

**Michael W. Beck, Ph.D.**  
Department of Chemistry and Biochemistry  
Eastern Illinois University  
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### Research and Educational Interests

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My laboratory is interested in the design, development, and utilization of small molecule chemical tools to interrogate spatially organized (bio)chemical processes in live cells. Combining new chemical tools with more traditional chemical, biochemical, and molecular biology techniques allows us to uncover novel biological processes and mechanisms related to human health. I leverage my research program to create a robust training platform for student scientists, where relating their classroom knowledge of chemical and biological principles to real-world research problems gives students a broad set of skills and experiences to prepare them for the next stage of their scientific training or career.

### Professional Experience and Positions

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| <b>Assistant Professor</b><br><b>Eastern Illinois University (EIU), Charleston, IL, USA</b><br>Department of Chemistry and Biochemistry<br><i>Member of Graduate Faculty</i>  | August 2019–Present |
| <b>Postdoctoral Scholar</b><br><b>University of Chicago (UC), Chicago, IL, USA</b><br>Department of Chemistry<br><i>Advisor: Professor Bryan Dickinson, Department of Chemistry</i>                                   | July 2015–July 2019 |
| <b>Graduate Student</b><br><b>University of Michigan (UM), Ann Arbor, MI, USA</b><br>Department of Chemistry<br><i>Advisor: Professor Mi Hee Lim, Life Sciences Institute</i>   | May 2011–June 2015  |
| <b>Visiting Research Scholar</b><br><b>Ulsan National Institute of Science and Technology (UNIST), Ulsan, South Korea</b><br>Department of Chemistry<br><i>Advisor: Professor Mi Hee Lim, Department of Chemistry</i> | Jan. 2014–Feb. 2015 |
| <b>Undergraduate Research Assistant</b><br><b>Tennessee Technological University (TTU), Cookeville, TN, USA</b><br>Department of Chemistry<br><i>Advisor: Professor Edward Lisic, Department of Chemistry</i>         | Dec. 2007–May 2011  |
| <b>2010 Global Research and Development Summer Intern</b><br><b>Colgate-Palmolive Company, Piscataway, NJ, USA</b>  | June 2010–Aug. 2010 |

### Education

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| <b>Ph.D., Chemistry, University of Michigan (UM), Ann Arbor, MI, USA</b><br><i>Advisor: Professor Mi Hee Lim</i>   | May 2011–August 2015 |
| <b>B.S., Chemistry, Tennessee Technological University (TTU), Cookeville, TN, USA</b><br><i>Cum Laude, Biochemistry Concentration with American Chemical Society Certification</i> | Aug. 2007–May 2011   |

### Selected Honors and Awards

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| 2024 | Lida G. Wall Faculty Research Mentor Award                                |
| 2023 | The Graduate Dean's Award of Excellence in Research and Creative Activity |

- 2023 The Graduate Dean's Award of Excellence in Summer Research and Creative Activity
- 2023 EIU Achievement and Contribution Award for Research Activities
- 2023 EIU College of Liberal Arts and Sciences Travel Award
- 2023 EIU College of Liberal Arts and Sciences Outstanding Faculty Award (Student Nominated Award)
- 2023 EIU Summer Creative Activity/Research Award
- 2022 The Graduate Dean's Award of Excellence in Research and Creative Activity
- 2022 EIU College of Liberal Arts and Sciences Travel Award
- 2022 EIU Summer Creative Activity/Research Award
- 2022 ASBMB 2022 Undergraduate Faculty Travel Award
- 2021 EIU College of Liberal Arts and Sciences Travel Award
- 2021 EIU Achievement and Contribution Award for Activities Balanced Across Teaching, Research, and Service
- 2021 TTU ACS Student Affiliate Chapter Golden Eagle Speaker
- 2021 EIU Summer Creative Activity/Research Award
- 2020 EIU Summer Creative Activity/Research Award
- 2018 Poster Award at the Gordon Research Conference on Bioorganic Chemistry
- 2015 ASBMB 2015 Graduate and Postdoctoral Travel Award
- 2015 Rackham (UM) Conference Travel Grant Recipient
- 2014 Best Poster Presentation Award, Second International Symposium for Molecular Neurodegenerative Disease Research
- 2014 Best Poster Presentation Award, Korean Chemical Society Summer Bioinorganic Chemistry Symposium

### **Selected Teaching Experience**

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#### **Primary Instructor**

##### **Eastern Illinois University (EIU), Charleston, IL, USA**

General Chemistry I (CHM 1310G), Undergraduate	Fall 2019, 2020; Spring 2020
General Chemistry I, Honors (CHM 1390G), Undergraduate	Fall 2022, 2023
Biochemistry I (CHM 3450), Undergraduate	Fall 2019, 2021, 2023
Biochemistry II (CHM 3460), Undergraduate	Spring 2021, 2023, 2024
Survey of Biochemistry (CHM 3300), Undergraduate	Spring 2020
Advanced Biochemistry (CHM 4860), Undergraduate/Graduate	Fall 2020, 2022
Critical Reading of Chemical Literature (CHM 5003), Graduate	Fall 2021
Medicinal Chemistry (CHM 4790)	Spring 2022
World of Chemistry Laboratory (CHM 1040G), Undergraduate	Spring 2023
General Chemistry I Laboratory (CHM 1315G), Undergraduate	Fall 2019, 2021
General Chemistry I Laboratory, Honors (CHM 1395G), Undergraduate	Fall 2023
General Chemistry II Laboratory (CHM 1415G), Undergraduate	Fall 2020, Spring 2021
Biochemistry Laboratory (CHM 3455), Undergraduate	Spring 2021, 2022, 2024
Undergraduate Seminar (CHM 3000, 3001, 4000, 4001)	Fall 2020
Graduate Seminar (CHM 5000)	Fall 2020

### **Current Research Group Composition**

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- 1 Jointly-Advised Graduate Student, MS Biological Sciences (Thesis Option) Program
- 1 Graduate Student, MS Chemistry (Thesis Option) Program
- 1 Laboratory Manager and Post-Bacc Scholar
- 5 Undergraduate Student, BS Biochemistry Program
- 2 Undergraduate Students, BS Biological Sciences Program

### **Previous Students Mentored Since 2019**

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- 3 Graduate Students, MS Chemistry (Thesis Option) Program
- 3 Graduate Students, MS Biological Sciences (Non-Thesis Option) Program
- 1 Undergraduate Student, BS Chemistry Program
- 3 Undergraduate Students, BS Biochemistry Program
- 4 Undergraduate Students, BS Biological Sciences Program
- 1 Visiting Undergraduate Student

