OxIOSCR annual conference 2016 – celebrating a truly exceptional research programme

The third and final conference of the OxIOSCR project was held at the University of Oxford’s Chemistry Research Laboratory today. This year, the conference was devoted to the students’ research achievements with excellent talks given by the fellows highlighting the methods, challenges and results of their work.

Project Coordinator, Prof Jeremy Robertson, opened the conference with welcoming words and a brief overview of the research and training that had occurred during the year, notably the continuation of the biological screening of the compounds derived from the project. He then handed over to the Chair for the first session of the day, Prof Tim Donohoe, to introduce the three students in the Incendine; related targets and methods sub-programme of research. Anais Bouisseau described her research in her presentation entitled ‘Development of rhodium-catalysed C-C bond formation with concomitant C-S bond functionalisation’ and Christian Kuper followed with news of his project and explained how he has synthesised the building blocks towards the synthesis of incendine. After some questions from the audience, Aubert Ribacourt took to the floor with an entertaining talk describing how he was able to perform a total synthesis and structural revision of the compound Aruncin B; the compound and analogues are currently being assayed with others in cell viability assays in collaboration with the pre-clinical validation hub at the Department of Oncology.

Prof Robertson opened the next session by introducing the team involved in the β-Lactones; related targets and methods sub-programme of research. Allegra Franchino began the session by presenting details on the application of the asymmetric isocyanatoester aldol reaction developed in the Dixon lab to the synthesis of chloramphenicol. She then showed two novel diastereo- and enantioselective Mannich reactions of functionalized isonitrile pronucleophiles, sharing some insights into the silver/aminophosphine catalytic system that were used in the (asymmetric) transformations. Sandra Balcells García explained her research towards the total synthesis of oxazolomycin, with details of how she synthesised the first half of the compound, the natural product inthomycin C. Sandra Ainsua Martínez related her work by describing her approaches to the synthesis of lactones through oxidative radical cyclisation. Laia Josa Culleré closed the third session by describing how she prepared a number of biologically active (anti-cancer and antibacterial) analogues with tetramate and pyrrolidinone moieties, and how she led the work in testing those in viability assays at the TDI with follow-up work at the pre-clinical validation hub.

Following a meeting of the Supervisory Board, Prof Angela Russell introduced the team involved in the Taxol; related targets and methods sub-programme of research. Patricia Fernández-Rodríguez explained how she has developed a practical and short synthetic route to the taxane ring that has produced a taxadienone diastereomer. Her work is currently focusing on developing enantioselective synthesis and the use of mP450 enzymes, in collaboration with the Wong group, to afford Taxol analogues from taxadienone (and intermediates). Thomas Palacin took to the floor and presented the steps he has taken in his project towards the synthesis of the taxol core. Leonidas-Dimitrios Syntrivanis closed the sub-programme session by explaining how he is synthesising compounds with proposed microtubule stabilising activities based on the natural product eleutherobin. Prof David Hodgson opened the last session of student presentations from the Betulinic acid; related targets and methods’ research group. Simon Werrel presented details of his research to describe an approach to develop substituted furans and pyrroles with photochemical aromatization and Philipp Schäfer explained how he has achieved synthesis of natural product derivatives using a successful approach to
an asymmetric Suzuki-Miyaura reaction. **Antti Lahdenperä** closed the session with his presentation describing his work in transannular cascade approaches to diterpene analogues.

The final session of the day was devoted to a presentation entitled *Engineering a Sustainable Future with Green Chemistry and Biocatalysis*, by keynote speaker **Professor Roger Sheldon FRS, FRSC**. A leading authority on biocatalysis, green chemistry and sustainable synthesis, Roger is widely known for developing the E-factor and related measures of environmental impact of chemical processes. In his presentation he described his early work and the research leading to the development of the Cross-Linked Enzyme Aggregates (CLEAs) platform at the Technical University Delft in the Netherlands, and establishing CLEA Technologies B.V to commercialise and further develop the enzyme immobilisation technology and also biocatalytic process development. His interesting and entertaining presentation was followed by a drinks reception and network dinner finishing the informative and busy programme of the final OxIOSCR annual conference.