

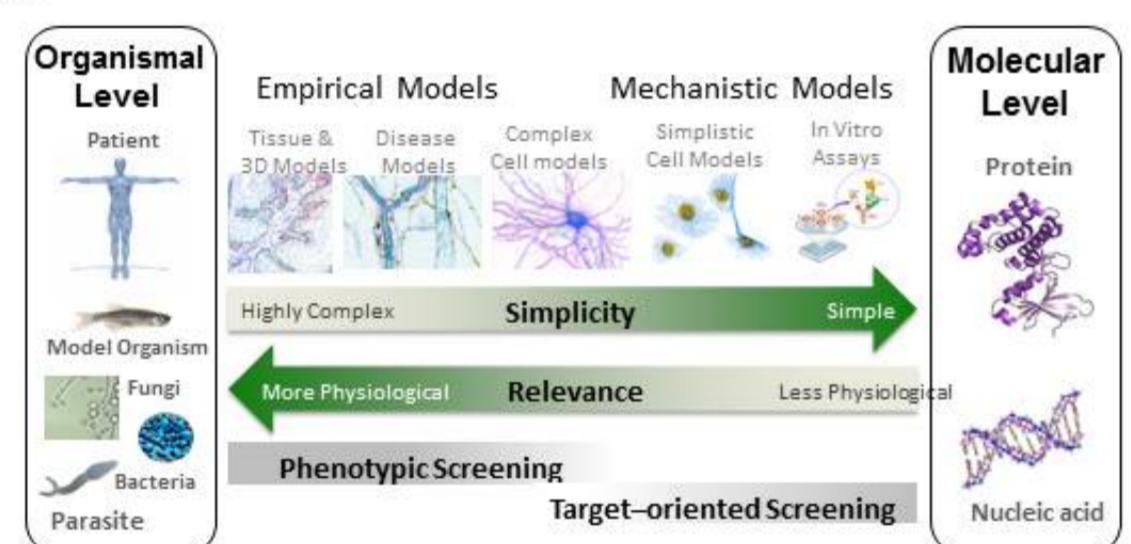
Target Discovery Institute

NDM Research Building, University of Oxford

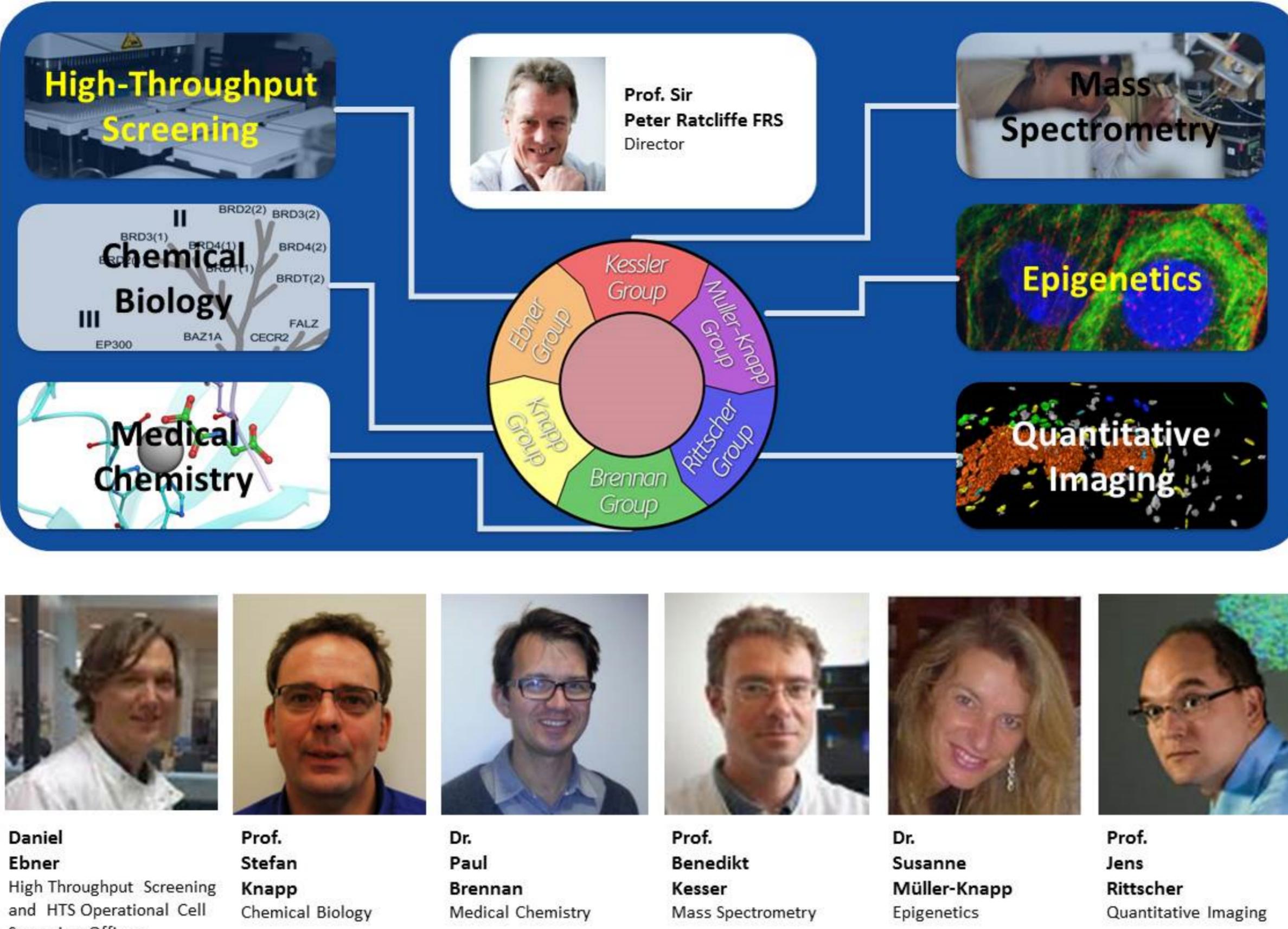
The Target Discovery Institute (TDI) is a new research centre initiated by the **Nuffield Department of Medicine** and the **University of Oxford** with a mandate to develop new target screening methodologies, investigate disease pathways as a means for identifying 'drug targets' and advance therapeutically relevant targets for drug development. The centre is located in the Nuffield Department of Medicine Research Building, Oxford and brings together the scientific expertise of several university partners including the **Nuffield Department of Medicine**, the **Department of Cardiovascular Medicine**, **Department of Radiation Oncology and Biology**, the **Structural Genomics Consortium**, the **Institute of Biomedical Engineering**, the **Department of Chemistry** and the Oxford branch of the **Ludwig Institute for Cancer Research** to advance target discovery.