### **Accolades of Trainees**

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- 2024 Illinois State Academy of Science Student Research Grant – Makenzie R. Walk
- 2024 EIU Pine Honors College Undergraduate Research, Scholarship, and Creative Activity (URSCA) Spring 2024 Award – Shannon M. R. Legge
- 2024 EIU Pine Honors College Undergraduate Research, Scholarship, and Creative Activity (URSCA) Spring 2024 Award – Morgan F. Drozs
- 2024 EIU Pine Honors College Undergraduate Research, Scholarship, and Creative Activity (URSCA) Spring 2024 Award – Makenzie R. Walk
- 2024 EIU Pine Honors College Undergraduate Research, Scholarship, and Creative Activity (URSCA) Spring 2024 Award – Alana R. Vinson
- 2023 EIU Graduate School Fall Research/Creative Activity Award – Emmanuel Adusah
- 2023 EIU College Thesis Award of Excellence for the College of Liberal Arts and Sciences – Samuel J. Knebel
- 2023 Presidential Graduate Assistantship – Carolyn J. Karns
- 2023 EIU Pine Honors College Undergraduate Research, Scholarship, and Creative Activity (URSCA) Fall 2023 Award – Makenzie R. Walk
- 2023 EIU Pine Honors College Undergraduate Research, Scholarship, and Creative Activity (URSCA) Fall 2023 Award – Abigail D. Abercrombie
- 2023 EIU Pine Honors College Undergraduate Research, Scholarship, and Creative Activity (URSCA) Fall 2023 Award – Shannon M. R. Legge
- 2023 EIU Pine Honors College Undergraduate Research, Scholarship, and Creative Activity (URSCA) Fall 2023 Award – Morgan F. Drozs
- 2023 EIU Pine Honors College Herbert Lasky Outstanding Graduating Senior Award – Taylor P. Spidle
- 2023 EIU Alumni Association Distinguished Senior Award – Taylor P. Spidle
- 2023 EIU Alumni Association Distinguished Senior Award – Pedro Vasquez
- 2023 College of Liberal Arts & Sciences Scholars in Undergraduate Research at Eastern (SURE) Award – Taylor P. Spidle
- 2023 EIU Graduate Alumni Fund Outstanding Research/Creative Activity Award – Carolyn J. Karns
- 2023 Eli Lilly & Company Women Chemists Committee (WCC) American Chemical Society Travel Award – Carolyn J. Karns
- 2023 Chemistry MS Program Distinguished Graduate Student Award – Samuel J. Knebel
- 2023 American Chemical Society Division of Biological Chemistry Graduate Student Travel Award – Samuel J. Knebel
- 2023 EIU Pine Honors College Undergraduate Research, Scholarship, and Creative Activity (URSCA) Spring 2023 Award – Taylor P. Spidle
- 2023 EIU Pine Honors College Undergraduate Research, Scholarship, and Creative Activity (URSCA) Spring 2023 Award – Makenzie R. Walk
- 2022 EIU Graduate School Fall Research/Creative Activity Award – Samuel Knebel
- 2022 EIU Graduate School Fall Research/Creative Activity Award – Carolyn J. Karns
- 2022 EIU Williams Travel Grant – Samuel Knebel
- 2022 EIU Williams Travel Grant – Carolyn J. Karns
- 2022 American Chemical Society Division of Biological Chemistry Graduate Student Travel Award – Carolyn J. Karns

- 2022 EIU Pine Honors College Undergraduate Research, Scholarship, and Creative Activity (URSCA) Fall 2022 Award – Taylor Spidle
- 2022 EIU Sidney S. Steele Summer Student Award – Samuel Knebel
- 2022 EIU Alumni Association Distinguished Senior Award – Carolyn J. Karns
- 2022 ACS Division of Organic Chemistry Undergraduate Award – So Jeong (Allie) Kim
- 2022 Outstanding International Student Award – So Jeong (Allie) Kim
- 2022 ASBMB Student Chapter Travel Award – Carolyn J. Karns
- 2022 Illinois State Academy of Science Student Research Grant – Samuel Knebel
- 2022 EIU Pine Honors College Undergraduate Research, Scholarship, and Creative Activity (URSCA) Spring 2022 Award – Carolyn J. Karns
- 2022 EIU Pine Honors College Undergraduate Research, Scholarship, and Creative Activity (URSCA) Spring 2022 Award – So Jeong (Allie) Kim
- 2022 EIU Pine Honors College Undergraduate Research, Scholarship, and Creative Activity (URSCA) Spring 2022 Award – Luke Flaig
- 2021 EIU Graduate School Fall Research/Creative Activity Award – Samuel Knebel
- 2021 6th Annual East Central Illinois ACS Local Section Undergraduate Research Conference Outstanding Presentation – Carolyn J. Karns
- 2021 112th Annual Meeting of the Illinois State Academy of Science First Place Graduate Oral Presentation in Division Award – Anchal Singh
- 2021 112th Annual Meeting of the Illinois State Academy of Science First Place Graduate Oral Presentation in Division Award – Katelynn Fuller-Svarz (Jointly-Advised)
- 2021 Hamand Society of Scholars Induction – Katelynn Fuller-Svarz (Jointly-Advised)
- 2021 EIU Spring Graduate School Research/Creative Activity Award – Anchal Singh
- 2020 EIU Spring Graduate School Research/Creative Activity Award – Anchal Singh
- 2020 Illinois State Academy of Science Student Research Grant – Katelynn Fuller-Svarz
- 2020 EIU CLAS Undergraduate Research/Creative Activity Award – Anthony Kilber
- 2020 EIU Spring Graduate School Research/Creative Activity Award – Anchal Singh
- 2020 EIU Spring Graduate School Research/Creative Activity Award – Jhalak Timilsena
- 2020 EIU Distinguished International Graduate Student in Chemistry – Jhalak Timilsena
- 2020 EIU Sidney S. Steele Summer Student Award – Jhalak Timilsena

### Professional Affiliations

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Member, American Chemical Society (ACS)	2007–Present
Member, American Society of Biochemistry and Molecular Biology (ASBMB)	2019–Present
Member, Illinois State Academy of Science (ISAS)	2021–Present
Member, American Society for Pharmacology and Experimental Therapeutics (ASPET)	2022–Present

### Professional Activities and Service

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#### Grant Reviewer

##### *National Science Foundation (NSF)*

- MPS LEAPS Virtual Panel, Reviewer Spring 2024

##### *National Institutes of Health (NIH)*

- Drug and Biologic Disposition & Toxicity (DBDT) Study Section, Ad-hoc Member Spring 2024

#### Eastern Illinois University Service

##### *University Service*

- EIU Higher Learning Commission Accreditation Team, Member Fall 2022–Summer 2024
  - Teaching and Learning: Quality, Resources, and Support Subcommittee, Member
- EIU Quality Initiative Committee *Diversifying our Campus Community to Promote Inclusive Excellence & Student Success*, Member 2020–2024
  - Recruiting/Networking Subcommittee, Member
- EIU International Education Council, Member July 2023–June 2026

- Grants-in-Aid Appeals Committee, Member Fall 2022–Spring 2025

#### College of Liberal Arts and Sciences Service

- Curriculum Committee
  - Chair AY2021-22
  - Vice-Chair AY2020-21
  - Department Representative AY2019-20, AY2020-21, AY2021-22

#### Department of Chemistry and Biochemistry Service

- Academic Advisor Fall 2020–Present
- Assistant Professor in Analytical Chemistry Search 2023 Screening Committee
  - Chair AY2023-24
- Curriculum Committee
  - Chair AY2020-21– AY2022-23
  - Member AY2019-20; AY2023-24
- New Building Committee, Member 2020–Present
- Safety Committee, Member AY2019-20–Present
- Graduate Committee, Member AY2022-23–Present
- Undergraduate Recruitment
  - Chair AY2023-24
  - Member AY2021-22
- Stockroom Manager Selection Committee, Member Summer 2021
- General Chemistry Laboratory Committee, Member AY2020-21
- Website Committee, Member AY2020-21
- Assessment Committee, Member AY2019-20

#### Other

- EIU Initiative: Making Excellence Inclusive (MEI), Member 2019–Present
- EIU ASBMB Student Chapter Co-Advisor AY2020-21–Present
- EIU Inclusion in STEM! (iSTEM) Faculty Advisory Committee, Member AY2020-21–Present

#### University Professionals of Illinois (UPI) Local 4100 Service

- UPI Laboratory and Studio Reopening Committee Summer 2020
  - Advised state-level union officials on challenges associated with resuming in person laboratory courses and the impact of potential policies on laboratory courses during the COVID-19 pandemic.

