LOUISE K. CHARKOUDIAN
Haverford College, Chemistry Department, 370 Lancaster Avenue, Haverford, PA 19041
610.896.2994 (phone) • lcharkou@haverford.edu • https://charkoudian.sites.haverford.edu

ACADEMIC APPOINTMENTS

Associate Professor of Chemistry *2019—present*
Chemistry Department, Haverford College

Assistant Professor of Chemistry *2013—2019*
Chemistry Department, Haverford College

EDUCATION

Stanford University, Stanford, CA *2008—2013*
NIH Postdoctoral Fellow, bioorganic chemistry/chemical engineering (Advisor: Prof. Chaitan Khosla)

Duke University, Durham, NC *2008*
Ph.D. in bioinorganic chemistry (Advisor: Prof. Katherine Franz)

Haverford College, Haverford, PA *2003*
B.S. in chemistry with departmental high honors and *magna cum laude*

Marine Biological Laboratory, Woods Hole, MA *2001*
Semester in environmental science graduate with highest honors

AWARDS & HONORS

Henry Dreyfus Teacher-Scholar Award	*2019*
Scialog Fellow *Chemical Machinery of the Cell*	*2018*
Cottrell Scholar Award	*2018 —2021*
Haverford Chapter of Phi Beta Kappa Prize for Excellence in Teaching and Mentoring	*2017*
NSF CAREER Award	*2017—2022*
Cottrell College Science Award Scholar	*2015—2017*
NIH Postdoctoral National Research Service Award Fellowship (F32)	*2009—2012*
Paul Mangus Gross Research Fellowship	*2007—2008*
John Herbert Pearson Teaching Award	*2007*
Pelham Wilder Fellowship for "Excellence in Undergraduate Teaching"	*2006*
Kathleen Zielik Fellowship for "Excellence in Research"	*2005*
Joe Taylor Adams Award for an "Outstanding Graduate Student in Chemistry"	*2004*
George Pierce Graduation Prize in Organic Chemistry	*2003*
American Chemical Society Undergraduate Award in Analytical Chemistry	*2002*
Marine Biological Laboratory Associates' Award recipient	*2001*
Millipore Foundation Scholarship Award recipient	*1999—2003*

GRANTS (PI)

National Institute of Health: Functional hybrid natural product synthases by tracking acyl carrier protein binding and conformational dynamics. Award #2R15GM12704. $297,992. PI. *2020—2023*

Henry Dreyfus Teacher-Scholar Award: Unveiling molecular underpinnings of natural product Biosynthesis. $75,000. PI. *2019 – 2024*

Cottrell Scholars Award: Capturing the transient interactions of biosynthetic proteins to access new chemical diversity. Award #24350. $100,000. PI. *2018 – 2021*

National Science Foundation CAREER Award: Accessing chemical diversity through the characterization and redesign of natural product synthases. Award # CHE1652424. $560,681. PI. *2017 – 2022*

National Institute of Health: Functional hybrid natural product synthases by tracking acyl carrier protein binding and conformational dynamics. Award #1R15GM12704. $389,409. PI. *2016—2019*

Cottrell College Science Award: Molecular interactions between carrier proteins and oxygenases in natural product biosynthesis. Award #23251. $40,000. PI. *2015—2017*

Mellon Tri-College Faculty Forum Brainstorming Grant. Development of BioArt outreach activities to serve the surrounding Tri-College communities. $250. PI. *2014—2015*

GRANTS (Co-PI)

Cottrell Scholar Collaborative Award, Research Corporation for Science Advancement: *2020 – 2022*
Moving the Dial: a Network for Systemic Change. $25,000.
Co-PI with Dr. Rory Waterman (University of Vermont.; PI) and twenty other Cottrell Scholars

National Science Foundation Undergraduate Biology Education: RCN UBE: *2019 – 2024*
Failure as a part of Learning, A Mindset Education Network (FLAMEnet). $500,000.
Co-PI with Dr. Jennifer Heemstra (Emory U.; PI) and Dr. Lisa Corwin (U. Colorado, Boulder; Co-PI)

Cottrell Scholar Collaborative Award, Research Corporation for Science Advancement: *2019 – 2021*
Establishing a Network for Effective Interventions in STEM Classrooms. $25,000.
Co-PI with Dr. Kerstin Perez (MIT.; PI) and ten other Cottrell Scholars

National Science Foundation Undergraduate Biology Education: RCN UBE Incubator: *2018 – 2019*
Failure as a part of Learning, A Mindset Education Network (FLAMEnet). $75,000.
Co-PI with Dr. Jennifer Heemstra (Emory U.; PI) and Dr. Lisa Corwin (U. Colorado, Boulder; Co-PI)

Cottrell Scholar Collaborative Award, Research Corporation for Science Advancement: *2018 – 2020*
Partnering with CUREnet and professional societies for dissemination of CURE curricula. $25,000.
Co-PI with Dr. Jennifer Heemstra (Emory U.; PI) and twelve other Cottrell Scholars.

