

**Chemistry in the New World of Bioengineering and Synthetic Biology Programme**  
**22 – 24 September 2008**  
**Saïd Business School, Oxford UK**

## Monday 22<sup>nd</sup> September

17.00 – 19.00	Registration & welcome drink
19.00 – 20.00	<b>SI01 – Making molecules rotate</b> Professor Sir John Walker <i>MRC Dunn Human Nutrition Unit, Cambridge, UK</i>
20.00	Free evening for delegates

## Tuesday 23<sup>rd</sup> September

08.30 – 09.00	Registration
09.00 – 09.15	<b>Welcome and Introductions</b> John McCarthy <i>Manchester Interdisciplinary Biocentre, University of Manchester, UK</i>
<b>Session 1</b>	<b>Theme: Creating New Biological Systems and Functions</b> <b>Session Chair: John McCarthy, University of Manchester</b>
09.15– 09.55	<b>I01 Synthetic biology: from programming bacteria to programming stem cells</b> Ron Weiss <i>Princeton University, USA</i>
09.55– 10.35	<b>I02 Ribosome engineering and new genetic codes</b> Jason Chin <i>MRC Laboratory of Molecular Biology, Cambridge, UK</i>
10.35 – 10.55	<b>O01 Co-evolution of small molecule responsive riboswitches using chemical and genetic selection</b> Jason Micklefield*, Torsten A Geerlings, Neil Dixon, John Duncan and John EG McCarthy <i>Manchester Interdisciplinary Biocentre, University of Manchester, UK</i>
<b>10.55 – 11.25</b>	<b>Morning Coffee</b>
11.25– 12.05	<b>I03 Synthesis and replication of nucleic acids with expanded chemistry</b> Nicola Ramsay, Ann-Sophie Jemth, Neal Crampton, Paul Dear and Philipp Holliger <i>MRC Laboratory of Molecular Biology, Cambridge</i>
12.05– 12.25	<b>O02 Developing a synthetic biology device that detects biofilm formation on urinary catheters</b> Vincent Rouilly, Kirsten Jensen, Duo Lu, Richard I Kitney and Paul S Freemont* <i>Imperial College, London, UK</i>
12.25 – 13.05	<b>I04 Engineering genetic circuits for detection of chemicals in the environment</b> Victor de Lorenzo Centro Nacional de Biotecnología, CSIC, Madrid, Spain
<b>13.05 – 14.30</b>	<b>Buffet Lunch/Posters and Exhibition</b>

<b>13.45 – 14.15</b>	<b>Ethics Workshop</b> Introduction/Overview (15 mins) followed by informal discussion session Tom Douglas Oxford Uehiro Centre for Practical Ethics, University of Oxford
<b>14.15 – 14.30</b>	<b>O03 Setting the agenda for synthetic biology in Europe</b> Sibylle Gaisser*, Hubert Bernauer, Astrid Lunkes, Kristian Müller, Thomas Reiß and Bernhard Bührle <i>Fraunhofer Institute for Systems and Innovation Research, Germany</i>  <i>All delegates invited</i>
<b>Session 2</b>	<b>Theme: Novel Biomolecular Devices</b> <b>Session Chair: Andrew Turberfield, University of Oxford</b>
14.30 – 15.10	<b>I05 RNA as a 3D language for building functional nano-devices</b> Luc Jaeger <i>University of California Santa Barbara, USA</i>
15.10 – 15.50	<b>I06 Biomolecular motors for directed assembly and hybrid devices</b> Henry Hess <i>University of Florida, USA</i>
15.50 – 16.10	<b>O04 Encapsulation of enzymes in virus capsids by non-covalent interactions</b> IJ Minten*, RJM Nolte and JJLM Cornelissen <i>Radboud University Nijmegen, The Netherlands</i>
<b>16.10– 16.40</b>	<b>Afternoon Tea</b>
16.40 – 17.00	<b>O05 Construction of artificial protein molecular switches</b> Wayne R Edwards, James Arpino, Kathy Busse and Dafydd Jones* <i>Cardiff University, UK</i>
17.00 – 17.20	<b>O06 DNA nanodevices based on a proton-fuelled DNA nanomachine</b> Wenxing Wang, Dongsheng Liu and Dejian Zhou* <i>University of Leeds, UK</i>
17.20 – 18.00	<b>I07 DNA self-assembly and molecular machinery</b> Andrew Turberfield <i>University of Oxford, UK</i>
19.00 – 19.30	<b>Pre-Dinner Drinks (By ticket only) Balliol College, Oxford</b>
19.30	<b>Conference Dinner (By ticket only) Balliol College, Oxford</b>

