer of active research.

Students include: 106 Hope College Undergraduates

- *17 students from underrepresented populations*
- *23 external students*
- *12 high school students*

Of the 111 college graduates to date:

- 43 enrolled in graduate school for chemistry (28 PhD, 2 MS to date) – at MIT, Princeton, UC-Irvine, Wisconsin, Michigan, Columbia, Duke, North Carolina, Rochester, Georgia, Chicago, Emory, Auckland, Indiana, Notre Dame, Michigan State, UC-Davis, Illinois, Penn State, Colorado State

- 20 enrolled in medical school (8 MDs, 1 DO to date) – at Michigan, Michigan State, Minnesota, Kirksville, Rush, Cincinnati, Western Michigan

- 7 enrolled in dental school (6 DDSs to date) – at Michigan, Marquette, Detroit Mercy, Ohio State University

- 2 enrolled in optometry school

- 4 enrolled in graduate school for education (all teaching middle or high school science) – Teach for America, Teach Kentucky, Notre Dame, Purdue

- 1 enrolled in law school (IUPUI)

- 28 are currently employed in the chemical industry

Students have combined to give 393 research presentations, including 93 at regional meetings and 49 at national conferences.

Notable External Awards Received by Undergraduate Research Students

NSF Predoctoral Fellowship (11 Fellows, 7 honorable mentions)
2023 – Claire J. Benedict
2023 – Erik Schoonover (Honorable Mention)
2022 – Ethan M. Heyboer
2021 and 2023 – Jacob P. VanderRoest (Honorable Mention)
2019 – Rebecca L. Johnson
2019 – Jordi Rivera-Prince
2016 – Caitlin V. Kozack
2016 – Megan R. Kwiatkowski (Honorable Mention)
2015 – Joseph M. Dennis
2014 – James R. Bour (also Honorable Mention 2013)
2014 – Joseph J. Gair (also Honorable Mention 2013)
2013 – J. Patrick Lutz (also Honorable Mention 2012)
2012 – Colin M. Rathbun
2011 – Valerie J. Winton

Barry Goldwater Scholarship (4 Scholars, 4 Honorable Mention)
2022 – Claire J. Benedict
2020 – Jacob P. VanderRoest
2016 – Kathryn N. Trentadue
2014 – Caitlin V. Kozack (Honorable Mention)
2013 – Amanda Witte (Calvin College, Honorable Mention)
2011 – J. Patrick Lutz (Honorable Mention)
2011 – Colin M. Rathbun
2010 – Valerie J. Winton (Honorable Mention)

Fulbright Fellowship
2023 – Claire J. Benedict

Teaching Experience

Instructor.	Organic Chemistry I (CSU, Hope)	2006 – Present
	Organic Chemistry II (Hope)	2008 – Present
	Organic Chemistry Laboratory I (Hope)	2007 – Present
	Organic Chemistry Laboratory II (Hope)	2008 – Present
	Structure, Synthesis and Dynamics I (Hope)	2009 – 2020

Organometallics (Hope)	2022 – Present
Organic Reaction Mechanisms	2022 - Present
Inorganic Chemistry (Hope)	2010 – Present
Introduction to Biological Chemistry (Hope)	2024
Senior Seminar (Hope)	2017 – Present
First Year Seminar (Hope)	Fall 2012

Instructor. General Chemistry Review for MCAT (The Princeton Review) 2003 – 2004

Substitute lecturer. Undergraduate organic chemistry (CSU)	2005 – 2007
Graduate level organometallics (UW, CSU)	2003 – 2007

