



Research Fellow in Synthesis and Chemical Biology Supplementary Information

Project Information

Protein-protein interactions (PPIs) control all cellular processes relevant to health and disease. Selective inhibition of individual PPIs would thus facilitate both a greater understanding of biological mechanisms; and provide new opportunities for therapeutic intervention. Yet, PPI inhibitors represent a minute fraction of current small molecule drugs, largely because of specific challenges associated with development of inhibitors for these targets. This post will focus on the design, synthesis and testing of peptide/ peptidomimetic inhibitors of disease relevant PPIs, with considerable emphasis on targets in oncology. For recent examples of relevant work in this area by the project team see: *Angew. Chem. Int. Ed.*, **2016**, *55*, 11096–11100, *Chem. Sci.*, **2016**, *7*, 3694-3702, *Chem. Sci.*, **2015**, *6*, 2434-2443 and *Angew. Chem. Int. Ed.*, **2015**, *54*, 2960-2965.

Details of the School of Chemistry

The School of Chemistry has outstanding facilities for research in synthesis including refurbished laboratories, superb NMR equipment (including 600 MHz and three 500 MHz NMR machines and an LC-NMR facility), and X-ray crystallographic, mass spectrometry and microanalytical services. These facilities have been enormously enhanced and expanded by the award of >£7M (Chemistry share: £2.5M) under the JIF Scheme; further refurbished synthetic space houses new analytical HPLC, semi preparative LC-MS, preparative HPLC and robotic equipment. Infrastructure for the high-throughput synthesis, purification (including mass-directed HPLC) and analysis of bioactive small molecules is particularly relevant to this programme. The University science library has one of the best collections of journals and books to be found in any British university. The University subscribes to many journals (including ACS, RSC and Tetrahedron journals) and databases (SciFinder scholar and Beilstein on-line) which are accessible from offices adjoining the laboratories.

Details of the Astbury Centre for Structural Molecular Biology

The Astbury Centre brings together >300 researchers at Leeds at the interfaces between chemistry, biology and physics. The Centre provides a buoyant interdisciplinary environment for biomolecular science, for example through an annual research retreat, an annual lecture, a vigorous seminar programme and the biennial Astbury Conversation. The Astbury Centre's infrastructure and technical support has been enormously expanded and enhanced through major initiatives including the £17M Astbury BioStructure Initiative. Relevant infrastructure includes surface plasmon resonance; isothermal titration calorimetry, fluorescence and circular dichroism spectroscopy and a mass spectrometry laboratory. From 2016 the centre will house 950MHz NMR and two Titan KRIOS 300 KeV electron microscopes supported by technical experts. The Mass Spectrometry Facility is dedicated to the analysis of biomolecules. There are five mass spectrometers including a new Synapt HDMS MS/MS instrument with nano-electrospray and in-built ion mobility capabilities, a Q-ToF equipped with nano-electrospray and capillary HPLC-MS/MS facilities for peptide sequencing; an LCT Premier with the highest m/z range available (m/z 60,000) for the analysis of non-covalently bound macromolecules, a Platform II electrospray instrument with on-line HPLC facilities, and a MALDI-ToF Protein chip Reader. Together these outstanding facilities and unparalleled collaborative opportunities for chemists, biologists and physicists provide the ideal environment in which to pursue multidisciplinary science.