## Wednesday 24<sup>th</sup> September

<b>Session 3</b>	<b>Theme: Assembling Custom Bionanomaterials</b> <b>Session Chair: Tony Cass, Imperial College, London</b>
09.00 – 09.40	<b>I08 Making nano-scale objects and nano-structured materials from peptide building blocks</b> Dek Woolfson <i>University of Bristol, UK</i>
09.40 – 10.20	<b>I09 Bioanalysis using SERRS and functionalised nanoparticles</b> Duncan Graham <i>University of Strathclyde, UK</i>
10.20 – 10.40	<b>O07 Enzyme-assisted self-assembly of peptide nanostructures</b> R J Williams, V Jayawarna, C Tang, A M Smith, A Saiani, R Collins and R V Ulijn* <i>Manchester Interdisciplinary Biocentre, University of Manchester, UK</i>
10.40 – 11.00	<b>O08 Enabling RNAi therapeutics the non-viral nanotechnology way</b> Abderrahim Aissaoui, Christopher R Drake, Nazila Kamaly, Ming Wang, Soumia Kolli, Maya Thanou, Joachim HG Steinke and Andrew D Miller* <i>Imperial College Genetic Therapies Centre, London, UK</i>
<b>11.00 – 11.30</b>	<b>Morning Coffee</b>
11.30 – 11.50	<b>O09 Peptide amphiphile polymers of defined dimensions</b> Maaïke van den Heuvel*, Dennis WPM Löwik and Jan CM van Hest <i>Radboud University Nijmegen, The Netherlands</i>
11.50 – 12.10	<b>O10 A viral bionanoparticle as a synthon and template for new materials</b> Nicole F Steinmetz, George P Lomonossoff and David J Evans* <i>John Innes Centre, UK</i>
12.10 – 12.50	<b>I10 Molecular isolation on the nanoscale</b> Joshua Edel <i>Imperial College, London</i>
<b>12.50 – 14.15</b>	<b>Buffet Lunch/Posters and Exhibition – Foyer</b>
<b>13.45 – 14.15</b>	<b>O11 ESF Collaborative Research Programme and other research opportunities at the interface between chemistry-bioengineering and synthetic biology</b> Antonella Di Trapani <i>European Science Foundation (ESF)</i>
<b>Session 4</b>	<b>Theme: Augmenting Tissue Function through Chemistry</b> <b>Session Chair: Hagan Bayley, University of Oxford</b>
14.15 – 14.55	<b>I11 Molecular origins of biological lubrication: hydrated charges and biomimetic polymer brushes</b> Jacob Klein <i>Weizmann Institute, Israel</i>
14.55 – 15.35	<b>I12 Bioactive nanostructures for regeneration and cancer</b> Samuel Stupp <i>Northwestern University, USA</i>
15.35 – 15.55	<b>O12 Biofunctional polymers by surface modification</b> MG Moloney* <i>University of Oxford, UK</i>
<b>15.55– 16.25</b>	<b>Afternoon Tea</b>

16.25 – 16.45	<b>O13 Synthesis and biological properties of amphiphilic networks for tissue engineering</b> S Rimmer <sup>*</sup> , S MacNeil and N Fullwood <i>University of Sheffield, UK</i>
16.45 – 17.25	<b>I13 The two sides of cell adhesion: Modeling the cellular microenvironment with tailored substrates</b> Milan Mrksich <i>University of Chicago, USA</i>
17.25 – 17.40	<b>Closing remarks</b> John McCarthy <i>Manchester Interdisciplinary Biocentre, University of Manchester, UK</i>