Notable Hope College Service Activities

Department Chair, Chemistry	July 2024 - present
Hope College Administrative Affairs Board	2021-24, 2022-23 (chair)
Hope College Faculty Handbook ad hoc Committee	2021-2025
Hope College Health Professions Advisory Committee	2010-present, 2022-present (chair)
Interim Department Chair, Chemistry	Spring 2022
Chemistry Department Summer Research Coordinator	2019, 2020
Beckman Scholars Program Administrator	2015-18, 2021-present
Hope College Boerigter Transition Team	2017-18
Hope College Chemistry Department Faculty/Staff Search Committee	Fall 2009, Fall 2012, Fall 2014 (chair), Fall 2015 (chair) Fall 2018 (chair), Fall 2019 (chair), Spring 2022 (chair), Fall 2022
Hope College Committee on Admissions and Financial Aid	2018-19 (chair)
Hope College Academic Affairs Board	2014-2017, 2016-17 (chair)
Hope College Committee on Experiential Learning	2016-17 (chair)
Hope College Curriculum Committee	2014-16 (chair)
Hope College Strategic Planning Subcommittee	2014
Hope College Chemistry Department Safety Committee	2012-16
Hope College Chemistry Department Seminar Coordinator	2013-14, 2017-18
Hope College Grievance Committee	2019-20
Advisor, Hope College Chemistry Club/ACS Student Affiliates Chapter	2008-17
Advisor, Hope College Alpha Phi Omega Service Fraternity	2015-19
Hope College Judicial Board	2009-13

External Grant Support (at Hope College)

ACS-PRF. “Avoiding Protodeboronation: Using β-carbon Elimination to Generate Organometallics for Cross-Coupling Reactions” $70,000, 09/01/2024-08/30/2027. Awarded 6/2024.

Organic Syntheses Inc. Grant for Summer Research at a Primarily Undergraduate Institution. “Ketone Decarbonylation for the Traceless formation of Alkyl Arenes”, $16,000, 05/15/2023-08/15/2024. Awarded 02/2023.

Arnold and Mabel Beckman Foundation “A Beckman Scholar’s Program at Hope College”, $104,000, 05/15/2021 – 05/14/2024. (co-PI with Prof. Jason Gillmore). Awarded 2/2021.

Cottrell Instrument Supplements Grant "Into the Future — Updating a GC and GC/MS Instrumentation Suite at Hope College to Extend Instrument Life and Improve Network Security", $11,990. Awarded 8/2020.

NSF-RUI “RUI: Carbon-carbon single bond activation as a route to new organic transformations”, $273,855, 09/01/2018 – 08/31/2022 (NCE). Awarded 5/2018.

Organic Syntheses, Inc. Grant for Summer Research at an Undergraduate Institution, $8,000, 05/15/2018 – 08/15/2018. Awarded 1/2018.

Henry Dreyfus Teacher-Scholar Award “Carbon-Carbon Single Bond Activation: Mechanistic Understanding Leading to New Methodologies”, $60,000, 08/15/2015 – 08/14/2020. Awarded 8/2015.

Arnold and Mabel Beckman Foundation "A Beckman Scholar's Program at Hope College", $104,000, 05/15/2015 – 05/14/2018. (co-PI with Prof. Aaron Best). Awarded 2/2015.

NSF-CAREER: "Carbon-Carbon Single Bond Activation – Mechanistic Comparisons and Reaction Development" $400,000, 09/01/2012 – 08/31/2018 (NCE). Awarded 1/2012.

Moissan Summer Undergraduate Research Fellowship – ACS Division of Fluorine Chemistry, "The Role of Fluorine in the Stabilization of Pd-Aryl Intermediates" $3500, 05/15/2011 – 07/30/2011. Awarded 3/2011.

Younger Chemists Committee, CIBA Young Scientist Travel Award for attendance at the 241st National Meeting of the American Chemical Society, March 2011. $500. Awarded 1/2011.

ACS-PRF – Undergraduate New Investigator, "Toward Greater Understanding and Expanded Utility of the Palladium-Catalyzed Activation of Carbon-Carbon Single Bonds" $50,000, 09/01/2010 – 08/30/2012. Awarded 6/2010.

ACS Division of Organic Chemistry Faculty Travel Award for attendance of the 41st National Organic Symposium, June 2009. $600. Awarded 5/2009.

National Science Foundation – Major Research Instrumentation, "NSF-MRI: Acquisition of a Remotely-Accessible 400 MHz Spectrometer" $416,767, 09/01/2009 – 08/30/2012. co-PI: Moses Lee. Awarded 8/2009.

