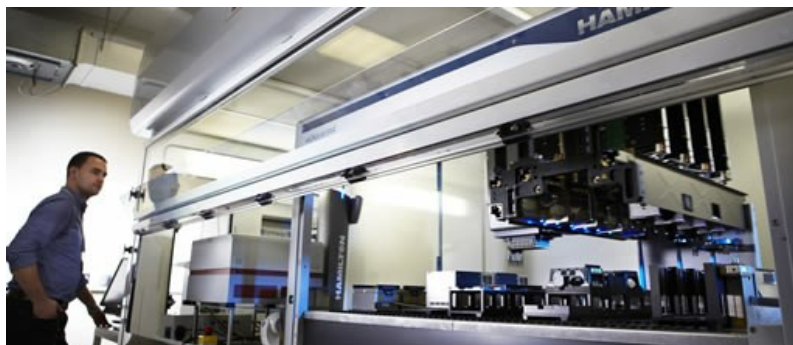


Automated drug discovery platforms



We offer access to two fully automated drug discovery platforms housed in the Drug Discovery Facility laboratory which is located in the School of Biosciences at the **Institute of Microbiology and Infection** ([/research/activity/microbiology-infection/index.aspx](http://research/activity/microbiology-infection/index.aspx)) (IMI).

Platform 1 – The Biochemical Screening Platform

[Open all sections](#)

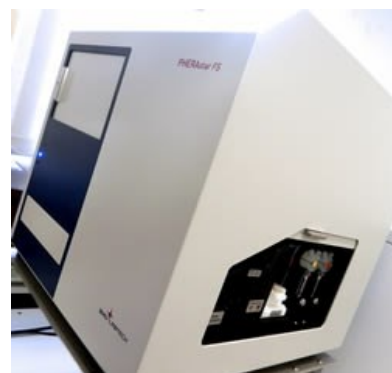


The Biochemical Screening Platform is a fully integrated robotic liquid handling system with the capability and capacity to screen thousands of chemical entities against specific in vitro biochemical assays. This is an extremely flexible system, allowing for bespoke biological assay development.

Liquid handling and dispensing of reagents is conducted through a Hamilton Star robotic system which is in turn integrated with a BMG PHERAstar FS microplate reader. The enabling assay technologies available to the user include UV/VIS spectroscopy, Fluorescence (FRET and TR-FRET), Luminescence and AlphaScreen.

Hamilton STAR liquid handling robot. Containing 8x pipette channels (1µL-1mL), 96-head (1µL-1mL), on deck thermostatic microplate shaker/incubator.

BMG PHERAstar FS microtitre plate reader.



- Ultra-fast UV/Vis Absorbance Spectra
- Fluorescence intensity (including FRET)
- Fluorescence polarization/Anisotropy
- Time-Resolved Fluorescence, including TR-FRET
- High-end AlphaScreen®/AlphaLISA®
- Luminescence (flash and glow), including BRET
- Optic modules which enable accurate measurement of:
 - Intrinsic tryptophan fluorescence (Exc – 285nm/Emm – 340nm)
 - NADH/NADPH (Exc – 340nm/Emm – 450nm)
 - Alamar blue (Exc – 572nm/Emm – 583nm)
 - Green Fluorescent Protein (GFP) - (Exc – 485nm/Emm – 520nm)
 - mCherry (Exc – 587nm/Emm – 610nm)
 - DAPI (Exc – 358nm/Emm – 461nm)
 - FAD (Exc – 410nm/Emm – 580nm)
 - Oxoplate (Exc1 – 450nm, Exc2 – 485nm/Emm – 540nm)

Platform 2 – The Phenotypic Screening Platform



The Phenotypic screening platform is also a fully integrated robotic system which has the ability to screen a variety of cell type or tissue cultures against a library of chemical entities.

This parallel facility allows for the direct tandem studies of compound libraries against cell cultures to detect for resultant chemically induced biological consequences important to the drug discovery process, such as cell viability, changes in cell morphology, cell migration or the sensitive detection of the release or uptake of specific biomarkers.

A Hamilton Star liquid handling robot forms the basis of the platform which is integrated with a Thermo Cytomat shaking microplate incubator (full temperature and atmospheric control). A BMG POLARstar Omega microplate reader is also integrated within the system for end point or kinetic cell-based phenotypic assay measurements. This entire system is housed within a BSL-II cabinet to maintain sterility during the screening experiment.

- Hamilton STAR liquid handling robot. Containing 8x pipette channels (1µL-1mL), 96-head (1µL-1mL), on deck thermostatic microplate shaker/incubator.
- POLARstar Omega microtitre plate reader
 - Ultra-fast UV/Vis Absorbance Spectra
 - Fluorescence intensity (including FRET)
 - Time-Resolved Fluorescence, including TR-FRET
 - AlphaScreen®
 - Luminescence (flash and glow), including BRET
 - Filters enabling precise measurement of:
 - NADH/NADPH (Exc – 340nm/Emm – 450nm)
 - Alamar blue (Exc – 572nm/Emm – 583nm)
 - Green Fluorescent Protein (GFP) - (Exc – 485nm/Emm – 520nm)
 - mCherry (Exc – 587nm/Emm – 610nm)
 - Oxoplate (Exc1 – 450nm,Exc2 – 485nm/Emm – 540nm)
 - Mito-Express (LuxCell) (Exc1 – 340nm/Emm – 655nm)
- Thermo Cytomat plate shaker-incubator – Capacity for 32 x 96/384 lidded microtitre plates
- All housed within a BLS-II CAS cabinet.



A stand alone Fluorescence Spectrophotometer



The lab also boasts access to a Hitachi F-7000 Fluorescence Spectrophotometer, which can be used for a variety of functions such as fluorometric assay development or to repeat screening experiments in a more low-throughput fashion.

- Hitachi F-7000 Fluorescence Spectrophotometer
- Thermostatic cell holder with stirrer
- Automatic polarizer accessory with a wavelength range of 260nm to 700nm. 0 to 90° automatic repetitive rotation on both excitation and emission sides.