

SARAH E. O'CONNOR

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<https://www.ice.mpg.de/ext/index.php?id=natural-product-biosynthesis>

Education

2001 PhD, Organic Chemistry, Massachusetts Institute of Technology, Cambridge, MA
 1995 BS, Chemistry, University of Chicago, Chicago, IL

Positions held

2019- Director, Department of Natural Product Biosynthesis, Max Planck Institute of Chemical Ecology, Jena, Germany
 2011-2019 Project Leader, The John Innes Centre, Department of Biological Chemistry, Norwich, UK
 2011-2019 The University of East Anglia, School of Chemistry, Norwich, UK
 (Honorary Professor (2015-2019), Professor (2012-2014), Lecturer (2011-2012))
 2007-2011 Associate Professor of Chemistry, Massachusetts Institute of Technology, Cambridge, USA
 2003-2007 Assistant Professor of Chemistry, Massachusetts Institute of Technology, Cambridge, USA
 2000-2003 Post-doctoral Fellow in Biochemistry, Harvard Medical School, Boston, USA

Honours and Prizes

2022 ACS Ernest Guenther Award in the Chemistry of Natural Products
 2019 RSC Perkin Prize for Organic Chemistry
 2017 Elected to EMBO membership
 2013 Wain Medal
 2011 Royal Society Wolfson Research Merit Award
 2011 ACS Pfizer Award in Enzyme Chemistry
 2007-2009 Sloan Research Fellowship
 2007 Arthur Neisch Award of the North American Phytochemical Society
 2007-2010 American Cancer Society Research Scholar
 2005-2008 Beckman Young Investigator
 2004-2007 Latham Family Career Development Professor
 2003-2005 Smith Family Medical Foundation New Investigator
 2000-2002 ACS Irving S. Sigal Postdoctoral Fellowship, Harvard Medical School
 1998-1999 ACS Organic Division Graduate Fellowship, California Institute of Technology
 1998 Distinguished Graduate Student Everhart Lecture Series, California Institute of Technology

Current Research Funding

H2020 (Jensen, PI; Courdavault, O'Connor, co-Is)	01/19-12/22
EU 814645	€6,648,301
Refactoring monoterpenoid indole alkaloid production in microbial cell factories	
ERC Advanced Grant (O'Connor, PI)	07/18-07/23
ERC 788301	€2,499,000
Harnessing the Molecules of Medicinal Plants	

Representative Plenary Lectures since 2019

- 2022 International Symposium on Chemical Biology, Geneva, 11/22
- 17th Belgian Organic Synthesis Symposium, Namur, 07/22
- Taito Soine Memorial Lecture in Medicinal Chemistry, University of Minnesota, Minneapolis, 03/22
- Harvard Medical School, Department of Biological Chemistry, Boston, 04/22
- Scripps Research Institute, Department of Chemistry, La Jolla, 04/22
- Oxford, School of Plant Sciences, Oxford, 03/22
- Enzyme Mechanisms Conference, Tucson, 01/22
- University of British Columbia, Department of Chemistry, Vancouver, 12/21
- McGill, Department of Chemistry, Montreal, 11/21
- KAUST, Department of Chemistry, online, 10/21
- German Conference on Synthetic Biology, online, 09/21
- CeBeTech Plenary Lecture, Bielefeld, 09/21
- University of Bristol, Synthetic Biology Center, online, 07/21
- European Conference of Natural Products, Plenary Lecture, online, 07/21
- Metabolic Engineering 14, Opening Plenary Lecture, online, 07/21
- NobelGen, Ontario, 12/20
- University of Zurich Department of Plant Biology, 09/20
- EMBL Workshop in Chemical Biology, online 09/20
- Vienna Biocenter, 06/20
- CHEMSYS Conference, Blankenberg, 02/20
- MPI Institute of developmental Biology, Tübingham, 01/20
- MPI Medical Research, Heidelberg, 12/19
- Peking University, Department of Chemistry, 10/19
- Shanghai Institute of Plant Physiology, Institute of Synthetic Biology, 10/19
- Terpnet, Halle, 08/19
- Novonordisk Conference on Synthetic Biology, Copenhagen, Denmark, 05/19
- International Society of Chemical Ecology, Atlanta, USA, 06/19
- Gottlieb Memorial Lecture, University of Illinois, Champaign-Urbana, USA, 09/19

External Panels and Committees

Associate Editor, Journal of Biological Chemistry (2022-)
Associate Editor, Science Advances (2018-)
Associate Editor ACS Synthetic Biology (2017- 2019)
Advisory Board, Ayana (2022-)
Advisory Board, Terpnet (2015-present)
Member, Industrial Biotechnology and Bioenergy Strategy Advisory Panel (BBSRC) (2016-2019)
Member, Newton Foundation Fellowship Committee (2015-2021)
External Advisory Board, Helmholtz Foundation, Karlsruhe Institute of Technology (2015-2018)
Member, BBSRC Panel D (2013-2016)
Chair of the Plant Metabolic Gordon Research Conference (2015)
Editorial Board Metabolic Engineering (2016- present)
Editorial Advisory Board Phytochemistry (2015-present)
Editorial Advisory Board RSC ChemBioChem (2015-present)
Editorial Advisory Board ACS Chemical Advances (2015-present)
Editorial Advisory Board Natural Products Reports (2011-present)
Editorial Advisory Board ACS Chemical Biology (2012-present)

Group Members***PhD students***

2003-2008	Elizabeth McCoy (BA Hamline College)
2005-2010	Peter Bernhardt (MS University of Minnesota)
2005-2011	Lesley Ann Giddings (BS Smith College)
2005-2011	Nancy Yerkes (BS Columbia University)
2006-2011	Weerawat Ricky Runguphan (BS Harvard University)
2007-2011	Johnathan Cheng (BS University of Hawaii)
2008-2013	Weslee Glenn (BS Hampton College)