Eli Lilly, "Origin of Stereoselectivity in a Gilman Addition to an α,β-Unsaturated Ester" $5,000, 06/01/2009 – 05/31/2010. Awarded 5/2009.

Research Corporation Cottrell College Science Award, "Carbon-Carbon Single Bond Activation for the Carboacylation of Alkenes" $60,072, 2009-2010. Awarded 10/2008.

Camille and Henry Dreyfus Faculty Start-Up Award, "Development of Carbon-Carbon Bond Activation and Functionalization Methodology" $30,000, 2007-2012. Awarded 8/2007.

Hope College Support

Schaap Research Fellow, unrestricted research endowment, $10,000–15,000 per year 10/2013 – 6/2018 (eligible for renewal). Awarded 10/13. Renewed for 7/2018 – 6/2023 and 7/2023 – 6/2028.

Towsley Research Scholar Program "Carbon-Carbon Bond Activation: Mechanistic Elucidation and New Methods for Carbon Dioxide Fixation" $16,000 + semester sabbatical (spring 2011), 1/1/2010 – 12/30/2013. Awarded 11/09.

Affiliations

American Chemical Society, 1999 – Present

Organic, Inorganic and Fluorine Divisions

Phi Beta Kappa, 1999 – Present

American Association for the Advancement of Science, 2000 – Present

Sigma Xi, 2000 – Present

Council of Undergraduate Research, 2010 – Present

Midwest Association of Chemistry Teachers at Liberal Arts Colleges, 2011 - Present

Independent Publications *(undergraduate coauthors are underlined)*

12) Wagner, Cole, J.; Salisbury, Eric. A.; Schoonover, Erik J.; VanderRoest, Jacob V.; Johnson, Jeffrey B. "Pyridine-directed carbon-carbon single bond activation: Rhodium-catalyzed decarbonylation of aryl and heteroaromatic ketones." *Tetrahedron Lett.* **2021**, *73*, 153123. https://doi.org/10.1016/j.tetlet.2021.153132

11) Heyboer, Ethan M.; Johnson, Rebecca L.; Kwiatkowski, Megan R.; Pankratz, Trey C.; Yoder, Mason C.; DeGlopper, Kimberly S.; Ahlgrim, Grace C.; Dennis, Joseph M.; Johnson, Jeffrey B. "Nickel-Mediated Cross-Coupling of Boronic Acids and Phthalimides for the Synthesis of *Ortho*-Substituted Benzamides" *J. Org. Chem.* **2020**, *85*. 3757-3765. DOI: 10.1021/acs.joc.9b03396

10) Gregerson, Caroline E.; Trentadue, Kathryn N.; Phipps, E. J. T.; Kirsch, J. K.; Reed, Katherine M.; Dyke, Gabriella D.; Jansen, Jacob H.; Otteman, Christian B.; Stachowski, Jessica L.; Johnson, Jeffrey B. "Oxidative Coupling of Michael Acceptors with Aryl Nucleophiles produced through Rhodium-Catalyzed C-C Bond Activation" *Org. Biomol. Chem.* **2017**, *15*, 5944-5948. DOI: 10.1039/C7OB01212H

9) Dennis, Joseph M.; Compagner, Chad T.; Dorn, Stanna K.; Johnson, Jeffrey B. "Rhodium-Catalyzed Interconversion of Quinolinyl Ketones with Boronic Acids via C-C Bond Activation" *Org. Lett.* **2016**, *18*, 3334-3337. DOI: 10.1021/acs.*orglett*.6b01434

8) DeGlopper, Kimberly S.; Fodor, Sarah K.; Endean, Thomas B. D.; Johnson, Jeffrey B. "Decarbonylative Cross Coupling of Phthalimides with Diorganozinc Reagents—Efforts Toward Catalysis", *Polyhedron*. **2016**, *114*, 393-398. Invited submission for special issue on "Undergraduate Research in Inorganic Chemistry". DOI: 10.1016/j.poly.2016.02.017

7) DeGlopper, Kimberly S.; Dennis, Joseph M.; Johnson, Jeffrey B. "Efficient access to 3-substituted-γ-hydroxylactams: the uncatalyzed addition of diorganozinc reagents to cyclic imides with heterocyclic substitution" *Tetrahedron Lett.* **2014**, *55*, 1843-1845. DOI: 10.1016/j.tetlet.2014.01.130.

