

# Kelly E. Kim

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School of Interdisciplinary Arts and Sciences, University of Washington, Tacoma

## I. Professional Preparation

- 2007–2011 B.S., Chemistry, Music; Yale University, New Haven, CT; Advisor: Prof. Nilay Hazari  
2011–2016 Ph.D., Chemistry, California Institute of Technology, Pasadena, CA; Advisor: Prof. Brian Stoltz  
*Thesis: “The Synthesis and Late-Stage Diversification of the Cyanthiwigin Natural Product Core and Synthetic Insights Derived Therein”*  
2017–2019 Postdoctoral fellow, University of Washington, Seattle, WA; Advisor: Prof. Karen Goldberg

## II. Professional Appointments

- 2019–present Assistant Professor of Organic Chemistry, University of Washington, Tacoma, WA  
2017–2019 NIH Postdoctoral Fellow in Chemistry, University of Washington, Seattle, WA  
2011–2016 Graduate Research Associate in Chemistry, California Institute of Technology, Pasadena, CA  
2011–2014 Graduate Teaching Assistant in Chemistry, California Institute of Technology, Pasadena, CA  
2010–2011 STARS II Undergraduate Research Fellow in Chemistry, Yale University, New Haven, CT  
2009 RISE Summer Intern in Chemistry, Heinrich–Heine Universität Düsseldorf, Germany  
2008 Undergraduate Research Assistant in Neurology, Yale School of Medicine, New Haven, CT  
2008–2009 Science and Quantitative Reasoning Tutor, Yale University, New Haven, CT  
2008–2009 Senior Student Aide, Yale University Chemistry Department, New Haven, CT

## III. Research Experience

- 2019–present **Assistant Professor, *Organic Chemistry***, University of Washington, Tacoma, WA  
Research Projects:
  - Synthesis of disubstituted quinazolin-4(3*H*)-ones for study of Chagas disease (collaboration with Open Synthesis Network & Drugs for Neglected Diseases *initiative*)
  - Synthesis of 2,5-diaminated 1,4-quinones for study of Coho salmon mortality (collaboration with the Kolodziej group at UWT/Center for Urban Waters)Students mentored: 34 undergraduate students
- 2017–2019 **NIH Postdoctoral Fellow, *Chemistry***, University of Washington, Seattle, WA  
Advisor: Prof. Karen I. Goldberg, PhD  
Research Projects:
  - Preparation of pincer-ligated Ir(III) complexes for aerobic alkane dehydrogenation
  - Ir(III)-catalyzed aerobic epoxidation of terminal olefinsStudents mentored: 1 undergraduate student
- 2011–2016 **Graduate Research Assistant, *Chemistry***, California Institute of Technology, Pasadena, CA  
Advisor: Prof. Brian M. Stoltz, PhD  
Research Projects:
  - Synthesis and late-stage diversification of the cyanthiwigin natural product core
  - Catalytic anti-Markovnikov transformations of hindered terminal alkenes
  - Pd-catalyzed decarbonylative dehydration of fatty acidsStudents mentored: 1 undergraduate student

- 2010–2011     **STARS II Undergraduate Research Fellow**, *Chemistry*, Yale University, New Haven, CT  
 Advisor: Prof. Nilay Hazari, PhD  
 Research Projects:
- Synthesis of dimeric Ir and Rh complexes for catalytic olefin hydrogenation
  - Preparation of terpyridine-supported Mg complexes for biomimetic CO<sub>2</sub> reduction
- 2009           **RISE Summer Intern**, *Chemistry*, Forschungszentrum Jülich, Jülich, Germany  
 Advisor: Prof. Dr. Jörg Pietruszka, PhD  
 Research Project: Progress toward the total synthesis of psymberin
- 2008           **Undergraduate Research Assistant**, *Neurology*, Yale School of Medicine, New Haven, CT  
 Advisor: Prof. Hal Blumenfeld, MD, PhD  
 Research Project: Investigation of childhood absence epilepsy using simultaneous EEG/fMRI

