

PROGRAMME

Directing Biosynthesis III

19 – 21 September 2012

Exchange Building, Jubilee Campus, University of Nottingham, UK

All oral sessions will take place in Lecture Theatre 2
Poster presentations will be displayed in rooms C3 and C33

Wednesday 19 September

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| 09:30 | Registration |
| 10:30 | Welcome and introduction Russell Cox, Conference Chair <i>University of Bristol, UK</i> |
| Session 1A | Modular Polyketide Synthases Chair: Peter Leadlay, University of Cambridge, UK (TBC) |
| 10:40 K01 | Keynote: Mechanistic Studies of Novel Biological C-C Bond Formation Reactions: Biosynthesis of Spinosyn A Hung-wen Liu <i>The University of Texas at Austin, USA</i> |
| 11:25 O01 | A unique amino acid carrying strategy in the biosynthesis of macrolactam polyketide antibiotics Fumitaka Kudo,* Yuji Shinohara, Tadashi Eguchi <i>Tokyo Institute of Technology, Japan</i> |
| 11:50 O02 | Ethyl branch formation by the kirromycin trans-AT-type polyketide synthase E. M. Musiol, A. Kulik, J. Piel, W. Wohlleben, and T. Weber* <i>Eberhard-Karls-Universität Tübingen, Germany</i> |
| 12:15 O03 | Synthetic probes for the investigation of polyketide biosynthesis Manuela Tosin <i>University of Warwick, UK</i> |
| 12:40 | Lunch |
| Session 1B | Plants Chair: Anne Osbourn, John Innes Centre, UK |
| 13:40 O04 | Ergot Alkaloid Biosynthesis: Establishing Structural Diversity by an Old Yellow Enzyme Homologue Johnathan Cheng <i>John Innes Centre, UK</i> |
| 14:05 O05 | Tools for genetic manipulation of algae – exploiting vitamin metabolism Alison G. Smith*, Mark A Scaife, Rosie Young and Saul Purton <i>University of Cambridge, UK</i> |
| 14:30 K02 | Keynote: Structure-Based Engineering of Fidelity and Promiscuity in Catalysis by Terpenoid Cyclases David W. Christianson <i>University of Pennsylvania, USA</i> |
| 15:15 | Afternoon tea |

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| Session 1C | Award Symposium Chair: Representative of the RSC Chemistry Biology Interface Division |
| 15:45 K03 | Award Lecture: Enriching chemical space to drug undruggable targets David R. Spring <i>University of Cambridge, UK</i> Winner of the RSC Norman Heatley Award 2011 |
| 16:30 K04 | Award Lecture: Circular logic in macrocycles James H. Naismith <i>University of St Andrews, UK</i> Member of Collaborative Computational Project 4 - STFC Rutherford Appleton Laboratory (CCP4), winners of the Rita and John Cornforth Award 2011 |
| 17:15 K05 | Award Lecture: Roles of Oxygenases in Biosynthesis and the Regulation of Gene Expression Christopher Schofield <i>University of Oxford, UK</i> Winner of the Jeremy Knowles Award 2011 |
| 18:00 | Poster session and wine reception |
| 19:30 | Free evening |

Thursday 20 September

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| Session 2A | Ribosomal Peptides/Carbohydrates Chair: Barrie Wilkinson, Biotica, UK |
| 09:00 K06 | Keynote: Understanding and manipulating antibiotic production in actinomycetes Mervyn Bibb <i>John Innes Centre, Norwich, UK</i> |
| 09:45 O06 | Harnessing the thiostrepton biosynthetic machinery Wendy L. Kelly*, Feifei Zhang, and Chaoxuan Li <i>Georgia Institute of Technology, USA</i> |
| 10:10 O07 | Mimicking carbohydrates in natural products: biosynthesis of the dioxane unit of alnumycins T. Oja, L. Niiranen, K.D.Klika, P. Mäntsälä, J. Niemi, G. Schneider and M. Metsä-Ketelä* <i>University of Turku, Finland</i> |
| 10:35 | Morning coffee |
| Session 2B | Nonribosomal Peptide Synthetases Chair: Jason Micklefield, University of Manchester, UK |
| 11:05 O08 | Pyrrolamide antibiotics: biosynthetic gene clusters for combinatorial biosynthesis and mutasynthesis Sylvie Lautru*, Audrey Vingadassalon and Jean-Luc Pernodet <i>Université Paris Sud, France</i> |
| 11:30 O09 | A stand-alone adenylation domain catalyzes multiple amide-bond formation in streptothricin biosynthesis Chitose Maruyama, Junya Toyoda, Yasuo Kato, Miho Izumikawa, Motoki Takagi, Kazuo Shin-ya, Hajime Katano, Takashi Utagawa, and Yoshimitsu Hamano* <i>Fukui Prefectural University, Japan</i> |
| 11:55 K07 | Keynote: Exploring the biosynthesis of complex natural products from the <i>Penicillium</i> genus Yi Tang <i>UCLA, USA</i> |
| 12:40 | Lunch |