#### Other Professional Service

- Member of *Biology (MDPI)* Reviewer Board 2020–Present

#### Manuscript Referee

*ACS Central Science* (2023), *ACS Chemical Biology* (2023), *Antioxidants* (2021), *Biology* (2021-2022, 2024), *BMC Molecular and Cell Biology* (2022), *ChemComm* (2020-2023), *Current Opinion in Chemical Biology* (2014), *Dalton Transactions* (2020-2022), *Dyes and Pigments* (2023), *Inorganic Chemistry* (2021-2022), *International Journal of Molecular Sciences* (2020), *Journal of the American Chemical Society* (2022), *Metallomics* (2018-2020), *Molbank* (2022), *Molecules* (2022), *Molecular Metabolism* (2021), *Pharmaceuticals* (2020), *Processes* (2022), *PROTEINS* (2023), *Royal Society Open Science* (2019-2020), *RSC Advances* (2015-2016), *The Journal of Organic Chemistry* (2022)

#### Community Activities

- NSF-Funded Factors affecting Learning, Attitudes, and Mindsets in Education Coordination Network (FLAMEnet) Community Member
  - FLAMEnet Community Hour

- Participated in a series of web conference discussions focused on best practices in STEM higher education.
- University of Michigan University Career Alumni Network (UCAN)
  - Maintain a profile to allow for Michigan students and alumni seeking career advice and insights to connect with me.
- Twitter @BeckChemistry
  - Maintain account to promote scientific literacy of the general population, support and advise junior scientists in achieving their career goals, share research occurring at EIU, and recruit students to EIU programs.

## **Professional Development**

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<b>Managing Generation Z</b>	August 8, 2023
LinkedIn Learning, Online	
<b>Building Inclusive and Equitable Syllabi and Assignments</b>	August 12, 2022
Faculty Development and Innovation Center, Eastern Illinois University, Charleston, IL, USA	
<b>STEM Syllabus Design Workshop</b>	June 3, 2022
NSF-Funded Factors affecting Learning, Attitudes, and Mindsets in Education Coordination Network, Online	
<b>Student Engagement and Motivation: Principles and Pedagogies</b>	August 10, 2021
Faculty Development and Innovation Center, Eastern Illinois University, Charleston, IL, USA	
<b>FLAMEnet 2021 Workshop: Transforming Cultures &amp; Affirming Resilience in STEM</b>	May 12-14, 2021
NSF-Funded Factors affecting Learning, Attitudes, and Mindsets in Education Coordination Network, Online	
<b>Online Course Development Institute</b>	Summer 2020
Faculty Development and Innovation Center, Eastern Illinois University, Charleston, IL, USA	
<b>Safeguarding Quality, Equity, &amp; Inclusion as Learning Moves Online</b>	March 27, 2020
Association of American Colleges & Universities (AAC&U), Webinar	
<b>Adapting Quickly to Teaching Online</b>	March 19, 2020
Harvard Business Publishing Education, Webinar	
<b>Course Design and College Teaching</b>	Autumn 2018
Chicago Center for Teaching, University of Chicago, Chicago, IL, USA	

## **Seminars and Symposia Organized**

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6. Probing Biological Chemistry Symposium, 2023 Joint Midwest - Great Lakes Regional ACS Meeting, October 20, 2023, St. Charles, MO.
5. Department of Chemistry and Biochemistry Seminar Series, iSTEM Invited Speaker, September 18, 2023  
Dr. Paul Thomson, Colgate-Palmolive Company
4. Department of Chemistry and Biochemistry Seminar Series, iSTEM Invited Speaker, April 17, 2023  
Jazmin Aguilar-Romero, Department of Chemistry, University of Illinois Urbana-Champaign
3. Department of Chemistry and Biochemistry Seminar Series, iSTEM Invited Speaker, November 2, 2022  
Dr. Treva Brown, Naval Research Laboratory
2. Department of Chemistry and Biochemistry Seminar Series, ASBMB Invited Speaker, October 25, 2021  
Dr. Jefferson Chan, University of Illinois Urbana-Champaign
1. Department of Chemistry and Biochemistry Seminar Series, ASBMB Invited Speaker, March 8, 2021  
Dr. Charles Yeung, Merck & Co.

## Media Appearances/Interviews

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3. Taylor, L. Six Awards for Research Funded by the Council on Faculty Research. *The Daily Eastern News* [Online], November 1, 2021. <https://www.dailyeasternnews.com/2021/11/01/six-awards-for-research-funded-by-the-council-on-faculty-research/>.
2. Solis, M. Undergrads Hit Hard by Pandemic Navigate Disruptions. *Chemistry and Engineering News*, March 22, 2021, p 18-21.  
Also published as Solis, M. Undergrads Hit Hard by Pandemic Navigate Disruptions. *in Chemistry* [Online], March 18, 2021. <https://inchemistry.acs.org/college-life/pandemic-academic-disruptions.html>.
1. Stroud, R. EIU Faculty Make Viral Transport Media for Sarah Bush Lincoln During Coronavirus Pandemic. *Journal Gazette & Times-Courier* [Online], April 20, 2020. [https://jg-tc.com/news/local/eiu-faculty-make-viral-transport-media-for-sarah-bush-lincoln-during-coronavirus-pandemic/article\\_afc2699e-cddc-5168-b93a-c752cf1d4a59.amp.html](https://jg-tc.com/news/local/eiu-faculty-make-viral-transport-media-for-sarah-bush-lincoln-during-coronavirus-pandemic/article_afc2699e-cddc-5168-b93a-c752cf1d4a59.amp.html)

## Trainee Media Appearances/Interviews

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2. Khanna, K. From Failing to Acing Chemistry. *ASBMB Today* [Online], August 24, 2023. <https://www.asbmb.org/asbmb-today/people/082423/from-failing-to-acing-chemistry>.
1. I'm In This Fishbowl And There Is All These Awards Around Me w/ CJ Karns. *The Semi-Professional Podcast with Jakeb Watts*. April 21, 2023  
<https://thesemiprofessionalacademicpodcast.buzzsprout.com/2135541/12694242>.

## Peer-Reviewed Publications

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#Denotes Equal Contribution #Denotes Undergraduate Author

### Independent Career

12. Singh, A.; Gao, M.#; Karns, C. J.#; Spidle, T. P.#; **Beck, M. W.** *ChemBioChem* **2022**, *23*, e202200069. "Carbonate-Based Fluorescent Chemical Tool for Uncovering Carboxylesterase 1 (CES1) Activity Variations in Live Cells"  
Featured on Front Cover
11. Singh, A.; Gao, M.#; **Beck, M. W.** *RSC Med. Chem.* **2021**, *12*, 1142. "Human Carboxylesterases and Fluorescent Probes to Image Their Activity in Live Cells"  
Included in Emerging Investigators Themed Collection

### Undergraduate, Ph.D., and Postdoctoral Studies

10. Lisic, E. C.; Grossarth, S. N.#; Bowman, S. B.; Hill, J. L.#; **Beck, M. W.**#; Deweese, J. E.; Jiang, X. H. *Open J. Med. Chem.* **2022**, *12*, 1. "New Copper (II), Palladium (II), and Platinum (II) 2-Acetylpyrazine Tert-Butylthiosemicarbazone Complexes: Inhibition of Human Topoisomerase II $\alpha$  and Activity against Breast Cancer Cells."
9. Jones, K., A.; Kentala, K.; **Beck, M. W.**; An, W.; Lippert, A. R.; Lewis, J. C.; Dickinson, B. C.; *ACS Cent. Sci.* **2019**, *5*, 1768. "Development of a Split Esterase for Protein-Protein Interaction-Dependent Small-Molecule Activation"  
Featured in *ACS Cent. Sci.* **2019**, *5*, 1744.
8. Qiu, T.#; Kathayat, R. S.#; Cao, Y.#; **Beck, M. W.**; Dickinson, B. C. *Biochemistry* **2018**, *57*, 221. "A Fluorescent Probe with Improved Water Solubility Permits the Analysis of Protein S-Depalmitoylation Activity in Live Cells"
7. **Beck, M. W.**; Derrick, J.S.; Suh, J.-M.; Kim, M.; Korshavn, K. J.; Kerr, R. A.; Cho, W. J.; Larsen, S. D.; Ruotolo, B. T.; Ramamoorthy, A.; Lim, M. H. *ChemMedChem* **2017**, *12*, 1828. "Minor Structural Variations of Small Molecules Tune Regulatory Activities Toward Pathological Factors in Alzheimer's Disease"