#### IV. Awards & Honors

- 2017–2019     Ruth L. Kirschstein NRSA (F32) Postdoctoral Fellowship, NIH (Amount awarded: \$92,483)  
 2018           ACS Postdoc to PUI Professor (P3) Workshop Participant  
 2016           Dow Chemical Company Travel Fellowship, Caltech  
 2015           Gray–Hill Seminar Series Lectureship, Occidental College  
 2012           Laura Hearne Marcus Memorial Fellowship, Caltech  
 2010–2011     Science, Technology, and Research Scholars (STARS) II Fellowship, Yale  
 2009           Research Internships in Science and Engineering (RISE) Scholarship, DAAD  
 2009           Yale College International Science Partners Program Scholarship, Yale  
 2008           Yale College Dean’s Research Fellowship in the Sciences, Yale

#### V. Research Funding

- 2023     NSF MRI Award. “Equipment: MRI: Track 1-Acquisition of a 400 MHz NMR spectrometer to advance research and education at multiple undergraduate-serving institutions in Tacoma, Washington.” Role: Co-PI. Amount awarded: \$394,988.
- 2022     UWT Scholarship & Teaching Fund. “Amination of 3*N*-Substituted 4-Quinazolinones for the Preparation of 2,3-Disubstituted-4-Quinazolinones.” Role: PI. Amount awarded: \$4,942.
- 2021     UWT Founders Endowment Planned Need Award. “Preparation of Disubstituted Quinazolinones for Study of Chagas Disease.” Role: PI. Amount awarded: \$3,000.
- 2019     Start-up Funds, UW Tacoma School of Interdisciplinary Arts and Sciences. Amount: \$70,000.

#### VI. Publications (undergraduate student authors underlined)

1. Zhao, H. N.; Hu, X.; Gonzalez, M.; Rideout, C. A.; Hobby, G. C.; Fisher, M. F.; McCormick, C. J.; Dodd, M. C.; **Kim, K. E.**; Tian, Z.; Kolodziej, E. P. Screening *p*-Phenylenediamine Antioxidants, Their Transformation Products, and Industrial Chemical Additives in Crumb Rubber and Elastomeric Consumer Products. *Environ. Sci. Technol.* **2023**, *57*, 2779–2791.
2. Reimann, C. E.; **Kim, K. E.**; Rand, A. W.; Moghadam, F. A.; Stoltz, B. M. What is a cross-coupling? An argument for a universal definition. *Tetrahedron* **2023**, *130*, 133176.
3. Zhao, H.; Tian, Z.; **Kim, K. E.**; Wang, R.; Lam, K.; Kolodziej, E. P. Biotransformation of Current-Use Progestin Dienogest and Drospirenone in Laboratory-Scale Activated Sludge Systems Forms High-Yield Products with Altered Endocrine Activity. *Environ. Sci. Tech.* **2021**, *55*, 13869–13880.