Mellon Tri-College Faculty Forum Brainstorming Grant. Expanding the impact of biochemistry course-based undergraduate research experiences (CUREs) by integrating efforts across the tri-college communities. $250. Co-PI with Dr. Daniela Fera and Dr. Yan Kung. *2018—2020*

COURSES TAUGHT

CHEM 111: Chemical Structure and Bonding (Fall 2016)
CHEM 222: Organic Biological Chemistry (Fall 2013, 2014, 2018, 2019)
CHEM 267/367: Research in Biological Chemistry (Fall & Spring 2013-2018)
CHEM 302: Laboratory in Chemical Structure and Reactivity (Spring 2014)
CHEM 357: Bioorganic Chemistry, Natural Product Biosynthesis (Spring/Fall 2015, Spring 2018, 2019, 2020)
CHEM/BIO 303: Laboratory in Biochemical Research (Spring 2015, 2016, 2018, 2019, 2020)

PUBLICATIONS (*Corresponding author; undergraduate student author)

Peer-reviewed publications from independent career at Haverford College:

(1) Sulpizio, A., Crawford, C.E.W., Koweek, R. S., **Charkoudian, L.K.*** "Probing the structure and function of acyl carrier proteins to unlock the strategic redesign of type II polyketide biosynthetic pathways." *J. Biol. Chem.*, Accepted.

(2) Klein, J. G., Wu, Y., Kokona, B., **Charkoudian, L. K.*** "Widening the bottleneck: Heterologous expression, purification, and characterization of Ktedonobacter racemifer minimal type II polyketide synthase in Escherichia coli." *Bioorganic Med. Chem.,* **2020**, *28*, 115686-115695.

(3) Kautsar, S., Blin, K., Shaw, S., Navarro, J., Terlouw, B., van der Hooft, J., van Santen, J.; Tracanna, V., Suarez, H., Pascal, V., Selem, N., Alanjary, M., Robinson, S., Lund, G., Epstein, S.C., Sisto, A.C., **Charkoudian, L.K**.; Collemare, J., Linington, R., Weber, Ti., Medema, M. H.* "MIBiG 2.0: A Repository for Biosynthetic Gene Clusters of Known Function." *Nucleic Acids Research*, **2020**, *48,* D454-D458.

(4) Acheampong, K. K., Kokona, B., Braun, G.A., Jacobsen, D.R., Johnson, K.A.*, **Charkoudian, L. K.*** "Colorimetric Assay Reports on Acyl Carrier Protein Interactions." **2019**, *Sci. Reports*, 9, 15589.

(5) Epstein, S. C., Winesett, E. S., Huff, A., Londergan, C.H.*, **Charkoudian, L. K.*** "Tracking Carrier Protein Motions with Raman Spectroscopy." *Nature Comm.*, **2019,** *10*, 2227.

(6) Henry, M., Shorter, S., **Charkoudian, L. K**., Heemstra, J. M., Corwin, L. A. "FAIL is Not a Four-Letter Word: A Theoretical Framework for Exploring Student Approaches to Academic Challenge and Response to Failure." *CBE Life Sci. Chem. Ed.*, **2019**, *18,* ar1-rm1.

(7) Greule, A., **Charkoudian, L.K.** Cryle, M. J. "Studying Trans-Acting Enzymes that Target Carrier Protein-Bound Amino Acids during Nonribosomal Peptide Synthesis." *Methods in Enzymology*, **2019**, *617*, 114.

(8) Lopes, L. E., Waldis, S. J., Terrell, S. M., Lindgren, K. A.*, **Charkoudian, L. K.*** "Vibrant symbiosis: Achieving Reciprocal Science Outreach through Biological Art." *PLoS Biology*, **2018**, 16(11): e300006.