#### Featured on Front Cover

6. **Beck, M. W.**; Kathayat, R. S.; Cham, C. M.; Chang, E. B.; Dickinson, B. C. *Chem. Sci.* **2017**, *8*, 7588. "Michael Addition-Based Probes for Ratiometric Fluorescence Imaging of Protein S-Depalmitoylases in Live Cells and Tissues"
5. **Beck, M. W.** †; Derrick, J. S. †; Kerr, R. A.; Oh, S. B.; Cho, W. J.; Lee, S. J. C.; Ji, Y.; Han, J. †; Tehrani, Z. A.; Suh, N.; Kim, S.; Larsen, S. D.; Kim, K. S.; Lee, J.-Y.; Ruotolo, B. T.; Lim, M. H. *Nature Commun.* **2016**, *7*, 13115. "Structure-Mechanism-Based Engineering of Chemical Regulators Targeting Distinct Pathological Factors in Alzheimer's Disease"
4. **Beck, M. W.** †; Oh, S. B. †; Kerr, R. A.; Lee, H. J.; Kim, S. H.; Kim, S.; Jang, M.; Ruotolo, B. T.; Lee, J.-Y.; Lim, M. H. *Chem. Sci.*, **2015**, *6*, 1879. "A Rationally Designed Small Molecule for Identifying an *In Vivo* Link of Metal–Amyloid- $\beta$  Complexes to the Pathogenesis of Alzheimer's Disease"  
Recommended as "Very Good" on Faculty of 1000 DOI: 10.3410/f.725725194.793509037.
3. **Beck, M. W.**; Pithadia, A. S.; DeToma, A. S.; Korshavn, K. J.; Lim, M. H. Chapter 10: Ligand Design to Target and Modulate Metal-Protein Interactions in Neurodegenerative Diseases. In *Ligand Design in Medicinal Inorganic Chemistry* John Wiley & Sons: Chichester, West Sussex, **2014**, pp 256-286.  
Featured in *Angew. Chem. Int. Ed.*, **2015**, *54*, 2324.
2. Liu, Y. †; Kochi, A. †; Pithadia, A. S.; Lee, S.; Nam, Y.; **Beck, M. W.**; He, X.; Lee, D.; Lim, M. H. *Inorg. Chem.*, **2013**, *52*, 8121. "Tuning Reactivity of Diphenylpropynone Derivatives with Metal-Associated Amyloid- $\beta$  Species via Structural Modifications"
1. Pithadia, A. S. †; Kochi, A. †; Soper, M. T.; **Beck, M. W.**; Liu, Y.; Lee, S.; DeToma, A. S.; Ruotolo, B. T.; Lim, M. H. *Inorg. Chem.* **2012**, *51*, 12959. "Reactivity of Diphenylpropynone Derivatives Toward Metal-Associated Amyloid- $\beta$  Species"

#### Patents

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1. Dickinson, B.C.; Kathayat, R.S.; **Beck, M.W.** "Synthetic Substrates for Enzymes That Catalyze Reactions of Modified Cysteines and Related Methods." U.S. Patent 10,413,583, September 17, 2019.

#### MS and Undergraduate Honors Thesis Supervised

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4. Knebel, S. J. "Development of a Chemical Biology Approach to Uncover the Influence of Sequence Variations on CES1 Activity in Live Cells" MS Chemistry (Biochemistry Option) Thesis, Spring 2023.  
Received EIU College Thesis Award of Excellence for the College of Liberal Arts and Sciences
3. Spidle, T. P. "*In Vitro* Characterization of Fluorogenic Chemical Tools to Study Human Carboxylesterases (CESs)." Undergraduate Honors Thesis, EIU Department of Biological Sciences, Fall 2022.  
Received Second Place Undergraduate Division, EIU Booth Library's 2023 Awards for Excellence in Student Research and Creativity
2. Singh, A. "Development of Fluorescence Microscopy Approaches to Study Subcellular Protein Transport and Enzymatic Activity." MS Chemistry (Biochemistry Option) Thesis, Spring 2021.
1. Timilsena, J. N. "Design, Synthesis, and Characterization of Chemical Tools to Study Peroxisomal Import." MS Chemistry (Biochemistry Option) Thesis, Summer 2020.

#### Presentations

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##### Invited Oral Presentations

9. **Probing Biological Chemistry Symposium**, 2023 Joint Midwest - Great Lakes Regional ACS Meeting, St. Charles, MO, October 20, 2023.  
"Probing Variations in Drug Metabolism with Chemical Tools"



8. **The University of Chicago Department of Chemistry Seminar**, Chicago, IL, May 24, 2023.  
"Chemical Biology Approaches for Uncovering Interindividual Variability in Drug Metabolism"
7. **2<sup>nd</sup> Annual EIU AED & ASBMB Rapid Research Event**, Charleston, IL, March 1, 2023.  
"Chemical Tools to Investigate Spatially Organized Chemistry in Human Health"
6. **Indiana State University Department of Chemistry & Physics Seminar** Terre Haute, IN, January 24, 2023.  
"Chemical Biology Approaches for Uncovering Interindividual Variability in Drug Metabolism"
5. **1<sup>st</sup> Annual EIU AED & ASBMB Rapid Research Event**, Charleston, IL, March 9, 2022.  
"Chemical Tools to Interrogate Biology at the Molecular Level"
4. **TTU ACS Student Affiliate Chapter 2021 Golden Eagle Seminar**, Cookeville, TN April 9, 2021.  
"Chemical Tools to Interrogate Biology at the Molecular Level"  
Presented Electronically Due to COVID-19 Pandemic
3. **EIU ACS Student Affiliate Chapter Meeting**, Charleston, IL October 30, 2019.  
"Overview of Beck Research Group"
2. **1<sup>st</sup> Symposium on Chemistry and Life**, Korea Advanced Institute of Science and Technology (KAIST), Daejeon, South Korea, August 2, 2018.  
"Chemical Tools to Interrogate Biology at the Molecular Level"
1. **TTU ACS Student Affiliate Chapter Meeting**, Cookeville, TN, December 3, 2013.  
"A Brief Overview of Applying to a PhD Program in Chemistry" and  
"Structure-Reactivity Relationship of Diphenylpropynone Derivatives as Bifunctional Chemical Tools to Study Alzheimer's Disease"

#### Panel Presentations

2. **Pathways to College Teaching Careers Miniconference**, University of Chicago myCHOICE Program, Chicago, IL, May 24, 2023.  
"Transitions to Teaching on the Tenure Track" Panelist.
1. **EIU ACS Student Affiliates Meeting**, EIU ACS Student Affiliates, Charleston, IL, October 24, 2019.  
"Professional Development Panel" Panelist.