4. **Kim, K. E.**; Kim, A. N.; **McCormick, C. J.**; Stoltz, B. M. Late-Stage Diversification: a Motivating Force in Organic Synthesis. *J. Am. Chem. Soc.* **2021** *143*, 16890–16901. (one of the most cited publications in *JACS* from 2020–2021)
5. **Kim, K. E.**; **Sakazaki, Y.**; Stoltz, B. M. Synthesis of non-natural cyanthiwigin–gagunin hybrids through late-stage diversification of the cyanthiwigin natural product core. *Tetrahedron* **2020**, *76*, 130755.
6. **Kim, K. E.**; Adams, A. M.; Chiappini, N. D.; Du Bois, J.; Stoltz, B. M. Cyanthiwigin Natural Product Core as a Complex Molecular Scaffold for Comparative Late-Stage C–H Functionalization Studies. *J. Org. Chem.* **2018**, *83*, 3023–3033. (ACS Editors’ Choice)
7. **Kim, K. E.**; Stoltz, B. M. A Second-Generation Synthesis of the Cyanthiwigin Natural Product Core. *Org. Lett.* **2016**, *18*, 5720–5723.
8. **Kim, K. E.**; Li, J.; Grubbs, R. H.; Stoltz, B. M. Catalytic Anti-Markovnikov Transformations of Hindered Terminal Alkenes Enabled by Aldehyde-Selective Wacker-Type Oxidation. *J. Am. Chem. Soc.* **2016**, *138*, 13179–13182.
9. Marziale, A. N.; Duquette, D. C.; Craig, R. A., II; **Kim, K. E.**; Liniger, M.; Numajiri, Y.; Stoltz, B. M. An Efficient Protocol for the Palladium-Catalyzed Asymmetric Decarboxylative Allylic Alkylation Using Low Palladium Concentrations and a Palladium(II) Precatalyst. *Adv. Synth. Catal.* **2015**, *357*, 2238–2245.
10. Liu, Y.; **Kim, K. E.**; Herbert, M. B.; Fedorov, A.; Grubbs, R. H.; Stoltz, B. M. Palladium-Catalyzed Decarbonylative Dehydration of Fatty Acids for the Production of Linear Alpha Olefins. *Adv. Synth. Catal.* **2014**, *356*, 130–136.
11. Ashley, J. M.; Farnaby, J. H.; Hazari, N.; **Kim, K. E.**; Luzik, E. D., Jr.; Meehan, R. E.; Meyer, E. B.; Schley, N. D.; Schmeier, T. J.; Taylor, A. N. Axially chiral dimeric Ir and Rh complexes bridged by flexible NHC ligands. *Inorg. Chim. Act.* **2012**, *380*, 399–410.

## VII. Patents

1. Stoltz, B. M.; Marziale, A. N.; Craig, R. A.; Duquette, D.; **Kim, K. E.**; Liniger, M.; Numajiri, Y. Asymmetric catalytic decarboxylative alkyl alkylation using low catalyst concentrations and a robust precatalyst. *United States Patent*, US 10,106,479 B2, October 23, **2018**.
2. Liu, Y.; Stoltz, B. M.; Grubbs, R. H.; Fedorov, A.; **Kim, K. E.** Palladium-catalyzed decarbonylation of fatty acid anhydrides for the production of linear alpha olefins. *United States Patent*, US 2014/0155666 A1, June 5, **2014**.

## VIII. Presentations

1. “Synthesis of 3-alkylamide-2-amino-4-quinazolinones as potential antiparasitic agents against against Chagas disease.” **Kelly E. Kim**, Jason R. Comber, Alex Pursel, Grant C. Hobby, Carter J. McCormick, Matthew F. Fisher, Kyle M. Marshall. *Poster presentation* at the 48<sup>th</sup> National Organic Chemistry Symposium, South Bend, IN, July 9–13, **2023**.
2. “Synthesis of Structurally Diverse Quinazolinones for Study of Chagas Disease.” **Kelly E. Kim**. *Invited presentation* at the Founders Endowment Recipient Presentations, UW Tacoma, Zoom, May 20, **2022**.
3. “Finding the Right Medicine: Synthesis of Structurally Diverse Organic Molecules of Biological Importance.” **Kelly E. Kim**. *Invited oral presentation* at the Spring 2021 STEM Research Lightning Talks hosted by the UWT Office of Research, Zoom, April 22, **2021**.
4. “Alkane Dehydrogenation Mediated by Ir(III) Pincer Complexes.” **Kelly E. Kim** and Karen I. Goldberg. *Poster presentation* at the 254<sup>th</sup> American Chemical Society National Meeting, Washington, DC, August 20–24, **2017**.
5. “Alkane Dehydrogenation Mediated by Ir(III) Pincer Complexes.” **Kelly E. Kim** and Karen I. Goldberg. *Poster presentation* at the 45<sup>th</sup> National Organic Chemistry Symposium, Davis, CA, June 25–29, **2017**.
6. “Synthesis of Novel Cyanthiwigin Derivatives via Late-Stage C–H Functionalization and Other Strategies for Oxidation.” **Kelly E. Kim**. *Oral presentation* at the Novartis Institutes for Biomedical Research, Cambridge, MA, March 11, **2016**.