(9) Rivas, M. A., Courouble, V. C., Baker, M. C., Cookmeyer, D. L., Fiore, K. E., Frost, A. J., Godbe, K. N., Jordan, M. R., Krasnow, E. N., Mollo, A., Nawal, S., Ridings, S. T., Keisuke, S., Shroff, K. D., Studnitzer, B., Thiele, G. A. R., Sisto, A. C., Huff, A. R., Fairman, R., Beld, J., Kokona, B.*, **Charkoudian, L. K.*** "The Effect of Divalent Cations on the Thermostability of Type II Polyketide Synthase Acyl Carrier Proteins." *AIChE Journal*, **2018**, *64*, 4308-4318.

(10) Epstein, S. C., **Charkoudian, L. K.***, Medema, M. H.* "A Standardized Workflow for Submitting Data to the Minimum Information about a Biosynthetic Gene Cluster (MIBiG) Repository: Prospects for Research-Based Educational Experiences." *Stand. Genomic Sci.,* **2018***, 13,* 16.

(11) Haas, K. L.,* Heemstra, J. M., Medema, M. H., **Charkoudian, L. K.*** "Collaborating with Undergraduates to Contribute to Biochemistry Community Resources." *Biochemistry*, **2018**, *57*, 383-389.

(12) Cookmeyer, D. L., Winesett, S. E., Kokona, B., Huff, A. R., Aliev, S., Bloch, N. B., Bulos, J. A., Evans, I. L., Farge, C. R., Godbe, K. N., Khromava, M., Konstantinovsky, D. M., Lafrance, A., Lamacki, A. J., Parry, R. C., Quinn, J. M., Thurston, A. M., Tsai, K. J. S., Mollo, A., Cryle, M. J., Fairman, R.*, **Charkoudian, L. K.*** " Uncovering Protein-Protein Interactions through a Team-based Undergraduate Biochemistry Course." *PLoS Biology*, **2017**, *15:* e2003145.

(13) Mollo, A., von Krusenstiern, A. N., Bulos, J. A., Ulrich, V., Akerfeldt, K., Cryle, M. J., **Charkoudian, L. K.*** "P450 Monooxygenase ComJ Catalyses Side Chain Phenolic Cross-linking During Complestatin Biosynthesis." *RSC Advances*, **2017**, *7,* 35376-35384.

(14) Thiele, G. A. R., Friedman, C. P., Tsai, K. J. S., Beld, J., Londergan, C. H.*, **Charkoudian, L. K.*** "Acyl Carrier Protein Cyanylation Delivers a Ketoacyl Synthase-Carrier Protein Crosslink". *Biochemistry*, **2017**, *56*, 2533 – 2536.

(15) Finzel, K.*, Beld, J., Burkart, M., **Charkoudian, L. K.** "Utilizing Mechanistic Crosslinking Technology to Study Protein-Protein Interactions: An Experiment Designed for an Undergraduate Chemistry Lab." *J. Chem. Ed.* **2017**, *94,* 375-379.

(16) Kittiä, T., Mollo, A., **Charkoudian, L. K.*,** Cryle, M. J.* "Have Substrate, will Travel: New Structural Data Reveals the Motion of Carrier Proteins in Non-Ribosomal Peptide Synthesis." *Angew. Chem. Int. Ed.* **2016**, *55*, 9834 – 9840.

(17) **Charkoudian, L. K.,** Sampson, N. S., Kumar, K., Kritzer, J.* "Designing Convergent Chemistry Curricula." *Nat. Chem. Biol.*, **2016**, *12*, 382 – 386.

(18) Fuga Li, Y., Tsai, K., Harvey, C., Ary, B., Berlew, E., Boehman, B., Findley, D., Friant, A., Gardner, C., Gould, M., Ha, J.H., Lilley, B., McKinstry, E., Nawal, S., Parry, R., Rothchild, K., Silbert, S., Tentilucci, M., Thurston, A., Wai, R., Yoon, Y., Aiyar, R., Medema, M. H., Hillenmeyer, M. E.,* and **Charkoudian, L. K.*** "Comprehensive Curation and Analysis of Fungal Biosynthetic Gene Clusters of Published Natural Products." *Fungal Genet. & Biol.*, **2016**. *89,* 18-28.