6) Dennis, Joseph M.; Calyore, Catherine M.; Sjoholm, Jessica S.; Lutz, J. Patrick; Gair, Joseph G.; Johnson, Jeffrey B.; "Nickel-Catalyzed Direct Addition of Diorganozinc Reagents to Phthalimides: Selective Formation of Gamma-Hydroxylactams" *Synlett*, **2013**, *24*, 2567-2570. DOI: 10.1055/s-0033-1338576.

5) Bour, James R.; Green, Jacob C.; Winton, Valerie J.; Johnson, Jeffrey B. "Steric and electronic effects influencing β-aryl elimination in the Pd-catalyzed carbon-carbon single bond activation of triarylmethanols." *J. Org. Chem.* **2013**, *78*, 1665-1669. DOI: 10.1021/jo302592g

4) Lutz, J. Patrick.; Rathbun, Colin M.; Stevenson, Susan M.; Powell, Breanna M.; Boman, Timothy S.; Baxter, Casey E. Zona, John M.; Johnson, J. B. "The Rate Limiting Step of the Rh-Catalyzed Carboacylation of Alkenes: C-C Bond Activation or Migratory Insertion?" *J. Am. Chem. Soc.* **2012**, *134*, 715-722. DOI: 10.1021/ja210307s

3) Havlik, Sarah E.; Simmons, Jessica M.; Winton, Valerie J.; Johnson, Jeffrey B. "Nickel-Mediated Decarbonylative Cross-Coupling of Phthalimides with *in situ* Generated Diorganozinc Reagents" *J. Org. Chem.* **2011**, *76*, 3588-3593. DOI: 10.1021/jo200347j

2) Rathbun, Colin M.; Johnson, Jeffrey B. "Rhodium-Catalyzed Acylation with Quinolinyl Ketones: Carbon-Carbon Single Bond Activation as the Turnover Limiting Step of Catalysis" *J. Am. Chem. Soc.* **2011**, *133*, 2031-2033. DOI: 10.1021/ja109686v

1) Higgins, Thomas B.; Brown, Kenneth L.; Gillmore, Jason G.; Johnson, Jeffrey B.; Peaslee Graham F.; Stanford, Daniel J. "Successful Student Transitions from the Community College to the Four-Year College Facilitated by Undergraduate Research" *Council of Undergraduate Research Quarterly*, **2011**, *31 (3)*, 16.

Edited Volumes

2) Chmielewski, Marek; Kutaszewicz, Rafał; Ulikowski, Artur; Michalak, Michał; Wołosewicz, Karol; Stecko, Sebastian; Furman, Bartłomiej. Edited by Johnson, Jeffrey B. "The Kinugasa Reaction." In *Organic Reactions*. **2024**, Vol. 114, pp. 223-506.

1) Nicholas, Kenneth M.; Green, James, R. Edited by Johnson, Jeffrey B. "Propargylic Coupling Reactions via Bimetallic Alkyne Complexes: the Nicholas Reaction." In *Organic Reactions*, **2020**, Vol. 103, pp. 931-1326.

Supervised Publications

19) Casey, C. P.; Johnson, J. B.; Jaio, X.; Beetner, S. E.; Singer, Steven W. "Chain Mechanism for Exchange of D_2 with a Ruthenium Hydride." *Chem. Commun.* **2010**, *46*, 7915.

18) Johnson, J. B.; Cook, M. J.; Rovis, T. "Ligand Differentiated Complementary Rh-Catalyst Systems for the Enantioselective Desymmetrization of *meso*-Cyclic Anhydrides." *Tetrahedron* **2009**, *65*, 3202-3210.

17) Williams, C. M.; Johnson, J. B.; Rovis, Tomislav "Ni-Catalyzed Reductive Carboxylation of Styrenes Using CO_2." *J. Am. Chem. Soc.* **2008**, *130*, 14936-14937.

