

SARAH E. O'CONNOR

Max Planck Institute for Chemical Ecology
Department of Natural Product Biosynthesis
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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
2022- Honorary Professor of Chemistry, Friedrich Schiller University, 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

2023 Gottfried Wilhelm Leibniz-Preis
2023 Elected Fellow of the Royal Society
2023 Elected Fellow of the American Society of Pharmacognosy
2022 ACS Ernest Guenther Award in the Chemistry of Natural Products
2019 RSC Perkin Prize for Organic Chemistry
2017 Elected to EMBO membership
2017 ERC Advanced Grant
2013 Wain Medal
2012 ERC Consolidator Grant
2011 Royal Society Wolfson Research Merit Award
2011 ACS Pfizer Award in Enzyme Chemistry
2007 Sloan Research Fellowship
2007 Arthur Neisch Award of the North American Phytochemical Society
2007 American Cancer Society Research Scholar
2005 Beckman Young Investigator
2004 Latham Family Career Development Professor
2003 Smith Family Medical Foundation New Investigator
2000 ACS Irving S. Sigal Postdoctoral Fellowship, Harvard Medical School
1998 ACS Organic Division Graduate Fellowship, California Institute of Technology
1998 Distinguished Graduate Student Everhart Lecture, California Institute of Technology

Panels and Committees

Chair of the Perspective Committee, BMS Section, Max Planck Society
Associate Editor, Journal of Biological Chemistry (2022-)
Associate Editor, Science Advances (2018-)
Associate Editor ACS Synthetic Biology (2017- 2019)
Editorial Advisory Board ACS Central Science

Editorial Advisory Board ACS Chemical Biology
Editorial Advisory Board ACS Bioorganic and Medicinal Chemistry
Editorial Advisory Board Natural Products Reports
Editorial Advisory Board Metabolic Engineering
Editorial Advisory Board ChemBioChem
Scientific Advisory Board, Ayana (2022-)
Scientific Advisory Board, Entheos (2022-)
Scientific Advisory Board, Terpnet (2015-)
Scientific Advisory Board, Helmholtz Foundation, Karlsruhe Institute of Technology (2015-2018)
Member, European Research Council Grant Review Panel (2018-)
Member, Industrial Biotechnology and Bioenergy Strategy Advisory Panel (BBSRC) (2016-2019)
Member, Newton Foundation Fellowship Committee (2015-2021)
Member, BBSRC Panel D (2013-2016)
Chair of the Plant Metabolic Gordon Research Conference (2015)

Representative Plenary Lectures since 2019

- 2024 GRC for Enzymes, Coenzymes and Metabolic Pathways
- 2023 GRC for Plant Herbivore Interactions
- 2023 GRC for Natural Products
- 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

Current and Past 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 Stavrindes (Diploma Montpellier) |
| 2012-2015 | Franziska Kellner (Diploma University of Applied Sciences Dresden) |
| 2018-2022 | Lira Palmer (BS University of California Irvine) |
| 2019-2024 | Dagny Grzech (BS University of East Anglia) |
| 2019-2024 | Chloe Langley (BS University of Leicester) |
| 2019-2024 | 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) |
| 2022-2026 | Maithili Datta (MS IISER Kolkata) |
| 2023-2027 | Angeliki Stathaki (MS Agric. U. Athens) |
| 2023-2027 | Tingan Zhou (MS Imperial) |

Post-Doctorals

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|--------------|---|
| 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 | Jakob Franke (PhD HKI, Jena) |
| 2015-2018 | Thuy Dang (PhD Calgary) |
| 2016-2018 | Don Nguyen (PhD Calgary) |
| 2016-2018 | Benjy Lichman (PhD UCL) |
| 2016-2019 | Scott Farrow (PhD Calgary) |
| 2020- 2021 | Yindi Jiang (PhD UT Southwestern) |
| 2019-2022 | Francesco Trenti (PhD Universitat Hamburg) |
| 2018-2022 | Quentin Dudley (PhD Northwestern) |
| 2017-2022 | Carlos Carlos Rodríguez-López (PhD Universidad de Monterrey) |
| 2017-2022 | Kotaro Yamamoto (PhD Kobe) |
| 2019-2022 | Nestor Hernandez (PhD University of Wisconsin) |
| 2021-2023 | Maricel Santoro (PhD Universidad Nacional de Río Cuarto) |
| 2018-2023 | Matt Demars (PhD University of Michigan) |
| 2020-2023 | Benke Hong (PhD Peking U) |
| 2021-2023 | Carsten Schotte (PhD Universitat Hamburg) |
| 2021-2024 | Prashant Sonawane (PhD Pune) (Junior Group Leader) |
| 2021-present | Maite Colinas Martinez (PhD University of Geneva) (Junior Group Leader) |

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| 2022-present | Blaise Kimbali Lombe (PhD Universität Würzburg) |
| 2023-present | Allwin McDonald (PhD University of Wisconsin) |
| 2023-present | Gabriel Tichiner (PhD University of Manchester) |
| 2023-present | Ryan Alam (PhD University College Cork) |
| 2023-present | Moonyoung Kang (PhD Seoul) |
| 2024-present | Samuel Carr (PhD University of Calgary) |
| 2024-present | Ling Chuang (PhD U Hannover) |

Staff Scientists/Group Leaders

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| 2013-present | Lorenzo Caputi, scientist (PhD University of York) |
| 2019- | Stefan Bartram (PHD Universität Bonn) |
| 2020-present | Tobias Köllner (PhD Friedrich Schiller University) |
| 2021-present | Yoko Nakamura (PhD Friedrich Schiller University) (joint with NMR Group) |
| 2022-present | Klaus Gase (PhD Friedrich Schiller University) |

Technicians and Engineers

Anja David
 Katrin Luck
 Sarah Heinicke
 Manuela Inak
 Maritta Kunert
 Jens Wurlitzer
 Kerstin Ploß

Courses and Workshops Taught**Max Planck Institute for Chemical Ecology****Workshop in Natural Products** (ca. 20 enrollment)

Taught Spring20,21,22

This is a workshop for reviewing and discussing all aspects of modern natural product chemistry and biology for PhD students.

Workshop in Fundamentals of Organic Chemistry (ca. 20 enrollment)

Taught Spring23,24

This module provides a workshop for reviewing concepts in basic organic chemistry for biology and ecology PhD students.

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.