(19) Kokona, B., Winesett, E. S., von Krusenstiern, A. N., Cryle, M. J., Fairman, R.* **Charkoudian, L. K.*** "Probing the Selectivity of Beta-hydroxylation Reactions in Non-ribosomal Peptide Synthesis using Analytical Ultracentrifugation." *Anal. Biochem.* **2016**, *495,* 42-51.

(20) Hillenmeyer, M. H.*, Borisova, G. V., Berlew, E. E., **Charkoudian, L. K.*** "Evolution of Chemical Diversity by Coordinated Gene Swaps in Type II Polyketide Gene Clusters." *Proc. Natl. Acad. Sci.* **2015**, *112,* 13952 – 13957.

(21) Morlon, H., O'Connor, T., Bryant, J. A., **Charkoudian, L. K**., Docherty, K. M., Jones, E., Kembel, S., Green, J. L., Bohannan, B. J. M. "The Biogeography of Putative Microbial Antibiotic Production." *PLoS One*. **2015***, 23,* e0130659.

(22) Johnson, M. N. R., Londergan, C. H.*, **Charkoudian, L. K.*** "Probing the Phosphopantetheine Arm Conformations of Acyl Carrier Proteins using Vibrational Spectroscopy." *J. Am. Chem. Soc.* **2014**, *136*, 11240-11243. (Article highlighted in *C&EN News*).

Peer-reviewed publications from postdoctoral and graduate work:

(23) Walker, M. C., Thuronyi, B. W., **Charkoudian, L. K.**, Lowry, B., Khosla, C., Chang, C. Y. C. "Expanding the Fluorine Chemistry of Living Systems using Engineered Polyketide Synthase Pathways." *Science*. **2013***, 341,* 1089-1094. (Article highlighted in *C&EN News* and *Nature*)

(24) Fitzgerald, J. T., **Charkoudian, L. K.,** Watts, K. R., Khosla, C. "Analysis and Refactoring of A-74528 Biosynthetic Pathway." *J. Am. Chem. Soc.* **2013**, *135*, 3753-3755.

(25) **Charkoudian, L. K.,** Farrell, B. F., Khosla, C. "Natural Product Inhibitors of Glucose-6-Phosphate Translocase." *Med. Chem. Comm.* **2012,** 3, 926 - 931.
(26) **Charkoudian, L. K.**, Liu, C. W., Capone, S., Kapur, S., Cane, D. E., Togni, A., Seebach, D., Khosla, C. "Probing the Interactions of an Acyl Carrier Protein Domain from the 6-Deoxyerythronolide B Synthase." *Protein Science*. **2011**, 20, 1244-1255.
(27) **Charkoudian, L. K**., Fitzgerald, J. F., Khosla, C., Champlin, A. "In Living Color: Bacterial Pigments as an Untapped Resource in the Classroom and Beyond". *PLoS Biology*, **2010,** 8, 10, e1000510.
(28) Zaleta, K. R., **Charkoudian, L. K.**, Ridley, C. P., Khosla, C. "Cloning, Sequencing, Heterologous Expression, and Mechanistic Analysis of A-74528 Biosynthesis." *J. Am. Chem. Soc.* **2010**, 132, 9122-9128.
(29) **Charkoudian, L. K**., Dentchev, T., Lukinova, N., Wolkow, N., Dunaief, J. L., Franz, K. J. "Iron Prochelator BSIH Protects Retinal Pigment Epithelial Cells against Cell Death Induced by Hydrogen Peroxide." *J. Inorg. Biochem.* **2008**, *102*, 2130-2135.
(30) **Charkoudian, L. K.*,** Heymann, J. J., Adler, M. J., Haas, K. L., Mies, K. A., Bonk, J. F. "Forensics as a Gateway: Promoting Undergraduate Interest in Science and Graduate Student Pedagogical Development Through a First-Year Seminar Course." *J. Chem. Ed.* **2008**, *85,* 807 – 812.
(31) **Charkoudian, L. K.,** Pham, D. M., Kwan, A., Vangeloff, A. , Franz, K. J. "Modifications of Boronic Ester Pro-chelators Triggered by Hydrogen Peroxide Tune Reactivity to Inhibit Metal-Promoted Oxidative Stress. *Dalton Trans*. **2007**, *43*, 5031-5042.
(32) **Charkoudian, L. K**., Pham, D. M., Franz, K. J. "A Pro-chelator Triggered by Hydrogen Peroxide Inhibits Iron-Promoted Hydroxyl Radical Formation." *J. Am. Chem. Soc.* **2006**, *128*, 12424 – 12425.
(33) Franz, K. J., **Charkoudian, L. K**. ROS-Sensitive Iron Chelators and Methods of Using the Same. US Patent 20100004204, **2006**.
(34) **Charkoudian, L.K**., Franz, K.J. "Fe(III) Coordination Properties of Neuromelanin Components: 5, 6-Dihydroxyindole and 5, 6- Dihydroxyindole-2-carboxylic Acid." *Inorg. Chem.* **2006**, *45*, 3657-3664.