#### Oral Presentations

5. **The 267<sup>th</sup> National Meeting of the American Chemical Society**, Division of Biological Chemistry The Intersection of Biochemistry and Chemical Biology Session, New Orleans, LA, March 21, 2024.  
"Illuminating Variations in Drug Metabolism with Fluorogenic Chemical Tools."
4. **The 265<sup>th</sup> National Meeting of the American Chemical Society**, Division of Biological Chemistry Early Career Investigators Session, Indianapolis, IN, March 29, 2023.  
"Chemical Biology Approaches for Uncovering Interindividual Variability in Drug Metabolism"
3. **The 265<sup>th</sup> National Meeting of the American Chemical Society**, Division of Chemical Education General Papers: Undergrad Research, Indianapolis, IN, March 28, 2023.  
"Developing a Successful Research Program at a Primarily Undergraduate Institution (PUI)"
2. **Oral Dissertation Defense**, University of Michigan, Ann Arbor, MI, May 6, 2015.  
"Development of Small Molecules as Chemical Tools for Investigating the Role of Metal-Protein Interactions in Neurodegenerative Diseases"
1. **3<sup>rd</sup> Annual TTU Chemistry Department Distinction in Research Seminar**, Tennessee Tech University, Cookeville, TN, April 21, 2011.  
"Synthesis and Antimicrobial Studies of Acetylpyrazine-Thiosemicarbazone Compounds"

## Workshops Facilitated

1. **NSF-Funded FLAMENet Research Coordination Network Community Hour**, online, June 9, 2020.  
Facilitated a workshop on “How do we help students build resilience in (online) laboratory courses and other online teaching interactions?”

## Poster Presentations

‡Denotes Presenting Author #Denotes Undergraduate Author

18. **The 267<sup>th</sup> National Meeting of the American Chemical Society**, New Orleans, LA, March 17-21, 2024.  
**Beck, M. W.**‡ “Illuminating Variations in Drug Metabolism with Fluorogenic Chemical Tools.”  
Invited Presentation at Sci-Mix (Poster session for best presentations in each division).
17. **The 267<sup>th</sup> National Meeting of the American Chemical Society**, New Orleans, LA, March 17-21, 2024.  
**Beck, M. W.**‡ “Developing a Successful Research Program at a Primarily Undergraduate Institution (PUI).”  
Invited Presentation at Sci-Mix (Poster session for best presentations in each division).
16. **American Society for Pharmacology and Experimental Therapeutics (ASPET) 2023**, St. Louis, MO, May 19, 2023.  
**Beck, M. W.**‡ “Fluorogenic Chemical Tools to Improve Prodrug Treatment Outcomes.” DOI: 10.1124/jpet.122.135840
15. **The 265<sup>th</sup> National Meeting of the American Chemical Society**, Indianapolis, IN, March 26-30, 2023.  
**Beck, M. W.**‡ “Developing a Successful Research Program at a Primarily Undergraduate Institution (PUI).”  
Invited Presentation at Sci-Mix (Poster session for best presentations in each division).
14. **The 264<sup>th</sup> National Meeting of the American Chemical Society**, Chicago, IL, August 21-25, 2022.  
**Beck, M. W.**‡ “Fluorescent Chemical Tool to Identify Risk Factors for Ineffective Treatment with Ester Prodrugs.”
13. **Experimental Biology 2022**, Philadelphia, PA, April 1-5, 2022  
Singh, A.; Gao, M.;# Karns, C. J.;# Spidle, T. P.;# **Beck, M. W.**‡ “Revealing Human Carboxylesterase 1 (CES1) Sequence-Dependent Activity Variations Using Fluorescent Chemical Tools.”
12. **18<sup>th</sup> Edition of the Department of Chemistry and Biochemistry Student Research Celebration**, Charleston, IL, October 23, 2019.  
**Beck, M. W.**‡ “Overview of Beck Research Group.”
11. **2018 Gordon Research Conference on Bioorganic Chemistry**, Andover, NH, June 10-15, 2018.  
**Beck, M. W.**‡ Trotzok, E. F.;# Azizi, S.-A.; Choi, W.;# Dickinson, B. C. “Ratiometric Fluorescent Probes to Interrogate the Regulation of Cell Signaling by Protein S-Dpalmitoylases.”  
Received Poster Award
10. **Experimental Biology 2015**, Boston, MA, March 31, 2015.  
**Beck, M. W.**‡ Oh, S. B.; Kerr, R. A.; Lee, H. J.; Kim, S. H.; Kim, S.; Jang, M.; Ruotolo, B. T.; Lee, J.-Y.; Lim, M. H. “Modulation of Metal–Amyloid- $\beta$  Reactivity by a Rationally Designed Small Molecule for Elucidating the In Vivo Link of Metal–Amyloid- $\beta$  Complexes to the Pathogenesis of Alzheimer's Disease.”
9. **The 2<sup>nd</sup> International Symposium for Molecular Neurodegenerative Disease Research**, KAIST, Daejeon, South Korea, August 22, 2014.  
**Beck, M. W.**‡ Oh, S.B.; Kerr, R.; Lee, H. J.; Kim, S. H.; Kim, S.; Jang, M.; Ruotolo, B. T.; Lee, J.-Y.; Lim, M. H. “Metamorphosizing the Reactivity of Metal–Amyloid- $\beta$  Complexes to Profile Their Relation to the Pathology of Alzheimer's Disease.”  
Awarded Best Poster Presentation
8. **The 2014 Korean Chemical Society Summer Bioinorganic Chemistry Symposium**, Suanbo, South Korea, July 11, 2014.

**Beck, M. W.;**<sup>‡</sup> Oh, S.B.; Kerr, R.; Lee, H. J.; Kim, S. H.; Kim, S.; Jang, M.; Ruotolo, B. T.; Lee, J.-Y.; Lim, M. H. "Metamorphosizing the Reactivity of Metal–Amyloid- $\beta$  Complexes to Profile Their Relation to the Pathology of Alzheimer's Disease."

Awarded Best Poster Presentation

7. **The 2013 Vaughn Symposium**, Ann Arbor, MI, August 8, 2013.  
**Beck, M. W.;**<sup>‡</sup> Charon, J. P.<sup>#</sup>; Ghosh, A.<sup>#</sup>; Lim, M. H. "Design and Development of Pyridinylmethylamine Derivatives as Chemical Tools to Study the Role of Metal Amyloid- $\beta$  Species in Alzheimer's Disease."
6. **The 241<sup>st</sup> National Meeting of the American Chemical Society**, Anaheim, CA, March 28, 2011.  
**Beck, M. W.;**<sup>‡</sup> Beck, C. N.<sup>‡</sup>; Reilly, S. W.; Carr, M.; Holcomb, V. L.; Ventrice, J.; Lisic, E. C. "Synthesis and Antimicrobial Studies of Acetylpyrazine-Thiosemicarbazone Compounds."
5. **The 120<sup>th</sup> Meeting of the Tennessee Academy of Science**, Cookeville, TN, November 19, 2010.  
**Beck, M. W.;**<sup>‡</sup> Reilly, S. W.; Swindle, R. L.; Lisic, E. C. "Synthesis and Biological Studies of Palladium (II) Acetylpyrazine Thiosemicarbazone Complexes."  
Awarded First Place Poster Presentation in Chemistry Section
4. **The 5<sup>th</sup> Annual Tennessee Tech University Student Research Day**, Cookeville, TN, April 15, 2010.  
**Beck, M. W.;**<sup>‡</sup> Reilly, S. W.; Swindle, R. L.; Lisic, E. C. "Synthesis and Biological Studies of Palladium (II) Acetylpyrazine Thiosemicarbazone Complexes."
3. **The 239<sup>th</sup> National Meeting of the American Chemical Society**, San Francisco, CA, March 22, 2010.  
**Beck, M. W.;**<sup>‡</sup> Reilly, S. W.; Swindle, R. L.; Lisic, E. C. "Synthesis and Biological Studies of Palladium (II) Acetylpyrazine Thiosemicarbazone Complexes."
2. **The 4<sup>th</sup> Annual Tennessee Tech University Student Research Day**, Cookeville, TN, March 31, 2009.  
**Beck, M. W.;**<sup>‡</sup> Steelman, K; and Lisic, E. C.  
"Synthesis and Characterization of New Acetylpyrazine Thiosemicarbazones."
1. **The 237<sup>th</sup> National Meeting of the American Chemical Society**, Salt Lake City, UT, March 23, 2009.  
**Beck, M. W.;**<sup>‡</sup> Steelman, K; Lisic, E. C. "Synthesis and Characterization of New Acetylpyrazine Thiosemicarbazones."