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| Session 3A | Engineering Chair: Greg Challis, University of Warwick, UK |
| 13:40 O10 | Molecular breeding of a fungus producing a precursor molecule suitable for semi-synthesis, based on the dissection of the biosynthetic machinery Motoyoshi Noike, Yusuke Ono, Yuji Araki, Ryo Tanio, Yusuke Higuchi, Nobuo Kato and Tohru Daiiri* <i>Hokkaido University, Japan</i> |
| 14:05 O11 | Accessing libraries of highly antitumor active ansamycin antibiotics by combined semi- and mutasynthesis Andreas Kirschning* <i>Leibniz Universität Hannover, Germany</i> |
| 14:30 O12 | Understanding the program of fungal polyketide biosynthesis – a domain swap approach Katja M. Fisch*, Ahmed A. Yakasai, Jennifer Pedrick, Zahida Wasil, Colin M. Lazarus, Andrew M. Bailey, Russell J. Cox and Thomas J. Simpson <i>University of Bristol, UK</i> |
| 14.55 K08 | Keynote: Expanding the Catalytic Repertoires of Biosynthetic Enzymes Ikuro Abe <i>The University of Tokyo, Japan</i> |
| 15:40 | Afternoon tea |
| Session 3B | Iterative Polyketide Synthases Chair: Chris Willis, University of Bristol, UK (TBC) |
| 16:10 K09 | RSC Bio-Organic Group Award Lecture: Experiments and speculations about calicheamicin and enediyne biosynthesis Craig A. Townsend <i>Johns Hopkins University, USA</i> Supported by the RSC Bio-Organic Group |
| 16:55 O13 | Biosynthetic genes of unknown function in jadomycin biosynthesis: elucidation of function David L. Jakeman <i>Dalhousie University, Canada</i> |
| 17:20 K10 | Keynote: Fun with Fungi – Past and Present! Tom Simpson FRS <i>University of Bristol, UK</i> |
| 18:05 | Close of session |
| 19:30 | Pre-dinner drinks |
| 20:00 | Conference Banquet |

Friday 21 September

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| Session 4A | Genome Mining Chair: Russell Cox, University of Bristol, UK |
| 09:00 K11 | Keynote: Biosynthesis in Neglected Bacteria Christian Hertweck <i>Leibniz Institute for Natural Product Research and Infection Biology (HKI), Friedrich-Schiller University Jena, Germany</i> |
| 09:45 O14 | Informatic mining of microbiomes for bioactive natural products Ashraf Ibrahim, Lian Yang, Bin Ma and Nathan A. Magarvey* <i>McMaster University, Canada</i> |
| 10:10 O15 | A computational perspective on secondary metabolite biosynthesis M.H. Medema*, K. Blin, P. Cimermancic, P. Zakrzewski, T. Paalvast, M. Fischbach, T. Weber, R. Breitling and E. Takano <i>University of Groningen, The Netherlands</i> |
| 10:35 K12 | Keynote: Chemical Surprises from an Elusive Bacterium Jörn Piel <i>University of Bonn, Germany</i> |
| 11:20 | Morning coffee |
| Session 4B | Genome Mining and Engineering Chair: Tom Simpson, University of Bristol, UK (TBC) |
| 11:50 O16 | Synthetic biotechnology to study and engineer natural product biosynthesis Silke C. Wenzel <i>Saarland University, Germany</i> |
| 12:15 O17 | Natural product biosynthesis in entomopathogenic bacteria Helge B. Bode <i>Goethe Universität Frankfurt, Germany</i> |
| 12:40 O18 | The <i>Cladosporium fulvum</i> genome reveals a new mechanism that links down-regulation of secondary metabolism genes and biotrophy Jérôme Collemare*, Scott Griffiths, Russell Cox and Pierre de Wit <i>Wageningen University, The Netherlands</i> |
| 13:05 K13 | Keynote: Characterizing and engineering diverse C-H bond activation catalysts from microbial natural product systems David H. Sherman <i>University of Michigan, USA</i> |
| 13:50 | Closing remarks Russell Cox, Conference Chair <i>University of Bristol, UK</i> |
| 14:00 | Lunch and close of conference |

* Denotes presenting author