16) Johnson, J. B.; Rovis, T. "Enantioselective Cross-Coupling of Anhydrides with Organozinc Reagents: The Controlled Formation of Carbon-Carbon Bonds through the Nucleophilic Interception of Metalacycles." *Acc. Chem. Res.* **2008**, *41*, 327-338.

15) Casey, C. P.; Beetner, S. E.; Johnson, J. B. "Determination of the Active Catalytic Species via Reaction Modeling and *in situ* IR Spectroscopy During Carbonyl Reduction with Shvo's Hydroxycyclopentadienyl Ruthenium Hydrogenation Catalyst." *J. Am. Chem. Soc.* **2008**, *130*, 2285-2295.

14) Johnson, J. B.; Rovis, T. "More than Bystanders: The Effects of Olefins on Transition Metal Catalyzed Cross-Coupling Reactions." *Angew. Chem. Int. Ed.* **2008**, *47*, 840-871. *Angew. Chem.* **2008**, *120*, 852-884.

13) Johnson, J. B.; Bercot, E. A.; Williams, C. M.; Rovis, T. "Enantioselective Anhydride Desymmetrization with *in situ* Formed Arylzinc Reagents: A Concise Synthesis of Eupomatilones 4, 6, and 7." *Angew. Chem. Int Ed.* **2007**, *46*, 4514-4518. *Angew. Chem.* **2007**, *119*, 4598-4503.

12) Johnson, J. B.; Bercot, E. A.; Rowley, J. M.; Coates, G. W.; Rovis, T. "Ligand Dependent Catalytic Cycle and Role of Styrene in Nickel-Catalyzed Anhydride Cross-Coupling: Evidence for Turnover Limiting Reductive Elimination." *J. Am. Chem. Soc.* **2007**, *129*, 2718-2725.

11) Johnson, J. B.; Yu, R., T.; Fink, P.; Bercot, E. A.; Rovis, T. "Ligand Dependent Transfer from Mixed Zinc Reagents in Ni-Catalyzed Anhydride Alkylation." *Org. Lett.* **2006**, *8*, 4307-4310.

10) Casey, C. P.; Strotman, N. A.; Beetner, S. E.; Johnson, J. B.; Priebe, D. C.; Vos, T. E.; Khodavandi, B.; Guzei, I. A. "The PPh_3 Substituted Hydroxycyclopentadienyl Ruthenium Hydride [2,5-Ph_2-3,4-Tol_2(η^5-C_4COH)]Ru(CO)(PPh_3)H is a More Efficient Catalyst Hydrogenation of Aldehydes." *Organometallics* **2006**, *25*, 1230-1235.

9) Casey, C. P.; Strotman, N. A.; Beetner, S. E.; Johnson, J. B.; Priebe, D. C.; Guzei, I. A. "Slower Stoichiometric and Faster Catalytic Reduction of Aldehydes by [2,5-Ph_2-3,4-Tol_2(η^5-C_4COH)]Ru(CO)(PPh_3)H: A Highly Chemoselective Catalyst for Hydrogenation of Aldehydes over Ketones." *Organometallics* **2006**, *25*, 1236-1244.

8) Casey, C. P.; Johnson, J. B. "Kinetic Isotope Effect Evidence for the Concerted Transfer of Hydride and Proton from Hydroxycyclopentadienyl Ruthenium Hydride in Solvents of Different Polarities and Hydrogen Bonding Ability." *Can. J. Chem.* **2005**, *83*, 1339-1346. *Invited Contribution for a Special Issue on Organic Reaction Mechanisms*.

7) Casey, C. P.; Johnson, J. B.; Singer, S. W.; Cui, Q. "Hydrogen Elimination from a Hydroxycyclopentadienyl Ruthenium(II) Hydride: Study of Hydrogen Activation in a Ligand-Metal Bifunctional Hydrogenation Catalyst." *J. Am. Chem. Soc.* **2005**, *127*, 3100-3109.

