Summer School on " Microbial Specialised Metabolites: From Genome to Molecule", Dubrovnik, Croatia, 8-16 September 2018

Timetable

	Sat 8	Sun 9	Mon 10	Tues 11	Wed 12	Thurs 13	Fri 14	Sat 15	Sun 16
8:00-9:00		Breakfast	Breakfast	Breakfast	Breakfast	Breakfast	Breakfast	Breakfast	Breakfast
9:00-10:30		L02 Flavia Marinelli	L05 Roberto Kolter	L07 Andrew Truman		L09 Gerry Wright	L11 Gerry Wright	L13 Paul Jensen	
10:30-11:00		Break	Break	Break	Trip	Break	Break	Break	
11:00-12:30	Arrival	L03 Barrie Wilkinson	L06 Emzo de los Santos Greg Challis	L08 Paul Jensen		L10 Duška Vujaklija	L12 Flavia Marinelli	Greg Challis CW02 summary & Wrap-up	Departure
13:00-14:00		Lunch	Lunch	Lunch		Lunch	Lunch	Lunch	
14:00-15:30		Small group discussion	Computer workshop CW01* (or Class 1 or 2)	Computer workshop CW01* (or Class 1 or 2)		Computer workshop CW02** (or Small Group)	Computer workshop CW02** (or Small Group)	Free time	
15:30-18:00		Free time & City tour 16:00 – 17:30	Free time	Free time		Free time	Free time		
18:00-20:00	Welcome and opening lecture L01 Roberto Kolter	L04 Julian Davies	Poster session 1	Guest seminar GS01 Mechas Zambrano		Poster session 2	Guest seminar GS02 Alison Foster		
20:00-	Reception at IUC	Dinner	Dinner	Dinner	Dinner	Dinner	Dinner and debate	Party at Mimoza Restaurant	

*Half the group does the computer workshop on one day and the second half on the next; the other half has choice of two classes with the teaching staff: Class 1: Mechanisms of polyketide biosynthesis; Class 2: Microbial communities.

** Half the group does the computer workshop on one day and the second half on the next; meanwhile the other half will participate in small group discussion led by the teaching staff.

Faculty
Mervyn Bibb, John Innes Centre, Norwich, UK
Greg Challis, University of Warwick, UK
Govind Chandra, John Innes Centre, Norwich, UK
Julian Davies, University of British Columbia, Vancouver, Canada
Roberto Kolter Harvard Medical School, USA
Flavia Marinelli, University of Insubria, Varese, Italy
Paul Jensen, Scripps Oceanographic Institution, San Diego, USA
Emzo de los Santos, University of Warwick, UK
Andrew Truman, John Innes Centre, Norwich, UK
Duška Vujaklija, Rudjer Bošković Institute, Croatia
Barrie Wilkinson, John Innes Centre, Norwich, UK
Gerry Wright, McMaster University, Hamilton, Canada

Administration
Maureen Bibb, Norwich, UK
Alison Foster, Leamington Spa, UK

Guest seminar speakers
Alison Foster, Botanical Horticulture and Science Communication, Leamington Spa, UK
María Mercedes Zambrano, Corporación Corpogen, Bogotá, Colombia

Lecture topics (L1 - L12)
L1 Roberto Kolter – A brief history of antibiotics
L2 Flavia Marinelli – Isolation, cultivation and screening of microbial producers of specialised metabolites
L3 Barrie Wilkinson – Natural product biosynthesis: an overview
L4 Julian Davies – Understanding microbiomes
L5 Roberto Kolter – Microbial chemical ecology
L6 Emzo de los Santos & Greg Challis – Introduction to the computer workshops
L7 Andrew Truman – Discovery and biosynthesis of RiPPs
L8 Paul Jensen – Ecology and evolution of natural product biosynthetic gene clusters
L9 Gerry Wright – Practical purification and characterisation of microbial natural products
L10 Duška Vujaklija –γ-butyrolactone signalling systems and post-translational modifications
L11 Gerry Wright – Expansion of natural product chemical diversity: Lessons from antibiotic discovery
L12 Flavia Marinelli – Industrial fermentation and strain improvement of producing microorganisms
L13 Paul Jensen - Phylogenetic approaches to natural product discovery

Guest seminars (GS1 – GS3)
GS1 María Mercedes Zambrano – Microbial ecology in high mountain ecosystems
GS2 Alison Foster – Colour, smell and taste – the beautiful world of plants and chemistry

Hands-on computer workshops (CW1 and CW2)

Microbial genomes can now be sequenced and automatically annotated in a matter of hours. The first workshop will describe the formats of data coming from such high-throughput technologies and demonstrate tools and methods for turning these data into conclusions and knowledge. The second workshop will introduce software and web sites for the identification and analysis of metabolic gene clusters, especially, but not exclusively, those for polyketides and non-ribosomal peptides. These websites are ideal for analysing cryptic biosynthetic gene clusters and making structural predictions about their metabolic products, providing examples of the increasing power of bioinformatics for deducing details of biosynthetic pathways from DNA sequences and hence aiding in the discovery of novel, useful compounds. The final session on Saturday at 11:00 will describe examples of the experimental discovery of novel metabolites using the principles developed in the workshop.

Classes

Class 1: Mechanisms of polyketide biosynthesis – led by Andy Truman, Barrie Wilkinson, Greg Challis and Gerry Wright

Class 2: Microbial communities – led by Roberto Kolter and Julian Davies