Other publications:

(1) **Charkoudian, L. K.** "One CURE for Managing the Research and Teaching Expectations at a Research-Intensive College." *Council on Undergraduate Research in Chemistry*, January 29 2019.
(2) **Charkoudian, L. K**., Bitners, A. C., Bloch, N. B., Nawal, S. "Dynamic Discussions and Informed Improvements: Student-led Revision of First-Semester Organic Chemistry." *Teaching and Learning Together in Higher Education*, Issue 15, Spring 2015.

PROFESSIONAL SERVICE

Reviewer: National Science Foundation	*2020*
Reviewer: Research Corporation for Scientific Advancement	*2020*
Board Member: American Peptide Society (Nominating Committee)	*2019–2021*
Reviewer: National Institutes of Health Synthetic and Biological Chemistry B Study Section	*2019*
Steering Committee: Failure as a part of Learning, A Mindset Education network (FLAMEnet)	*2018– present*
Reviewer: Department of Energy BioEnergy Engineering for Products Synthesis Panel	*2018*
Thesis Committee Advisor: University of Delaware Department of Chemistry & Biochemistry	*2018 – present*
Member, COACh, a grassroots organization working to support women in STEM	*2018 – present*
Thesis Committee Advisor: Drexel University Microbiology & Immunology	*2017 – present*
Mentor: Graduate Assistance in Areas of National Need	*2017 – present*
Panelist: NSF Postdoc to PUI Workshop, American Society of Cell Biology Career Workshop, Frontiers at the Interface of Chemistry & Biology Symposium	*2015*
Reviewer: Department of Energy Microbial Biofuels Review Panel	*2014*
Ad hoc Grant Proposal Reviewer: Carleton College, University of Northern Illinois, National Science Foundation, Marsden Fund Council (New Zealand), Biotechnology and Biological Sciences Research Council (United Kingdom)	*2014—present*
Ad hoc Manuscript Reviewer: *ACS Infectious Disease*, *ACS Medicinal Chemistry, AIChE*, *Journal of the American Chemical Society*, *Applied Biochemistry and Biotechnology*, *Biochemical Journal*, *Biochemistry*, *Bioorganic and Medicinal Chemistry, Biopolymers, BMC Genomics, Chemical Sciences, Chemistry and Biology*, *Journal of Chemical Education, FEBS Letters, PNAS, Scientific Reports, Synthetic and Systems Biology, RSC Advances, SynLett, Tetrahedron Letters*	*2010—present*

SERVICE AT HAVERFORD COLLEGE

Diversity, Equity, Inclusion and Thriving Leadership Program, Participant	2020— 2021
Navigating and Transforming Seminar, Participant	2019— 2020
Faculty Representative to the Cases of Sexual and Racial Harassment	2019— 2020

Faculty Representative to the Haverford Chemistry Search Committee	2019— 2020
Haverford Faculty Athletic Representative	2019— 2020
Haverford Wellness Committee	2019— 2020
Haverford College Faculty Representative to the Bryn Mawr Chemistry Search Committee	2018— 2019
Faculty Representative to the Pre-Health Committee	2018— 2019
New Faculty Mentor to Dr. Rebecca Everett (Mathematics)	2018— 2019
College Honors Committee	2017—2018
Advising Working Group	2017— 2018
Faculty Representative to the Mentors as Student Teachers (MAST) Program	*2015 — 2016*
Faculty Representative to the Haverford Biology Search Committee	*2015 — 2016*
Member of the Ethics symposium planning committee	*2015 — 2016*
Beckman Selection Committee	*2015 — 2016*
Faculty Liaison to the Women's Lacrosse Team	*2014 — present*
Major Research Instrumentation Grant Writing Committee	*2014 — 2016*
Member: KINSC Steering Committee	*2014 — 2015*
Mentor for Laboratory Development for Mentors as Student Teachers (MAST) Program	*2014 — 2015*
Advisor to Pre-majors (Including QuestBridge and Horizon students) and Chemistry Majors	*2014 — present*

