Curriculum Vitae

Merrick Pierson Smela

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Education

Harvard University 2019 – present
PhD student, joint Chemical Biology / Chemistry and Chemical Biology

University of Cambridge 2018 – 2019
MPhil in Biological Science

University of Minnesota 2015 – 2018
B.S. in Chemistry, B.S. in Biochemistry, and minor in Mathematics
Summa cum laude with high distinction

University of Minnesota 2013 – 2015
(Postsecondary enrollment as a high school student)

Research Experience

Harvard University: 2020 – present
Advisor: Prof. George Church
Currently conducting a variety of research in synthetic biology. My main project is on *in vitro* oogenesis, although I also am studying T-box riboswitches.

University of Cambridge: 2018 – 2019
Advisor: Prof. Azim Surani
Investigated the gene regulatory networks involved in primordial germ cell specification, mainly through use of auxin-induced degron gene tagging in a model system derived from human embryonic stem cells. This led to two publications (one first-author).

Harvard University: Summer 2017
Advisor: Prof. Emily Balskus
Using both high-throughput screening and rational inhibitor design, found compounds that inhibit the conversion of choline to trimethylamine by gut bacteria.

University of Minnesota, Twin Cities: 2015 – 2018
Advisor: Prof. Thomas Hoye
Synthesized substituted dibenzofurans using the HDDA reaction and analyzed them by UV and NMR spectroscopy to determine their suitability for use as active layers in organic LEDs, leading to a patent application. Developed a synthetic strategy using traceless tethers to expand the scope of the HDDA reaction, leading to a first-author publication.

Teaching Experience

University of Minnesota

Honors Program Mentor 2016 – 2017

ChemFoundations tutoring leader for Honors Organic Chemistry 2016

Harvard University

Teaching fellow, Organic Chemistry Lab (CHEM27) Spring 2020

Patents and Publications

Compounds and Devices Containing Such Compounds. Thomas Hoye, Feng Xu, Sean Ross, Xiao Xiao, Merrick Pierson Smela. US Patent Application on compounds for OLED active layers. Number WO2018014028, filed 2017 July 17, published 2018 January 18.

Merrick Pierson Smela and Thomas Hoye. A Traceless Tether Strategy for Achieving Formal Intermolecular Hexadehydro-Diels–Alder Reactions. *Organic Letters* **2018**, 20 (17), pp 5502–5505

Merrick Pierson Smela, Anastasiya Sybirna, Fredrick Wong, M. Azim Surani. Testing the role of SOX15 in human primordial germ cell fate. *Wellcome Open Research* **2019,** 4 (122)

Anastasiya Sybirna, Walfred W.C. Tang, Merrick Pierson Smela, Sabine Dietmann, Wolfram H. Gruhn, Ran Brosh, M. Azim Surani. A critical role of PRDM14 in human primordial germ cell fate revealed by inducible degrons. *Nature Communications* **2020,** 11 (1282)

Manuscripts in Progress

Rongrong Lin, Merrick Pierson Smela, and Thomas R. Hoye. Silicon as a Powerful Element in HDDA Chemistry: From Disposable or Functionalizable Tethers to Redirection of Innate Reactivity Patterns. Under review for publication in *JACS.*

Anthony Tabet, Thomas Gebhart, Guanglu Wu, Charlie Readman, Merrick Pierson Smela, Vijay K. Rana, Cole Baker, Harry Bulstrode, Polina Anikeeva, David H. Rowitch, Oren A. Scherman. Predicting Macrocyclic Molecular Recognition with Machine Learning. *ChemRxiv* **2019**

Presentations

“Effects of Silver Nanoparticles on the Zebrafish Microbiome“ (Poster, presented December 2016 to University of Minnesota College of Biological Sciences students and faculty).

“Synthesis and Characterization of Fluorescent Compounds for OLED Active Layers” (Poster, presented August 2016 at the University of Minnesota Summer Undergraduate Research Expo.)

"Synthesis of Highly Conjugated Compounds for Organic LEDs" (Oral presentation, given July 2016 as part of the Heisig summer research fellowship.)

"Developing Inhibitors of Bacterial Choline Metabolism" (Oral presentation, given August 2017 as part of the Harvard Amgen Scholars program.)

"Cytolysin FitD Overexpression and Biocontainment Systems for the Control of Zebra Mussels" (Poster, presented November 2017 at the iGEM Jamboree.)

"Removable Linkers for the Hexadehydro-Diels-Alder Reaction" (Undergraduate senior thesis presentation, given December 2017 at the University of Minnesota Chemistry department)

"Investigating Human Primordial Germ Cell Specification by Manipulation of Regulatory Proteins" (MPhil thesis presentation, given August 2019 at the Gurdon Institute)

Honors and Awards

Harvard University

NSF Graduate Research Fellowship	Spring 2018

University of Cambridge

Churchill Scholarship	Spring 2018

University of Minnesota, Twin Cities:

Sigma Xi	Fall 2017
Harvard Amgen Scholar	Summer 2017
Astronaut Scholarship	Spring 2017
Goldwater Scholarship Honorable Mention	Spring 2017
UROP Grant Recipient	Spring 2016 and 2017
Heisig-Gleysteen Fellowship	Summer 2016
J. Lewis Maynard Memorial Prize in Advanced Inorganic Chemistry	Spring 2016
Bentson Family Scholarship	2015 – 2018
Gold Scholar Award	2015 – 2018
Cyrus and Mary Field Scholarship	2015 – 2018
Dean's List	2015 – 2018

Notable awards during PSEO period:

US Chemistry Olympiad, High Honors	Spring 2015
National Merit Scholarship	Spring 2015
Harvard Prize Book Award	Spring 2014

Leadership and Service

Harvard University

Emerging Tech Policy Network	2019 – 2020

University of Minnesota

Alpha Chi Sigma	*2015 – 2018*
Treasurer	2017 – 2018
Executive Board member	2017 – 2018
Public Relations Alchemist *(head of outreach)*	Spring 2017
Representative to the Science and Engineering Student Board	Fall 2016
Outreach Committee member	2016 – 2018
University of Minnesota iGEM Team	*2017 – 2018*
American Chemical Society Student Chapter	*2016 – 2018*
Treasurer	2016 – 2018
Synthetic Biology Society	*2016 – 2018*
Officer	2017 – 2018