### **Student and Mentee Presentations**

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<sup>‡</sup>Denotes Presenting Author <sup>#</sup>Denotes Undergraduate Author

### **Student and Mentee Oral Presentations**

14. **The 267<sup>th</sup> National Meeting of the American Chemical Society**, Graduate Research in Biochemistry and Chemical Biology Session, New Orleans, LA, March 19, 2024.  
Karns, C. J.; <sup>‡</sup> Spidle, T. P.;<sup>#</sup> Gao, M.; <sup>#</sup> Nehls, J. E.; **Beck, M. W.** "Fluorescein-Based Fluorogenic Chemical Tools to Shed Light on Ester Drug Metabolism in Live Cells."
13. **The 267<sup>th</sup> National Meeting of the American Chemical Society**, Graduate Research in Biochemistry and Chemical Biology Session, New Orleans, LA, March 19, 2024.  
Walk, M. R.;<sup>‡#</sup> Karns, C. J.; Singh, A. S.; **Beck, M. W.** "Development of Chemical Tools to Study Human Carboxylesterase 2 (CES2)."
12. **2023 Joint Midwest - Great Lakes Regional ACS Meeting**, Biochemistry Session, St. Charles, MO, October 20, 2023.  
Walk, M. R.;<sup>‡#</sup> Karns, C. J.; Singh, A. S.; **Beck, M. W.** "Synthesis and Characterization of Chemical Tools to Study Human Carboxylesterases (CESs)."
11. **2023 Joint Midwest - Great Lakes Regional ACS Meeting**, Biochemistry Session, St. Charles, MO, October 20, 2023.  
Karns, C. J.;<sup>‡</sup> Spidle, T. P.;<sup>#</sup> Gao, M.; <sup>#</sup> Nehls, J. E.; **Beck, M. W.** "Development of Fluorogenic Chemical Tools for Studying Drug Metabolic Esterases in Live Cells."

10. **EIU 15<sup>th</sup> Annual Student Research and Creative Activity Conference**, Biochemistry Session 1, Charleston, IL, April 21, 2023.  
Spidle, T. P.;<sup>‡</sup># **Beck, M. W.** “*In Vitro* Characterization of Fluorogenic Chemical Tools to Study Human Carboxylesterases (CESs)”
9. **EIU 15<sup>th</sup> Annual Student Research and Creative Activity Conference**, Biochemistry Session 1, Charleston, IL, April 21, 2023.  
Knebel, S. J.;<sup>‡</sup> **Beck, M. W.** “Chemical Biology Approach to Annotate the Influence of Sequence Variations on CES1 Activity in Live Cells.”
8. **EIU 15<sup>th</sup> Annual Student Research and Creative Activity Conference**, Biochemistry Session 1, Charleston, IL, April 21, 2023.  
Walk, M. R.;<sup>‡</sup># **Beck, M. W.** “Synthesis and Characterization of Chemical Tools to Study Human Carboxylesterases (CESs).”
7. **EIU 15<sup>th</sup> Annual Student Research and Creative Activity Conference**, Biochemistry Session 2, Charleston, IL, April 21, 2023.  
Vasquez, P.;<sup>‡</sup># **Beck, M. W.** “Peroxisome-Targeting Chemical Technologies and Tools to Study Subcellular Chemistry”
6. **EIU 15<sup>th</sup> Annual Student Research and Creative Activity Conference**, Biochemistry Session 2, Charleston, IL, April 21, 2023.  
Karns, C. J.;<sup>‡</sup> **Beck, M. W.** “Fluorescein-based Fluorogenic Chemical Tools to Study Human Carboxylesterases in Live Cells.”
5. **The 265<sup>th</sup> National Meeting of the American Chemical Society**, Division of Biological Chemistry: Graduate Student Symposium, Indianapolis, IN, March 30, 2023.  
Knebel, S. J.;<sup>‡</sup> **Beck, M. W.** “Chemical Biology Approach to Annotate the Influence of Sequence Variations on CES1 Activity in Live Cells.”
4. **The 265<sup>th</sup> National Meeting of the American Chemical Society**, Division of Biological Chemistry: Graduate Student Symposium, Indianapolis, IN, March 29, 2023.  
Karns, C. J.;<sup>‡</sup> Spidle, T. P.;<sup>#</sup> Flaig, L. H.;<sup>#</sup> Singh, A.; **Beck, M. W.** “Fluorescein-Based Fluorogenic Chemical Tools to Study Human Carboxylesterases in Live Cells.”
3. **EIU Department of Biological Sciences Undergraduate Honors Thesis Defense**, Charleston, IL, December 15, 2022.  
Spidle, T. P.;<sup>‡</sup># **Beck, M. W.** “*In Vitro* Characterization of Fluorogenic Chemical Tools to Study Human Carboxylesterases (CESs).”
2. **112<sup>th</sup> Annual Meeting of the Illinois State Academy of Science**, Eastern Illinois University, Charleston, IL, April 10, 2021.  
Singh, A.;<sup>‡</sup> **Beck, M. W.** “Evaluation of Fluorescein-Based Fluorescent Probe for Monitoring of Carboxylesterase 1 (CES1) Activity in Living Cells.”  
Presented Electronically Due to COVID-19 Pandemic  
Received First Place Graduate Oral Presentation in Division Award
1. **112<sup>th</sup> Annual Meeting of the Illinois State Academy of Science**, Eastern Illinois University, Charleston, IL, April 10, 2021.  
Fuller-Svarz, K.;<sup>‡</sup> Olupothage, K.; **Beck, M. W.**; Karunarathne, A.; Periyannan, G. “Development and Evaluation of a Fluorescent Probe to Detect the Expression of Glutamate Carboxypeptidase II.”  
Presented Electronically Due to COVID-19 Pandemic  
Received First Place Graduate Oral Presentation in Division Award