RECENT TALKS AND PRESENTATIONS

Invited oral presentations (since 2013)

(1) James Madison University, MD. November 2020. Virtual.
(2) Ursinus College, PA. November 2020. Virtual
(3) Loyola Marymount University, CA. November 2020. Virtual
(4) Virginia Tech, Blacksburg, VA. November 2020. Virtual.
(5) Hofstra University, Long Island, NY. September 2020. Virtual.
(6) American Chemical Society, San Francisco, CA. August 2020. Virtual.
(7) Virginia Tech, Blacksburg, VA. April 2020. Cancelled due to COVID19 pandemic.
(8) University of Pennsylvania, Philadelphia, PA. February 2020.
(9) Saint Joseph's University, Philadelphia, PA. February 2020.
(10) Trinity University, San Antonio, TX. January 2020.
(11) Gettysburg College, Gettysburg, PA. October 2019.
(12) University of Oslo, Norway, August 2019.
(13) FLAMEnet, Atlanta, GA. May 2019.
(14) Frontiers at the Chemistry and Biology Interface, Bethesda MD. May 2019.
(15) University of the Sciences, Philadelphia, PA. March 2019.
(16) Institutional Advancement, Haverford College, Haverford, PA. January 2019.
(17) University of Chicago, Chicago, IL. December 2018.
(18) University of Illinois Chicago, Chicago, IL. December 2018.
(19) Duke University, Durham, NC. October 2018.
(20) National Cancer Institute, Frederick, MD. September 2018.
(21) Cottrell Scholars Conference, Tucson, AZ. July 2018.
(22) Bioorganic Chemistry Gordon Conference, Proctor, NH. June 2018.
(23) Emory University, GA. April 2018.
(24) University of Richmond, VA. April 2018.
(25) Bowdoin College, Brunswick, ME. Nov 2017.
(26) University of Delaware, Newark, DE. Oct 2017.
(27) Swarthmore College, Swarthmore, PA. Oct 2017.
(28) George Washington University, Washington DC. Sept 2017.
(29) University of Edinburgh, Edinburgh, Scotland. Aug 2017.
(30) University of Bristol, Bristol, United Kingdom. July 2017.
(31) Temple University, Philadelphia, PA. Feb 2017.
(32) Villanova University, Villanova, PA. Dec 2016.
(33) American Chemical Society National Meeting, Philadelphia, PA. Aug 2016.
(34) Duke University, Durham, NC. Mar 2016.
(35) Haverford College Faculty Seminar, Haverford, PA. Feb 2016.
(36) Bryn Mawr College, Bryn Mawr, PA. Nov 2013

Organized Symposia and Workshops

(1) Mentoring in Chemistry, Virginia Tech, Blacksburg, VA. April 2020 (Cancelled due to COVID19 pandemic).

(2) American Chemical Society: Inorganic Chemistry & Women in Chemistry Committee Sessions, Philadelphia, PA. March 2020. (Canceled due to COVID19 pandemic).
(3) Failure as a part of Learning: A Mindset Educational Network (FLAMEnet), 3rd Annual Workshop. Howard Hughes Medical Institute, Bethesda, MD. May 2020. (Postponed due to COVID19 pandemic).
(4) Creating Inclusive Learning Spaces by Embracing Failure in STEM. Trinity University, San Antonio, TX. January 2020.
(5) Failure as a part of Learning: A Mindset Educational Network (FLAMEnet) 2nd Annual Workshop. Emory University, Atlanta, GA. May 2019.
(6) Failure as a part of Learning: A Mindset Educational Network (FLAMEnet) 1st Annual Workshop. Emory University, Atlanta, GA. May 2019.