Motivation

The financial viability of the pharma industry is endangered by high R&D costs to get drugs to market, and a faltering pipeline. In recent years identifying and validating the "targets" underlying disease has been a dominant *modus operandi* for the industry. The 'single-target' hypothesis, and hence the target itself, has become the driver for new drug discovery. Phenotypic screening is target-agnostic and better captures the complexity of living systems. Analysis of first-in-class drugs has indicated that the majority are discovered by phenotypic methods rather than screening molecular targets, although followers came most often from target-based work.

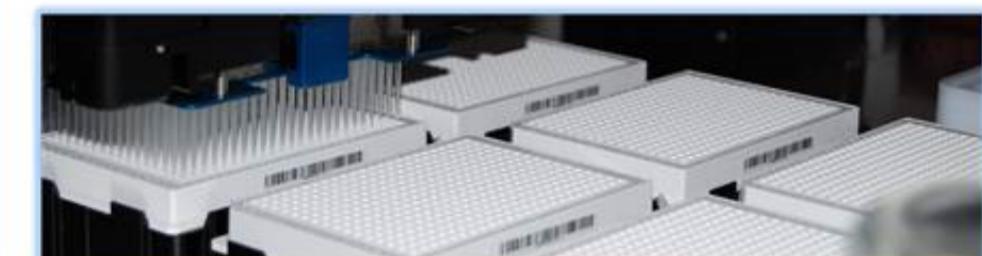


NDM Collaborative Research Initiative



We are actively seeking partners to collaborate on joint research projects. Please visit www.tdi.ox.ac.uk