7. "Late-Stage C–H Oxidation of the Cyanthiwigin Natural Product Core." Kelly E. Kim and Brian M. Stoltz. *Oral presentation* at the 5<sup>th</sup> Annual NSF Center for C–H Functionalization Symposium, Atlanta, GA, October 2–4, **2015**.
8. "Late-Stage C–H Oxidation of the Cyanthiwigin Natural Product Core." Kelly E. Kim, Ashley M. Adams, Justin Du Bois, and Brian M. Stoltz. *Poster presentation* at the 44<sup>th</sup> National Organic Chemistry Symposium, College Park, MD, June 28–July 2, **2015**.
9. "Synthesis of Novel Cyanthiwigin Derivatives via Late-Stage C–H Functionalization and other Strategies for Oxidation." Kelly E. Kim. *Lecture* at the Gray–Hill Seminar Series, Occidental College, Los Angeles, CA, June 10, **2015**.
10. "Late-Stage C–H Oxidation of the Cyanthiwigin Natural Product Core." Kelly E. Kim and Brian M. Stoltz. *Oral presentation* at the 4<sup>th</sup> Annual NSF Center for C–H Functionalization Symposium, Atlanta, GA, January 16–18, **2015**.
11. "Late-Stage C–H Oxidation of the Cyanthiwigin Natural Product Core." Kelly E. Kim, Ashley M. Adams, Justin Du Bois, and Brian M. Stoltz. *Poster presentation* at the 4<sup>th</sup> Annual NSF Center for C–H Functionalization Symposium, Atlanta, GA, January 16–18, **2015**.
12. "Oxidation of the Cyanthiwigin Framework via C–H Functionalization." Kelly E. Kim and Brian M. Stoltz. *Oral presentation* at the 3<sup>rd</sup> Annual NSF Center for C–H Functionalization Symposium, Atlanta, GA, August 16–18, **2013**.
13. "Application of Late-Stage C–H Functionalization to the Synthesis and Study of Natural Products." Kelly E. Kim, Nicholas R. O'Connor, Liangbing Fu, Huw M. L. Davies, and Brian M. Stoltz. *Poster presentation* at the 3<sup>rd</sup> Annual NSF Center for C–H Functionalization Symposium, Atlanta, GA, August 16–18, **2013**.
14. "Application of Rh-Catalyzed Vinylation to the Synthesis of the Melodinus Alkaloids." Alex F. G. Goldberg, Kelly E. Kim, Austin G. Smith, Huw M. L. Davies, and Brian M. Stoltz. *Poster presentation* at the 2<sup>nd</sup> Annual NSF Center for C–H Functionalization Symposium, Atlanta, GA, October 12–14, **2012**.
15. "Progress toward the Reduction of Carbon Dioxide Using Magnesium Complexes." Kelly E. Kim and Nilay Hazari. *Oral presentation* at the Annual STARS II Research Symposium, New Haven, CT, April 27, **2011**.