Contributed presentations (undergraduate student authors are underlined)
(1) Berlew, E. E., Epstein, S. C., Friedman, C. P., Johnson, M. J., Rivas, M. A., Thiele, G. A. R., Tsai, K. J. S., Hillenmeyer, M. H., Medema, M. H., Kokona, B., Johnson, K., Fairman, R., Londergan, C. H., **Charkoudian, L. K**. Exploring the potential for functional hybrid synthases to create new chemical diversity: Efforts in the classroom and research laboratory. Cottrell Scholars Conference, July 2018, Tucson, AZ.
(2) Thiele, G. A. R., Friedman, C. P., Tsai, K. J. S., Beld, J., Londergan, C. H., **Charkoudian, L. K.** Functional hybrid synthases by tracking acyl carrier protein structural dynamics using site-specific vibrational spectroscopy. Bioorganic Gordon Conference, June 2017, Proctor, NH.
(3) Hillenmeyer, M. H., Vandova, G. A., Berlew, E. E., **Charkoudian, L.K**. Evolution of chemical diversity in type II polyketide synthase gene clusters. Bioorganic Gordon Conference, June 2015, Proctor Academy, NH.
(4) Friedman, C., Johnson, M. N. R.; Londergan, C. H.; **Charkoudian, L. K**. Functional hybrid natural product synthases by tracking acyl carrier protein structural dynamics using site-specific vibrational spectroscopy. Bioorganic Gordon Conference, June 2015, Proctor Academy, NH.
(5) Friedman, C., Johnson, M. N. R.; Londergan, C. H.; **Charkoudian, L. K**. Functional hybrid natural product synthases by tracking acyl carrier protein structural dynamics using site-specific vibrational spectroscopy. Chemical Biology Discussion Group, May 2015, New York City, NY.
(6) Johnson, M. N. R., Londergan, C. H.; **Charkoudian, L. K**. Probing the interactions of carrier protein domains in polyketide and non-ribosomal peptide biosynthesis. Bioorganic Gordon Conference, June 2014, Proctor Academy, NH.

MENTORED UNDERGRADUATE STUDENTS

- *Students engaged in research in my laboratory:* ***42*** *(26 thesis students)*
- *Thesis second readerships:* ***29***
- *Student presentations mentored:* ***72*** *(37 external presentations at regional, national, or international conferences)*

Current (9 students):
Zach Brown ′21
Grayson Hamrick ′21
June Hoang ′21
Ariana Sulpizio, ′21
Callie Crawford ′22
Rebecca Koweek′22
Christina McBride ′23
Jia Wen Wang ′23

Lab Alumni (26 thesis students)
(1) Claire Armstrong ′20, University of Colorado Boulder (Research Assistant) and Alpine Hospital for Animals (Assistant)
(2) Kameron Banks ′20, University of Pennsylvania (Medical School)
(3) Clara Farrehi ′20, Thomas Jefferson (Medical School)
(4) Josh Klein, ′20, University of Pennsylvania (Research Assistant).
(5) Ashley Sisto, ′20, The Lavelle Law Firm.
(6) Kofi Acheampong ′19, University of Pennsylvania (Research Assistant).
(7) Renata DiDonato, ′19, Boston Children's Hospital (Research Assistant).
(8) Samuel Epstein ′19, New York University (Chemistry Ph.D.).
(9) Yang Wu ′19, University of California Berkeley (Chemistry Ph.D.).
(10) Vasiliki Chioti ′18, Princeton University (Chemistry Ph.D.).
(11) Marco Rivas ′18, University of Chicago (Medical School)
(12) Stephanie Terrell ′18, University of Michigan (Medical School).

(13) Valentine Courouble ′17, The Scripps Research Institute, Florida (Chemistry Ph.D.).
(14) Aurelio Mollo ′17, Harvard University (Chemistry Ph.D.).
(15) Grace Thiele ′17, University of Vancouver (Research Assistant).
(16) Joshua Bulos ′16, University of Pennsylvania (Chemistry Ph.D.).
(17) Saadia Nawal ′16, George Washington University (M.D.).
(18) Kathleen Tsai ′16. University of Pennsylvania (M.Ed.).
(19) Emily Winesett, ′16, University of Florida (M.D./Ph.D.).
(20) Noah Bloch, ′16, Harvard University (Biological and Biomedical Sciences, Ph.D.)
(21) David Cookmeyer, ′16, Harvard University (M.D.)
(22) Erin Berlew ′15, University of Pennsylvania (Bioengineering Ph.D.).
(23) Connie Friedman ′15, University of Southern California (M.D.).
(24) Alfred Nikolai von Krusenstiern ′15, Columbia University (M.D./Ph.D.).
(25) Alec De Vivo, ′14. Colorado School of Mines (Computer Science Ph.D.).
(26) Matt Johnson, ′14. Columbia University (M.D.).