Conference Report

Bioactive Natural Products: Translating Promise into Practice, 11/13 Jul 2016

Report

At this three-day meeting, held at St Catherine’s College, Oxford University, fifteen internationally renowned industrial and academic experts from the US (1), Mainland Europe (8) and the UK (6) gave an update on the latest developments and future directions in the discovery of drugs and agrochemicals from natural products. They emphasised how organic chemistry, biochemistry and genetics is playing a key role in these advances. Four early career researchers also gave short 20-minute presentations.

The symposium (Programme appended) attracted 58 delegates including 11 PhD students and 6 postdoctoral fellows, all of whom presented posters.

At the end of each presentation there were lively question and answer sessions. Discussion between delegates continued during the tea/coffee and lunch breaks - and over dinner by those who were resident in college. There were also good interactions at the poster sessions, the first of which was a Wine Reception sponsored by NPRONET, who also provided two prizes of £50. The recipients were two PhD students, Jade Ronan, University of Warwick for her poster entitled Reductive chain release and subsequent transamination diverts products of modular polyketide synthases towards alkaloid metabolism and Carys Thomas, University of East Anglia for hers entitled Synthesis and SAR studies of teixobactin, a new peptide antibiotic. The prizes were presented by Professor Greg Challis, University of Warwick.

The Biotechnology Group Conference Planning Committee would like to thank Syngenta and NPRONET for their generous sponsorship, the RSC’s Travel Grant Committee for travel grants for postgraduate students and the St Catherine’s College conference management team for their excellent services throughout the conference.

Colin Bedford

The Conference Planning Committee

Prof Joe Sweeney, (Chair), Dept. of Chemical and Biological Sciences, University of Huddersfield
Dr Colin Bedford, Dept. of Chemistry, UCL
Dr Irene Francois, Consultant
Mr Neville Nicholson, Consultant
Dr Paul Race, School of Biochemistry, University of Bristol

Programme

Session 1 - Chair: Dr Colin Bedford
08:55 Welcome
Prof Joe Sweeney, Conference Chairman
09:00 How natural products can inspire chemical biology and drug discovery
Prof Herbert Waldmann, Max Planck Institute of Molecular Physiology, Germany
09:50 Diversity and diversification: microbial chemistry for discovery and development
Dr Stephen Wrigley, Hypha Discovery, UK
10:40 Refreshments
11:05 The bio-origin of bioactive bacterial pyrrolizidine alkaloids
Dr Hai Deng, University of Aberdeen, UK
11:55 Mining the genomes of Burkholderia bacteria for novel antibiotics
Dr Cerith Jones, Cardiff University, UK
12:45 Lunch

Session 2 - Chair: Prof Joe Sweeney
14:00 Harnessing natural product biosynthesis
Prof Sarah O’Connor, John Innes Institute, UK
14:50 ECR 1: Plant-endophyte communication for biosynthesis of bioactive natural products: maytansine as an example
Dr Souvik Kusari, TU Dortmund, Germany
15:10 ECR 2: Reductive chain release and subsequent transamination diverts products of modular polyketide synthases towards alkaloid metabolism
Dr Joleen Masschelein, University of Warwick, UK
15:30  Refreshments
16:00  *Using nature’s chemical diversity as a stepping stone for drug discovery*
      Dr Philipp Krastel, Novartis, Switzerland
16:50  Poster session 1 and drinks reception
19:00  Dinner (for those resident in College)

**Session 3** - Chair: Dr Irene Francois

09:00  *From artemisinin to a tetraoxane-based antimalarial drug candidate that circumvents K13-dependent clinical artemisinin resistance*
      Prof Paul O’Neill, University of Liverpool, UK
09:50  *New paradigms and challenges of natural products drug discovery programs*
      Prof Bruno David, Pierre Fabre Research Institute, France
10:40  Refreshments

11:05  *Marine natural product drug discovery: leads for treatment of inflammation*
      Dr Lena Gerwick, Scripps Institute of Oceanography, La Jolla, USA
11:55  *Biomimetic natural product synthesis*
      Dr Andrew Lawrence, University of Edinburgh, UK
12:45  Lunch

**Session 4** - Chair: Dr Paul Race

14:00  *Using natural products to invent new chemicals for crop protection*
      Dr John Clough, Syngenta, UK
14:50  **ECR 3:** *Fully automated workflow for efficient detection and rapid identification of new hits from plant extracts*
      Paul Coulerie, Nestlé Institute for Health Sciences
15:10  **ECR 4:** *Evaluation of 41 essential oils as antimicrobials against bacterial phytopathogens Pseudomonas syringae pv pisi and Pectobacterium carotovorum*
      Marimar Bravo Cadena, University of Oxford
15:30  Refreshments
16:00  *The challenge of exploiting microbial sources to deliver novel bioactive natural products*
      Prof Olga Genilloud, Fundación Medina, Spain
16:50  Poster session 2
      Two poster prizes kindly sponsored by NPRONET

**Session 5** - Chair: Prof Joe Sweeney, University of Huddersfield

09:00  *Efficient ways to investigate plant and micro-organism metabolomes for the search of new lead compounds of natural origin*
      Prof Jean-Luc Wolfender, University of Geneva, Switzerland
09:50  *Lichen symbioses as a bioresource for natural products*
      Dr Martin Grube, University of Graz, Austria
10:40  Refreshments
11:05  *Exploiting new biotechnologies for discovery and development of bioactive natural products*
      Prof Gregory Challis, University of Warwick, UK
11:55  Close of conference