PI profile

## Paul Brennan

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|  | **Professor Paul Brennan****Titles**: Professor of Medicinal Chemistry, Head of Chemistry – Alzheimer’s Research UK Oxford Drug Discovery Institute, Group Leader**Location**: Nuffield Department of Medicine Research Building**Department**: Nuffield Department of Medicine [edit as required]**Group**: Alzheimer’s Research UK Oxford Drug Discovery Institute**Webpage**: [https://www.brennanresearchgroup.com](https://www.brennanresearchgroup.com/)**Email**: paul.brennan@cmd.ox.ac.uk |

### GMS themes:

[Please retain any that describe your research, deleting others:]

* Genomic and –omic technologies
* Functional genomics
* Genome biology (genomes and genetic variation)
* Genomics of disease
* Genomic analysis (bioinformatics and statistical genetics)
* From genes to clinic (target discovery, structural biology, medicinal chemistry)
* Application of genomics in the clinic (diagnostics and therapeutics)

### Research Overview

The focus of our group is on small molecule drug discovery and chemical biology. We develop open-access small molecule probes to enable target discovery of novel proteins in dementia, oncology and inflammatory disease. The group works in close collaboration with chemical biologists and biophysicists to decipher new mechanisms of disease propagation and action, and to design ways to prevent these diseases.

Chemical probes are available for only a small fraction of potential disease targets and often are less specific than small inhibiting RNA. The scarcity of chemical probes is disappointing as they are especially useful; a probe that shows a positive effect can also serve as a chemical starting point for drug discovery. If genetic or RNA interference methods identify an exciting disease target, it may still take many years to find a chemical starting point to move from target discovery to drug discovery, whereas using a chemical probe in target discovery jump-starts the process. A key technology we use in our research is fragment-based screening to discover chemical leads. The leads are optimised for potency, selectivity and cellular activity via iterative cycles of structure based drug design, parallel organic synthesis, biophysical testing and compound structure-activity relationship (SAR) analysis.

Project areas: Medicinal chemistry, structural biology, GTPases, GAPs, DUBTACs

### Specific project proposals:

* ‘Development of deubiquitinase target chimeras (DUBTACs) to increase protein expression and modulate ubiquitin signalling.’

Please contact directly for further information.

*These pages were reviewed/updated:* ***[insert date]***

Project proposal

# **Title**: **[Project title here]**

Supervisors: [name and title of relevant individuals]

Wet/dry lab mix (approx): X% wet lab, X% dry lab

### Description:

[Write a ~ half-page page description of the project here].

### Training Opportunities:

[Write a brief description of the training opportunities the project will provide].

### Background reading / references:

Please include references as desired. Suggested format:

* [Surname] [Firstname], [other authors]… **(year in bold)** . [Title]. [Journal name], [other details]. Available at: [link]

Insert any additional project description(s) on subsequent pages if applicable. Please use the same template and use separate pages for each project.