2012-2015	Richard Payne (Degree Oxford)
2012-2016	Anna Stavrinides (Diploma Montpellier)
2012-2015	Franziska Kellner (Diploma University of Applied Sciences Dresden)
2018-2022	Dagny Grzech (BS University of East Anglia)
2018-2022	Chloe Langley (BS University of Leicester)
2018-2022	Lira Palmer (BS University of California Irvine)
2019-2023	Mohamed Omar Kamileen (BS University of East Anglia)
2020-2024	Marianna Boccia (MS U Naples)
2021-2025	Mathilde Florean (MS U Padua)
2021-2025	Anh Hai Vu (MS Uppsala University)

Post-Doctorals

2005-2006	Carman Galan (PhD University of Georgia)
2005-2007	Shi Chen (PhD Shanghai Jiaotong University)
2004-2008	Justin Maresh (PhD University of Chicago)
2007-2008	Xudong Qu (PhD Shanghai Institute of Organic Chemistry)
2007- 2010	Aimee Usera (PhD Johns Hopkins University)
2008- 2010	Hyang Yeol Lee (PhD University of Michigan)
2008- 2011	Nathan Nims (PhD UMass Amherst)
2009- 2011	David Liscombe (PhD University of Calgary)
2011-2013	John Cheng (PhD MIT)
2010-2014	Fernando Geu-Flores (PhD University of Copenhagen)
2011-2016	Nat Sherden (PhD Caltech)
2012-2016	Stephanie Brown (PhD Harvard)
2013-2014	Fionn O'Hara (PhD University of Cambridge)
2014-2016	Hajo Kries (PhD ETH)
2013-2017	Dorota Jakubczyk (PhD Universitat Karlsruhe)
2013-2017	Evangelos Tatsis (PhD University of Ioannina)
2015-2018	Thuy Dang (PhD Calgary)
2016-2018	Benjy Lichman (PhD UCL)
2015-2018	Jakob Franke (PhD Leibnitz, Jena)
2016-2018	Don Nguyen (PhD Calgary)
2016-2019	Scott Farrow (PhD Calgary)
2020- 2021	Yindi Jiang
2017-2022	Kotaro Yamamoto (PhD Kobe)
2017-2022	Carlos Carlos Rodríguez-López
2013-present	Lorenzo Caputi, scientist (PhD University of York)
2018-present	Matt Demars (PhD University of Michigan)
2019-present	Nestor Hernandez (PhD University of Wisconsin)
2020-present	Benke Hong (PhD Peking U)
2021-present	Maricel Santoro
2021-present	Prashant Sonawane
2021-present	Maite Colinas Martinez
2021-present	Carsten Schotte
2022-present	Blaise Kimbali Lombe

Courses Taught**Friedrich Schiller University*****Trends in Chemical Ecology MEESWildcard (11 enrollment)***

Taught Summer21

This module provides a workshop for critical reading, review and presentation of the scientific literature for master's and PhD level students.

Chemical and Molecular Interaction Ecology MEES028/E23 (15 enrollment)

Taught Winter20-21

This module provides a survey for key concepts in chemical ecology for master's level students.

University of East Anglia**BIO-6019Y Plant Biotechnology** (10 enrollment)

Taught Spring16, Spring17

This module identifies the major challenges for sustainable crop production, highlight the role of plant biotechnology and current plant breeding strategies. Taught two lectures each year on medicinal plants.

CHE-2FY8 Medicinal Chemistry (100 enrollment)

Taught Spring12, Fall12, Fall13-Spring14 (module organizer F13-S14)

This course introduces medicinal chemistry using chemical principles established during the first year. Topics discussed include the mode of action and synthesis of β -lactams; sulphonamides, amino acids and proteins and their significance in medicinal chemistry; biosynthesis and properties of alkaloids such as manzamine; the mode of action of enzymes and chemotherapy discussed in the context of bacterial and viral infections.

CHE-3H16 Medicinal Chemistry (40 enrollment)

Taught Spring13

This course introduces medicinal chemistry using chemical principles established during the first year. Topics discussed include the mode of action and synthesis of β -lactams; sulphonamides, amino acids and proteins and their significance in medicinal chemistry; biosynthesis and properties of alkaloids such as manzamine; the mode of action of enzymes and chemotherapy discussed in the context of bacterial and viral infections.

MIT**5.12 Organic Chemistry I** (110-160 enrollment in Fall; 280-300 enrollment in Spring)

Taught Spring05, Fall05, Spring07, Fall07, Fall08, Fall09

This is an introductory organic chemistry course for undergraduates at MIT. Acidity, Alkanes, Stereochemistry, Alkyl Halides, Nucleophilic Substitution and Elimination, Chemistry of Alkenes and Alkynes, Electrophilic Aromatic Substitution, Alcohols, Aldehydes and Ketones, Carboxylic Acids and Derivatives, and Enol/Enolate Chemistry are covered during this course.

5.451 Chemistry of Biomolecules (20-30 enrollment)

Taught Fall03, Fall04, Fall05, Fall07

This graduate class is designed to teach entering organic and biological chemistry graduate students modern chemical biology, bioengineering and reaction/enzyme mechanism within the context of natural product biosynthesis.

5.54/7.540/20.554 Frontiers in Chemical Biology (20 enrollment)

Taught Fall08, Fall09

Developed with Professor B. Imperiali in Fall of 2008. The syllabus is designed to provide an introduction to current research at the interface of chemistry, biology, and bioengineering.

Chemistry Tutorial (5-10 enrollment)

Taught Fall03, Fall04

This intense, 3-week graduate class is designed to teach incoming organic graduate students how to work through organic mechanism problems.