## IX. Teaching Experience

2019–present **Assistant Professor**, *Organic Chemistry*, University of Washington, Tacoma, WA

- TCHEM 251: Organic Chemistry I; Terms Taught: AU19, AU20, AU21, AU23
- TCHEM 261: Organic Chemistry II; Terms Taught: WI20, WI21, SP22
- TCHEM 271: Organic Chemistry III; Terms Taught: SP23
- TBIOMD 410: Biomedical Sciences Senior Seminar; Terms Taught: SP21
- TBIOMD 495: Biomedical Research Experience; Terms Taught: SP20, SU20, WI22, WI24
- TBIOMD 496: Biomedical Research Internship; Terms Taught: WI21, SU23
- TBIOMD 499: Biomedical Research; Terms: SP20, AU20, WI21, SP21, SU21, AU21, WI22, SP22

2011–2014 **Graduate Teaching Assistant**, *Chemistry*, California Institute of Technology, Pasadena, CA

- Ch 1a: General Chemistry I; Term: AU11 (Instructor: Prof. Nathan Lewis)
- Ch 1b: General Chemistry II; Term: WI12 (Instructors: Profs. Geoffrey Blake & Douglas Rees)
- Ch 41a: Organic Chemistry I; Term: AU14 (Instructor: Prof. Brian Stoltz)
- Ch 41b: Organic Chemistry II; Terms WI13, WI14 (Instructor: Prof. Peter Dervan)
- Ch 41c: Organic Chemistry III; Terms: SP13 (Prof. Daniel O'Leary), SP14 (Prof. Gregory Fu)

## X. Student Presentations

1. "Progress toward Synthesis of Disubstituted Quinazolinone Analogs." Alex Pursel, Jason Comber, and Kelly Kim. *Oral presentation* at the virtual Fall Sciences and Mathematics Undergraduate Research Symposium (SAMURS), UWT, Tacoma, WA, December 11, **2020**.
2. "Synthesis of Phenylpropeneol Derivatives with Applications to the Study of Human Rhinovirus." Karli Hinton, Kelly Kim. *Oral presentation* at the virtual Fall SAMURS, UWT, Tacoma, WA, December 11, **2020**.
3. "Phenylpropeneol synthesis via Allylic Oxidation and Esterification with Applications to the Human Rhinovirus." Eric Nguyen and Kelly Kim. *Oral presentation* at the virtual Fall SAMURS, UWT, Tacoma, WA, December 11, **2020**.
4. "Substituted Bioactive Quinazolinone Research." Miriam Mironchuk, Kelly Kim, Thu Hoang. *Oral presentation* at the virtual Fall SAMURS, UWT, Tacoma, WA, December 11, **2020**.
5. "Synthesis of Phenylpropeneol Derivatives to Study Antiviral Activity against Human Rhinoviruses." Avelina Perez and Kelly Kim. *Oral presentation* at the virtual Fall SAMURS, UWT, Tacoma, WA, December 11, **2020**.
6. "Synthesis of *N*3-alkylamide-2-amino-quinazolinones as potential antitrypanosomal agents against Chagas disease." Jason Comber, Alex Pursel, and Kelly Kim. *Oral presentation* at the virtual Spring SAMURS, UWT, Tacoma, WA, June 10, **2021**.
7. "Synthesis of 6PPD-Quinone and Derivatives for Study of Coho Salmon Mortality." Carter McCormick, Grant Hobby, Matthew Fisher, and Kelly Kim. *Oral presentation* at the virtual Spring SAMURS, UWT, Tacoma, WA, June 10, **2021**.
8. "Synthetic Approach toward Di-Substituted Quinazolinones for Study of Chagas Disease." Thu Hoang, Miriam Mironchuk, and Kelly Kim. *Oral presentation* at the virtual Spring SAMURS, UWT, Tacoma, WA, June 10, **2021**.
9. "Proposed Synthesis of Bis-enoate Fragment of Phenylpropeneol Derivatives for the Study of Human Rhinovirus (HRV)." Kealie Williamson, Kelly Kim. *Oral presentation* at the virtual Spring SAMURS, UWT, Tacoma, WA, June 10, **2021**.
10. "Synthetic Approach toward bioactive quinazolinone and derivatives." Jung Lee and Kelly Kim. *Oral presentation* at the virtual Spring SAMURS, UWT, Tacoma, WA, June 10, **2021**.
11. "A Step Towards Ending the Common Cold! Synthetic Approach toward Substituted Phenylpropeneols: Key Precursors to Potential Antivirals for Prevention of HRV Infection." Lexus Martin, Leslie Peterson, and Kelly Kim. *Oral presentation* at the virtual Spring SAMURS, UWT, Tacoma, WA, June 10, **2021**.
12. "A Translational Medical Showcase: Exploring the Impacts of Social Determinants of Health and Proposed Synthesis of Small Molecules for Study of Chagas Disease." Kirsten Hargett, Karen Cowgill, Karina Gamarra, Kelly Kim. *Oral presentation* at the virtual Spring SAMURS, UWT, Tacoma, WA, June 10, **2021**.
13. "Synthesis of Disubstituted Quinazolinones for the Study of Chagas Disease." Matthew Fisher, Grant Hobby, and Kelly Kim. *Oral presentation* at the virtual Summer SAMURS, UWT, Tacoma, WA, August 20, **2021**.
14. "N-Alkylation of 2 Chloro-quinazolinone for the preparation of Di-substituted Quinazolinone derivatives." Jain Choi, Thao Le, Ish Manahan, and Kelly Kim. *Poster presentation* at the Spring SAMURS, UWT, Tacoma, WA, June 10, **2022**.
15. "Synthesis of Quinazolinone Derivatives for use in Biological Testing." Grant Hobby, Matthew Fisher, Carter McCormick, and Kelly Kim. *Poster presentation* at the Spring SAMURS, UWT, Tacoma, WA, June 10, **2022**.
16. "Synthetic approaches for quinazolinone amination towards bioactive quinazolinone derivatives." Huang Yen-Po and Kelly Kim. *Poster presentation* at the Spring SAMURS, UWT, Tacoma, WA, June 10, **2022**.
17. "Synthesis of Substituted Quinazolinones with Applications Toward Chagas Disease." Victoria Nuon, Julie Lam, and Kelly Kim. *Poster presentation* at the Spring SAMURS, UWT, Tacoma, WA, June 10, **2022**.

