

**SARAH E. O'CONNOR***oconnor@ice.mpg.de*

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<http://www.sarahoconnor.org/><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-present), 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**

2019 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 Young Investigator 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 American Chemical Society Irving S. Sigal Postdoctoral Fellowship, Harvard Medical School

1998-1999 American Chemical Society 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	
NSF Genome Grant (Buell, PI; Dudavera, O'Connor, Soltis, Soltis, co-Is)	04/15-04/20
NSF 1444499	\$1,200,000
Evolution Of Specialized Metabolite Biosynthetic Pathways In The Lamiaceae	

**Representative Plenary Lectures since 2015**

- 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
- Mosbacher Kolloquium, Synthetic Biology, Mosbach, Germany, 03/18
- Keystone Symposia on Natural Products and Synthetic Biology, Olympia Valley, USA, 01/18
- Botanikertagung, German Botanical Society, Kiel University, Germany, 09/17
- Secondary Metabolite Conference 2017 (JBEL), Walnut Creek, USA, 07/17
- Tetrahedron Symposium in Organic Chemistry, Hungary, 07/17
- Synthetic Biology: Engineering, Evolution & Design Meeting, Vancouver, CA, 06/17
- Irseer Naturstofftage 2017, Irsee, Germany, 02/17
- Gordon Research Conference on Heterocyclic Compounds, Newport, USA, 06/16
- 15th Annual Life Sciences Institute Symposium, University of Michigan, Ann Arbor, USA, 05/16
- Gordon Conference on Marine Natural Products, Ventura, USA, 03/16
- Annual Symposium on Biological Complexity, Salk Institute, La Jolla, USA, 01/16
- Elliott Lecture, Rothamsted Research, Harpendon, UK, 06/15
- ISACS 16, Challenges in Chemical Biology, Zurich, 06/15
- Terpnet, Vancouver, Canada, 6/15
- Directing Biosynthesis, Norwich, UK, 03/15

**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	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 University of Naples)

***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)
2017-present	Kotaro Yamamoto (PhD Kobe)
2017-present	Carlos Carlos Rodríguez-López
2017-present	Quentin Dudley (PhD Northwestern)
2018-present	Francesco Trenti (PhD Hannover)
2018-present	Matt Demars (PhD University of Michigan)
2019-present	Nestor Hernandez (PhD University of Wisconsin)
2019-present	Benke Hong (PhD Peking University)

**Staff**

2013-present	Lorenzo Caputi (PhD University of York)
2019-	Stefan Bartram
2019-	Anja David
2019-	Delia Guerro
2019-	Manuela Inak
2019-	Maritta Kunert
2019-	Linus Naumann (MS Marburg)
2019-	Kerstin Ploss

**Visiting, MS and Project Students**

2008-2009	Anne Friedrich (PhD student Universitat Karlsruhe)
2010-2011	Bettina Ruff (PhD student Universitat Karlsruhe)
2012	Greg Mann (MChem, UEA)
2013	Chris Delaforce (MChem, UEA)
2013	Stephanie Lindner (PhD student Universitat Karlsruhe)
2014	Sarah Hayes (MChem, UEA)
2015	Omar Kamileen (BS BIO, UEA)
2016	Jessica Meade (BS BIO, UEA)
2016	Chloe Langley (BS Leicester)
2016-2017	Katy David (BS York)
2016-2018	Dagny Grzech (BS UEA)
2017	Belinda Ameyaw (BS Lancaster)
2017	Gabriel Titchiner (BS Keele)
2017-2018	Miu Iijima (JSPS Research Fellow University of Toyama)
2017-2019	Fen Li (PhD student Rothamsted)
2017-2019	Shang Wang (PhD student Rothamsted)
2019-2020	Samyra Imad (PhD student Rio de Janeiro)

**External Panels and Committees**

Member, Newton Foundation Fellowship Committee (2015-2021)  
 Advisory Board, Terpnet (2015-present)  
 Member, Industrial Biotechnology and Bioenergy Strategy Advisory Panel (BBSRC) (2016-2019)  
 Associate Editor ACS Synthetic Biology (2017- 2019)  
 Advisory Board, Alkion (2013-2018)  
 External Advisory Board, Helmholtz Foundation, Karlsruhe Institute of Technology (2015-2018)  
 Member, BBSRC Panel D (2013-2016)  
 ad hoc Member, BBSRC Panel B (2016)  
 Chair of the Plant Metabolic Gordon Research Conference (2015)  
 Review Panel for Helmholtz Foundation (2014)  
 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)  
Editorial Advisory Board ACS Synthetic Biology (2012-present)  
Member of the Scientific Advisory Board of Alkion (2011-present)  
Organizing Committee for European Conference on Natural Products (2013)  
Organizing Committee for Banff (2012)

### Courses Taught

#### University of East Anglia

##### **BIO-6019Y Plant Biotechnology** (10 enrollment)

Taught S16, S17

*This module will identify 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 S12, F12, F13-S14 (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  $\beta$ -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 S13

*This course introduces medicinal chemistry using chemical principles established during the first year. Topics discussed include the mode of action and synthesis of  $\beta$ -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 S05, F05, S07, F07, F08, F09

*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 F03, F04, F05, F07

*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 F08, F09

*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 F03, F04

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