Cellular High Throughput Screening



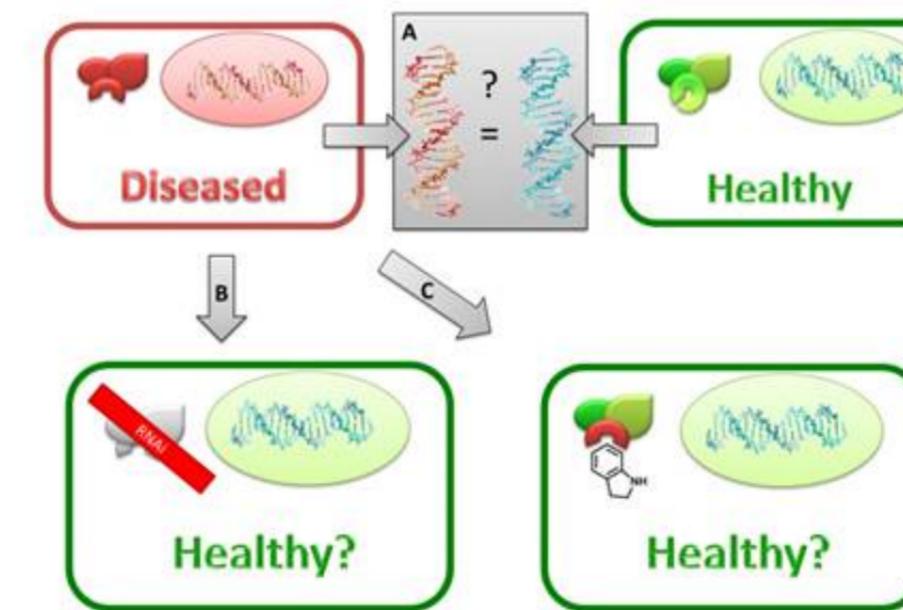
The aim of the TDI HTS facility is to provide research scientists with access to a comprehensive, cost-effective facility capable of running high throughput cell based small compound and RNAi screens as well as biochemical small compound screens.

UK – National Phenotypic Screening Centre
<http://www.sula.sus.ac.uk/research-facilities/uk-national-phenotypic-screening-centre>



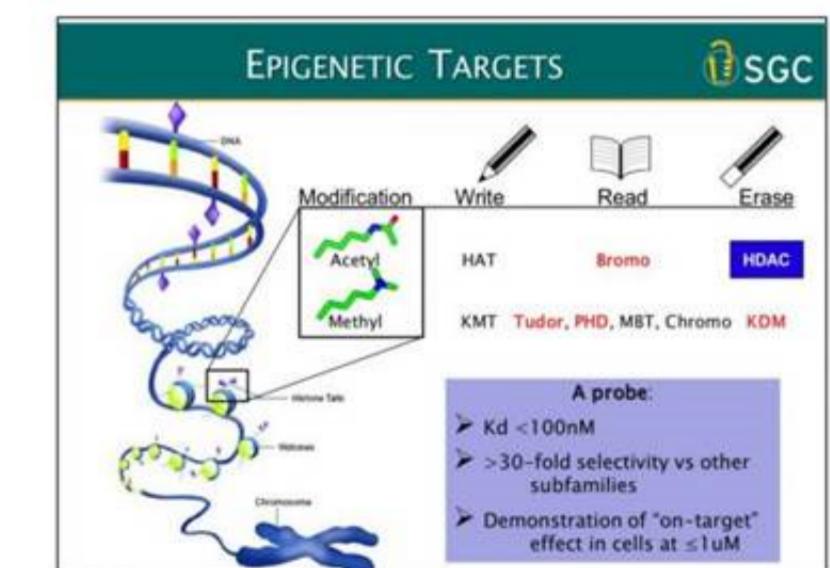
Medical Chemistry

We use a number of tools to associate a protein target with a disease: genetic comparisons of diseased versus healthy individuals (A); inhibition of every possible expressed gene in a cellular model of a disease (a process known as RNA interference - RNAi, B); or the use of chemical probes in cellular or animal disease models (C).