## Student and Mentee Poster Presentations

39. **2024 National Conference on Undergraduate Research**, Long Beach, CA, April 8-10, 2024.  
Walk, M. R.;<sup>‡</sup># Karns, C. J.; Singh, A. S.; **Beck, M. W.** "Development of Chemical Tools to Study Human Carboxylesterase 2 (CES2)."
38. **2024 National Conference on Undergraduate Research**, Long Beach, CA, April 8-10, 2024.  
Flaig, L. H.;<sup>‡</sup># Kilber, A. W. N.;<sup>#</sup> Timilsena, J. N.; **Beck, M. W.** "Structure-Activity Relationship Studies of Human Carboxylesterases Using a Fluorogenic Ester Library"
37. **2024 National Conference on Undergraduate Research**, Long Beach, CA, April 8-10, 2024.  
Drozs, M. F.;<sup>‡</sup># Karns, C. J.; Spidle, T. P.;<sup>#</sup> Hoops, G. C.; Johnson, R. J.; **Beck, M. W.** "Structure-Activity Relationship Studies of Human Carboxylesterases Using a Fluorogenic Ester Library"
36. **2024 National Conference on Undergraduate Research**, Long Beach, CA, April 8-10, 2024.  
Okolie; C. N.;<sup>‡</sup># Timilsena, J. N.; Spidle, T. P.; **Beck, M. W.** "Design and Synthesis of Peroxisome Import Moieties"
35. **2024 National Conference on Undergraduate Research**, Long Beach, CA, April 8-10, 2024.  
Vinson, A. R.;<sup>‡</sup># Spidle, T. P.; Timilsena, J. N.; Vasquez, P.;<sup>#</sup> **Beck, M. W.** "Development of PROTACs to Study Peroxisomal Biochemistry."
34. **2024 National Conference on Undergraduate Research**, Long Beach, CA, April 8-10, 2024.  
Legge, S. M. R.;<sup>‡</sup># Knebel, S. J.; Singh, A. S.; **Beck, M. W.** "Optimization of Human Carboxylesterase Activity Assays to Enable Personalized Medicine."
33. **The 267<sup>th</sup> National Meeting of the American Chemical Society**, New Orleans, LA, March 17-21, 2024.  
Karns, C. J.;<sup>‡</sup> Spidle, T. P.;<sup>#</sup> Gao, M.;<sup>#</sup> Nehls, J. E.; **Beck, M. W.** "Fluorescein-Based Fluorogenic Chemical Tools to Shed Light on Ester Drug Metabolism in Live Cells."  
Invited Presentation at Sci-Mix (Poster session for best presentations in each division).
32. **The 267<sup>th</sup> National Meeting of the American Chemical Society**, New Orleans, LA, March 18, 2024.  
Flaig, L. H.;<sup>‡</sup># Kilber, A. W. N.;<sup>#</sup> Timilsena, J. N.; **Beck, M. W.** "Structure-Activity Relationship Studies of Human Carboxylesterases Using a Fluorogenic Ester Library"
31. **The 267<sup>th</sup> National Meeting of the American Chemical Society**, New Orleans, LA, March 18, 2024.  
Drozs, M. F.;<sup>‡</sup># Karns, C. J.; Spidle, T. P.;<sup>#</sup> Hoops, G. C.; Johnson, R. J.; **Beck, M. W.** "Structure-Activity Relationship Studies of Human Carboxylesterases Using a Fluorogenic Ester Library"
30. **The 267<sup>th</sup> National Meeting of the American Chemical Society**, New Orleans, LA, March 18, 2024.  
Okolie; C. N.;<sup>‡</sup># Timilsena, J. N.; Spidle, T. P.; **Beck, M. W.** "Design and Synthesis of Peroxisome Import Moieties"
29. **The 267<sup>th</sup> National Meeting of the American Chemical Society**, New Orleans, LA, March 18, 2024.  
Vinson, A. R.;<sup>‡</sup># Spidle, T. P.; Timilsena, J. N.; Vasquez, P.;<sup>#</sup> **Beck, M. W.** "Development of PROTACs to Study Peroxisomal Biochemistry."
28. **The 267<sup>th</sup> National Meeting of the American Chemical Society**, New Orleans, LA, March 18, 2024.  
Legge, S. M. R.;<sup>‡</sup># Knebel, S. J.; Singh, A. S.; **Beck, M. W.** "Optimization of Human Carboxylesterase Activity Assays to Enable Personalized Medicine."
27. **The 267<sup>th</sup> National Meeting of the American Chemical Society**, New Orleans, LA, March 17, 2024.  
Spidle, T. P.;<sup>‡</sup> **Beck, M. W.** "Lighting Up General Chemistry with a Chemiluminescent Chemical Biology Experiment."
26. **22<sup>nd</sup> Edition of the Department of Chemistry and Biochemistry Student Research Celebration**, Charleston, IL, November 6, 2023.  
Abercrombie, A. D.;<sup>‡</sup># Singh, A. S.; **Beck, M. W.** "Molecular Biology Approaches for Studying Peroxisomal Biochemistry"

25. **22<sup>nd</sup> Edition of the Department of Chemistry and Biochemistry Student Research Celebration**, Charleston, IL, November 6, 2023.  
Okolie; C. N.;<sup>‡</sup># **Beck, M. W.** "Development of Cell Permeable Peroxisome Import Moieties"
24. **22<sup>nd</sup> Edition of the Department of Chemistry and Biochemistry Student Research Celebration**, Charleston, IL, November 6, 2023.  
Walk, M. R.;<sup>‡</sup># Karns, C. J.; Singh, A. S.; **Beck, M. W.** "Synthesis and Characterization of Chemical Tools to Study Human Carboxylesterases (CESs)"
23. **8<sup>th</sup> Annual East Central Illinois ACS Local Section Undergraduate Research Conference**, October 28, 2023.  
Walk, M. R.;<sup>‡</sup># Karns, C. J.; Singh, A. S.; **Beck, M. W.** "Synthesis and Characterization of Chemical Tools to Study Human Carboxylesterases (CESs)"  
Received Outstanding Poster Award
22. **8<sup>th</sup> Annual East Central Illinois ACS Local Section Undergraduate Research Conference**, October 28, 2023.  
Okolie; C. N.;<sup>‡</sup># **Beck, M. W.** "Development of Cell Permeable Peroxisome Import Moieties"
21. **8<sup>th</sup> Annual East Central Illinois ACS Local Section Undergraduate Research Conference**, October 28, 2023.  
Abercrombie, A. D.;<sup>‡</sup># Singh, A. S.; **Beck, M. W.** "Molecular Biology Approaches for Studying Peroxisomal Biochemistry"
20. **2023 Joint Midwest - Great Lakes Regional ACS Meeting**, St. Charles, MO, October 19, 2023.  
Okolie; C. N.;<sup>‡</sup># **Beck, M. W.** "Development of Cell Permeable Peroxisome Import Moieties"
19. **American Society for Pharmacology and Experimental Therapeutics (ASPET) 2023**, St. Louis, MO, May 20, 2023.  
Karns, C. J.;<sup>‡</sup> Walk, M. R.;<sup>‡</sup># Singh, A.; Gao, M.;<sup>‡</sup># Spidle, T. P.;<sup>‡</sup># **Beck, M. W.** "Development and Characterization of Chemical Tools to Study Ester Drug Metabolic Enzymes in Live Cells" DOI: 10.1124/jpet.122.182480
18. **EIU 15<sup>th</sup> Annual Student Research and Creative Activity Conference**, Charleston, IL, April 21, 2023.  
Okolie; C. N.;<sup>‡</sup># **Beck, M. W.** "Development of Less Polar Peroxisome Import Moieties"
17. **Distinguished Graduate Student Awards Ceremony**, Charleston, IL, April 11, 2023.  
Knebel, S. J.;<sup>‡</sup># **Beck, M. W.** "Chemical Biology Approach to Uncover Influence of Sequence Variations on CES1 Activity in Live Cells."
16. **Distinguished Graduate Student Awards Ceremony**, Charleston, IL, April 11, 2023.  
Karns, C. J.;<sup>‡</sup> Spidle, T. P.;<sup>‡</sup># Flaig, L. H.;<sup>‡</sup># Singh, A.; **Beck, M. W.** "Fluorescein-Based Fluorogenic Chemical Tools to Study Human Carboxylesterases in Live Cells."
15. **The 265<sup>th</sup> National Meeting of the American Chemical Society**, Indianapolis, IN, March 26-30, 2023.  
Walk, M. R.;<sup>‡</sup># **Beck, M. W.** "Synthesis and Characterization of Chemical Tools to Study Human Carboxylesterases (CESs)."
14. **The 265<sup>th</sup> National Meeting of the American Chemical Society**, Indianapolis, IN, March 26-30, 2023.  
Spidle, T. P.;<sup>‡</sup># Nehls, J. E.; Karns, C. J.; Gao, M.;<sup>‡</sup># **Beck, M. W.** "In Vitro Characterization of Fluorogenic Chemical Tools to Study Human Carboxylesterases (CESs)."
13. **7<sup>th</sup> Annual East Central Illinois ACS Local Section Undergraduate Research Conference**, Champaign, IL, November 12, 2022.  
Spidle, T. P.;<sup>‡</sup># Singh, A.; Gao, M.;<sup>‡</sup># Karns, C. J.; **Beck, M. W.** "Evaluation of an Ethyl Carbonate Masked Fluorophore as a Fluorogenic Chemical Tool for Human Carboxylesterase 1."
12. **21<sup>st</sup> Edition of the Department of Chemistry and Biochemistry Student Research Celebration**, Charleston, IL, November 9, 2022.