18. "Synthesizing Piperidine Quinazolinone Derivatives for the Treatment of Chagas Disease." Kyle Marshall, Kelly Kim, Grant Hobby, Matthew Fisher, Jason Comber, Alex Pursel. *Poster presentation at the Spring SAMURS, UWT, Tacoma, WA, June 10, 2022.*
19. "Quinazolinone Amination en route to Compound Library Preparation for the Study of Chagas Disease." Haleigh Rzonca, Kelly Kim, Huang Yen-Po, Daniel Tolas. *Poster presentation at the Spring SAMURS, UWT, Tacoma, WA, June 10, 2022.*
20. "Amination of N3-Alkylamide Quinazolinones." Daniel Tolas, Yen-Po Huang, Haleigh Rzonca, Kelly Kim. *Poster presentation at the Fall SAMURS, UWT, Tacoma, WA, December 16, 2022.*

## **XI. Service and Leadership Roles**

2024	Faculty Research Support Review Committee, SIAS, UWT
2023	Organic Chemistry and Biochemistry Curriculum Workgroup, SAM, UWT
2021	Reviewer for ACS PRF New Directions Grant
2020–Present	Reviewer for <i>Tetrahedron</i> chemistry journal
2020–Present	Faculty Advisor for Biomedical Sciences Major, SAM Division, UWT
2020–2021	Search Committee Member for Assistant Teaching Professor in Chemistry, UWT
2020	Judge for Sciences and Mathematics Undergraduate Research Symposium (SAMURS), Spring
2017–2018	NSF Center for Enabling New Technologies through Catalysis (CENTC) Member
2013–2014	NSF-CCHF Student Advisory Board Committee Member
2012–2016	NSF Center for Selective C–H Functionalization (CCHF) Member
2012–2016	Co-founder & Co-chair, Caltech Women in Chemistry Committee, Pasadena, CA