6) Casey, C. P.; Johnson, J. B. "Isomerization and Deuterium Scrambling Evidence for a Change in Rate Limiting Step During Imine Hydrogenation by Shvo's Hydroxycyclopentadienyl Ruthenium Hydride." *J. Am. Chem. Soc.* **2005**, *127*, 1883-1894.

5) Casey, C. P.; Johnson, J. B. "Kinetic Isotope Effect Evidence for a Concerted Hydrogen Transfer Mechanism in Transfer Hydrogenations Catalyzed by [*p*-(Me_2CH)C_6H_4Me] Ru(NHCHPhCHPhN$SO_2C_6H_4$-*p*-CH_3)." *J. Org. Chem.* **2003**, *68*, 1998-2001.

4) Johnson, J. B.; Bäckvall, J.-E. "Mechanism of Ruthenium-Catalyzed Hydrogen Transfer Reactions. Concerted Transfer of OH and CH Hydrogens from an Alcohol to a (Cyclopentadienone)ruthenium Complex." *J. Org. Chem.* **2003**, *68*, 7681-7684.

3) Èll, A., H.; Johnson, J. B.; Bäckvall, J.-E. "Mechanism of Ruthenium-Catalyzed Hydrogen Transfer Reactions. Evidence for a Stepwise Transfer of NH and CH Hydrogens from an Amine to a (Cyclopentadienone)ruthenium Complex." *Chem. Commun.* **2003**, 1652-1653.

2) Nelson, R. C.; Johnson, J. B.; Congdon, D. J.; Nedrelow, J. H.; O'Brien, B. A. "Alkali-Metal Phthaloylphosphides: Easily Prepared Phosphide Reagents for Coordination and Main-Group Chemistry." *Organometallics* **2001**, *20*, 1705-1708.

1) Guz, N. R.; Stermitz, F. R.; Johnson, J. B.; Beeson, T. D.; Willen, S.; Hsiang, J.-F.; Lewis, K. "Flavonolignan and flavone inhibitors of a Staphylococcus aureus multidrug resistance pump: structure-activity relationships." *J. Med. Chem.* **2001**, *44*, 261-268.

Book Chapter

Johnson, Jeffrey B. "Ring Opening Reactions of Epoxides, Aziridines and Cyclic Anhydrides" *Stereoselective Synthesis*, Vol. 3, P. Andrew Evans, ed. Thieme Chemistry, Stuttgart, Germany. Printed 2011.

Provisional Patent

"Transition Metal-Catalyzed Carbon Dioxide Incorporation with Alkenes" Rovis, Tomislav; Williams, Catherine M.; Johnson, Jeffrey B. U.S. Provisional Patent Application, Filed with the United States Patent & Trademark Office August 7, 2008.

Invited Presentations

"Using Mechanistic Understanding to Develop New Reactivity with Carbon-Carbon Single Bond Activation" Michigan State University, August 7th, 2024.

"Using mechanistic insight to develop new reactivity with carbon-carbon single bond activation" Scientific Advances in Organic Synthesis at Primarily Undergraduate Institutions sponsored by Organic Syntheses, National Meeting of the American Chemical Society, San Francisco, CA, August 13th, 2023.

"Expenses and Funding in Chemical Research". Remote Supergroup for Chemistry Undergraduates. Virtual presentation. July 7, 2023.

"The 2021 Nobel Prize in Chemistry: Making 3D Molecules and Why it Matters" Hope Academy of Senior Professionals, Holland, MI. May 3, 2022.

"Rhodium-catalyzed carbon-carbon single bond activation: Understanding the fundamentals" Gustavus Adolphus College virtual Chemistry Seminar, February 25th, 2022

"Rhodium-Catalyzed C–C Single Bond Activation: Using Mechanistic Understanding to Guide Reaction Development" ACS Division of Organic Chemistry Virtual Symposium, hosted by the CCHF. November 17, 2021.

"New Frontiers in Breaking Carbon-Carbon Single Bonds" Hope College, October 1, 2021.

"Investigation of C-C Bond Activation: Mechanistic Understanding Leading to New Methodologies" University of Texas, February 8, 2019.