- Knebel, S. J.;<sup>‡</sup> Singh, A.; **Beck, M. W.** "Chemical Biology Approach to Unravel Sequence Variations on CES1 Activity in Live Cells."
11. **21<sup>st</sup> Edition of the Department of Chemistry and Biochemistry Student Research Celebration**, Charleston, IL, November 9, 2022.  
Walk, M. R.;<sup>‡#</sup> Karns, C. J.;<sup>‡</sup> Singh, A.; Gao, M.; **Beck, M. W.** "Development and Characterization of Chemical Tools to Study Human Carboxylesterase 2 (CES2)."
  10. **21<sup>st</sup> Edition of the Department of Chemistry and Biochemistry Student Research Celebration**, Charleston, IL, November 9, 2022.  
Spidle, T. P.;<sup>‡#</sup> Singh, A.; Gao, M.;<sup>#</sup> Karns, C. J.; **Beck, M. W.** "Evaluation of an Ethyl Carbonate Masked Fluorophore as a Fluorogenic Chemical tool for Human Carboxylesterase 1."
  9. **21<sup>st</sup> Edition of the Department of Chemistry and Biochemistry Student Research Celebration**, Charleston, IL, November 9, 2022.  
Kilber, A. W. N.;<sup>‡#</sup> Vasquez, P.;<sup>‡#</sup> Karns, C. J.; Timilsena, J. N.; **Beck, M. W.** "Peroxisome Targeting Chemical Technologies and Tools to Study Subcellular Chemistry."
  8. **The 264<sup>th</sup> National Meeting of the American Chemical Society**, Chicago, IL, August 21-25, 2022  
Karns, C. J.;<sup>‡</sup> Flaig, L. H.;<sup>#</sup> Spidle, T. P.;<sup>#</sup> Singh, A.; **Beck, M. W.**, "Development and Characterization of Fluorescent Chemical Tools to Study Human Carboxylesterase 2 (CES2)."
  7. **The 264<sup>th</sup> National Meeting of the American Chemical Society**, Chicago, IL, August 21-25, 2022  
Knebel, S. J.;<sup>‡</sup> **Beck, M. W.** "Chemical Biology Approach to Uncover Influence of Sequence Variations on CES1 Activity in Live Cells."
  6. **EIU Student Research and Creative Activity Conference**, Charleston, IL, April 1, 2022  
Knebel, S. J.;<sup>‡</sup> Singh, A.; **Beck, M. W.** "Chemical Biology Approach to Uncover Influence of Sequence Variations on CES1 Activity in Live Cells."
  5. **Experimental Biology 2022**, Philadelphia, PA April 1-5, 2022  
Karns, C. J.;<sup>#</sup> Flaig, L. H.;<sup>#</sup> Singh, A.; Gao, M.;<sup>#</sup> **Beck, M. W.** "Development and Characterization of Fluorescent Chemical Tools to Study Human Carboxylesterase 2 (CES2)."
  4. **6<sup>th</sup> Annual East Central Illinois ACS Local Section Undergraduate Research Conference**, November 13, 2021.  
Karns, C. J.;<sup>#</sup> Singh, A.; Gao, M.;<sup>#</sup> **Beck, M. W.** "Development and Characterization of Fluorescent Chemical Tools to Study Human Carboxylesterase 1 (CES1)."  
Received Outstanding Presentation Award  
Presented Electronically Due to COVID-19 Pandemic
  3. **20<sup>th</sup> Edition of the Department of Chemistry and Biochemistry Student Research Celebration**, Charleston, IL, November 10, 2021.  
Karns, C. J.;<sup>#</sup> Singh, A.; Gao, M.;<sup>#</sup> **Beck, M. W.** "Using Chemistry to Study Drug Metabolism: Chemical Tools to Monitor Carboxylesterase 1 (CES1) Activity in Live Cells."
  2. **19<sup>th</sup> Edition of the Department of Chemistry and Biochemistry Student Research Celebration**, Charleston, IL, November 18, 2020.  
Singh, A.;<sup>‡</sup> **Beck, M. W.** "Evaluation of Fluorescein-Based Fluorescent Probe for Specific Monitoring of Carboxylesterase 1 (CES1) Activity in Living Cells."  
Presented Electronically Due to COVID-19 Pandemic
  1. **EIU Student Research and Creative Activity Conference 2020**, Charleston, IL, April 13-17, 2020.  
Timilsena, J. N.;<sup>‡</sup> **Beck, M. W.** "Small Molecule Chemical Tools for the Modulation of Subcellular Trafficking."  
Presented Electronically Due to COVID-19 Pandemic

## Research Support

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### *Current*

**NIH R15 AREA** NIH R15GM152890 (2/1/2024-1/31/2027) \$300,000 direct

National Institute of General Medical Studies (NIGMS)

"Chemical Biology Approaches to Understand Interindividual Variability in Carboxylesterase Activity"

Role: PI

**NSF LEAPS-MPS** NSF 2213273 (7/1/2022-6/30/2025) \$250,000 total

NSF Launching Early-Career Academic Pathways in the Mathematical and Physical Sciences

"LEAPS-MPS: Peroxisome Targeting Chemical Technologies and Tools to Study Subcellular Chemistry"

Role: PI

**Early Career Grant** (10/1/2023-6/30/2024) \$5000 total

EIU Council on Faculty Research

"Optimizing Human Carboxylesterases as Sensors for Environmental Contamination"

Role: PI

**Redden Fund Grant** (7/1/2023-6/30/2024) \$1385 total

EIU Foundation

"Lighting Up General Chemistry: Enhancing Student Learning with a Chemiluminescence Experiment"

Role: PI

### *Previous*

**EIU Council on Faculty Research FY 2023 Grant** (10/10/2022-6/30/2023) \$4000 total

EIU Council on Faculty Research

"Ester Specificity of Human Drug Metabolizing Carboxylesterase Enzymes

Role: PI

**Redden Fund Grant** (7/1/2022-6/30/2023) \$1750 total

EIU Foundation

"Activity Determination of Human Drug Metabolism Enzymes Carboxylesterase 1 and 2 (CES1 and CES2) in An Undergraduate Biochemistry Laboratory Course"

Role: PI

**EIU Student Impact Grant For Faculty Mentors** (11/1/2022-5/1/2023) \$1500 total

EIU Office of Research and Sponsored Programs

"Development of Fluorogenic Chemical Tools to Study Enzymatic Activity in Living Cells"

Role: PI

**Redden Fund Grant** (8/1/2021-8/31/2022) \$1750 total

EIU Foundation

"Purification and Activity Determination of Human Drug Metabolism Enzyme Carboxylesterase 2 (CES2) in An Undergraduate Biochemistry Laboratory Course"

Role: PI

**EIU Council on Faculty Research FY 2022 Grant** (10/1/2021-6/30/2022) \$4000 total

EIU Council on Faculty Research

"Development and Optimization of Chemical Tools for Measuring the Effect of Genetic Differences in Drug Metabolism"

Role: PI

**Redden Fund Grant** (8/1/2020-8/31/2021) \$700 total

EIU Foundation

"Utilizing Recorded Course Content to Enhance Student Learning"

Role: PI



**EIU Student Impact Grant For Faculty Mentors** (11/1/2020-5/1/2021)

\$1500 total

EIU Office of Research and Sponsored Programs

“Development of Fluorescent Chemical Tools to Study Enzymatic Activity in Living Cells”

Role: PI