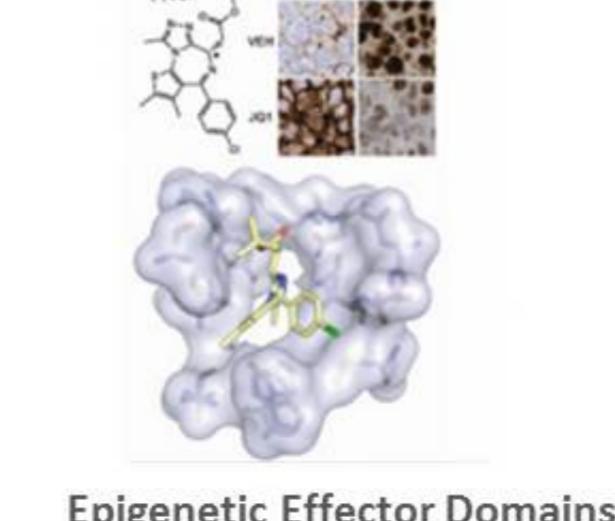
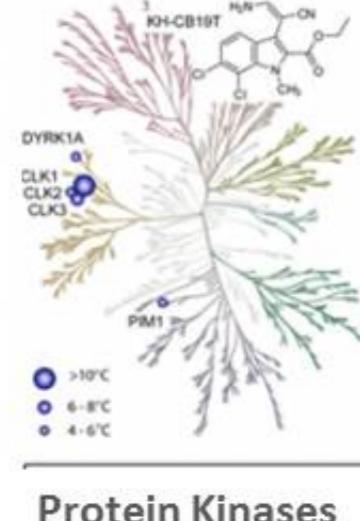
Epigenetics

We generate well-characterised tool compounds or 'probes' against key epigenetic enzymes and recognition domains involved in histone regulation of transcription and provide them freely to the scientific community to increase the knowledge of these proteins in biology and disease.



Chemical Biology

Potent, selective and cell-permeable inhibitors that target key regulators of cellular signalling ("chemical probes") are valued reagents in both fundamental and applied biological research, and they are essential tools for target validation and provide starting points for translational research projects.



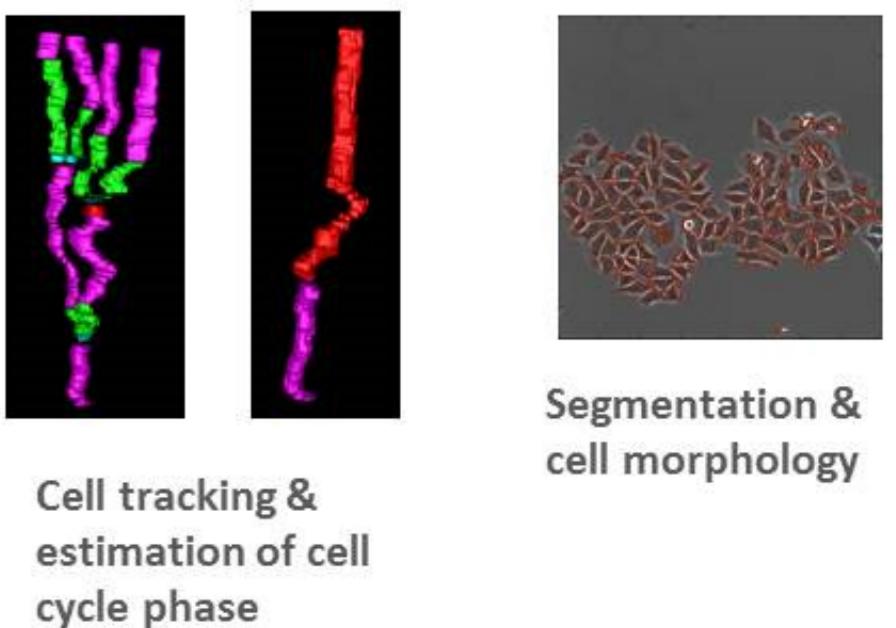
Mass Spectrometry

The major goal of the group is to provide a proteomics platform for the research community located at the Headington campus. In addition, a proteomics analysis pipeline and a MASCOT proteomics server have been created in collaboration with the Computational Biology Research Group (CBRG).



Quantitative Imaging

We develop algorithms and methods that enable the quantification of a broad range of phenotypic alterations, the precise localization of signalling events, and the ability to correlate such events in the context of the biological specimen. These include the analysis of shape and structure as well as cellular function and dynamics.



Segmentation & cell morphology

Research Partners

DEPARTMENT OF CARDIOVASCULAR MEDICINE



wellcome trust



Alzheimer's Research UK
Defeating Dementia



National Institutes of Health

