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Selected Publication

To demonstrate assay development and screening approaches we develop

Walker, S. et al. Development of an oligonucleotide-based fluorescence assay for the identification of tyrosyl-DNA phosphodiesterase 1 (TDP1) inhibitors. *Analytical Biochemistry* (2014), 454, 17-22.

To demonstrate broader expertise in design of ligands and their optimisation to clinical drug molecules

Ward, S, et al. Integration of lead optimization with crystallography for a membrane-bound ion channel target: discovery of a new class of AMPA receptor positive allosteric modulators. *Journal of Medicinal Chemistry, J. Med. Chem*., 2011, 54 (1), pp 78–94.

Research Aims and Interests

The Sussex Drug Discovery Centre (http://www.sussex.ac.uk/sddc) was established in 2012 at the University of Sussex to deliver both drug candidates into clinical development and also novel chemical probes to enable validation of new therapeutic targets. Our philosophy is to combine expertise in clinical and biological disease understanding with our pharmaceutical industry track record in drug discovery and development. Over the last 3 years we have secured >£12M in grant and commercial funding and now run a portfolio of multidisciplinary projects across neuroscience and oncology encompassing > 40 scientists with synthetic, medicinal and computational chemistry and also biochemical, biophysical and physicochemical assay development and screening expertise. These projects range from optimization of molecules from early discoveries to molecules for clinical investigation through to chemical biology approaches supporting the fundamental biology.

Specifically for DNA damage and repair, we look to identify proteins of potential therapeutic interest and then identify ways to find tool probe ligands. The research techniques include either developing high throughput screening assays for proteins with no known ligands or protein structure, or computational techniques to design probe molecules where ligand/ protein structure data are available. We then integrate detailed physicochemical understanding with medicinal chemistry expertise to design molecules with the necessary properties to enable biological study (e.g. permeability, solubility, selectivity, stability, in vivo pharmacokinetics etc.).