"Investigation of C-C Bond Activation: Mechanistic Understanding Leading to New Methodologies" Camille and Henry Dreyfus Foundation Teacher Scholar Symposium, New York Academy of Sciences, New York, NY, October 28, 2016.

"Investigation of C-C Bond Activation: Mechanistic Understanding Leading to New Methodologies" University of Minnesota, February 22, 2016.

"Investigation of C-C Bond Activation: Mechanistic Understanding Leading to New Methodologies" University of Chicago, October 9, 2015.

"Rhodium-Catalyzed C-C Single Bond Activation: Using Mechanistic Understanding to Guide Reaction Development" Organic Chemistry Research at PUIs. 6th Joint Regional Meeting of the Great Lakes and Central Sections, Grand Rapids, MI, May 28th, 2015.

"Transition metal-catalyzed activation of carbon-carbon single bonds: Mechanistic understanding leading to new methodologies" University of Notre Dame, April 30, 2014.

"Transition metal-catalyzed activation of carbon-carbon single bonds: Mechanistic understanding leading to new methodologies" Indiana University, April 14, 2014.

"Transition metal-catalyzed activation of carbon-carbon single bonds: Mechanistic understanding leading to new reactivity" Colorado State University, October 28, 2013.

"Transition metal-catalyzed activation of carbon-carbon single bonds: Mechanistic understanding leading to new reactivity" Dartmouth College, October 3, 2013.

"Transition metal-catalyzed C-C single bond activation: Mechanistic understanding and new reactivity" Small Splash, Big Waves: Research at Primarily Undergraduate Institutions, 246th National Meeting of the American Chemical Society, Indianapolis, IN, September 8th, 2013.

"Transition metal-catalyzed C-C single bond activation: Mechanistic understanding and new reactivity" ACS-DOC Graduate Research Symposium, University of Delaware, July 25th, 2013.

"Transition metal-catalyzed activation of carbon-carbon single bonds: Mechanistic understanding leading to new methodologies", Young Academic Investigators Symposium, 244th National Meeting of the American Chemical Society, Philadelphia, PA, August 21st, 2012.

"Understanding Carbon-Carbon Bond Activation and Its Use in Transition-Metal Catalyzed Methodology" University of Michigan, May 11th, 2012 (Part of "Organic Reactions Mini-Symposium")

"Transition Metal-Catalyzed Activation of Carbon-Carbon Single Bonds: From Mechanistic Understanding to New Methodologies" University of Wisconsin-Madison, April 11th, 2012.

"Breaking Carbon-Carbon Single Bonds: Teaching an Old Bond New Tricks" Gustavus Adolphus College, March 23rd, 2012.

"Carbon-Carbon Single Bond Activation: Probing the Mechanism of an Unusual Reaction" Valparaiso University, March 18th, 2011.

"Carbon-Carbon Single Bond Activation: Probing the Mechanism of an Unusual Reaction" Oakland University, March 16th, 2011.

"Carbon-Carbon Single Bond Activation: We can do *what*? To *which* bonds?" St. Olaf College, March 25th, 2010.

"Carbon-Carbon Single Bond Activation: Does that really work?" Calvin College, October 15th, 2009.

"Carbon-Carbon Single Bond Activation: We can do *what*? To *which* bonds?" Hope College, September 5th, 2008.

"Catalytic Enantioselective Desymmetrization of *meso* Cyclic Carboxylic Anhydrides." Gustavus Adolphus College, November 11th, 2005.

Other Activities

Treasurer of the Hamilton (MI) School District Parent Oversight Board (2016 – present)

Member of the Hamilton Community Schools Band Boosters - Treasurer (2022 – present)

Coach for Hamilton (MI) Recreational Sports (2018 – 2022)

Member of the Blue Star Elementary School PTO – Treasurer (2014-2016)

Mentor and Advisory Board Member for *Total Trek Quest*, an after school wellness program for 3-5th grade boys (2008 – 2015)

Participant in the 1998 Winter Olympic Trials for curling

Two-time Junior Men's Curling National Championship participant
- five time North Dakota State Champion

Member of the Red Cross '14 Gallon Club' for blood donations