

# Confidence in drug discovery

A Fluent™ Laboratory Automation Solution is providing exceptional flexibility for small molecule screening at IME ScreeningPort in Hamburg, Germany. This groundbreaking system offers straightforward automation of complex assays, enabling both *in vitro* and cell-based assays to be performed on a single, compact instrument.



IME ScreeningPort – part of the Fraunhofer Institute for Molecular Biology and Applied Ecology – offers a full range of drug discovery research activities to academic and public research institutes, helping to bridge the gap between fundamental research and the pharmaceutical industry. Partnering with laboratories across the globe, IME ScreeningPort provides industrial-scale assay development and small molecule screening services, using advanced laboratory automation and informatics systems to provide high quality, validated drug candidates which can be transferred directly into pre-clinical pharmaceutical development pipelines.

As an industrially-focused research institute working across multiple life science disciplines, IME ScreeningPort requires highly flexible, user-friendly automation solutions to ensure the

necessary throughput and efficiency. Dr Philip Gribbon, Assistant Department Head of IME ScreeningPort, explained: "We have a completely open approach when it comes to therapeutic areas, so we usually have around 20 projects ongoing at any one time across a variety of indications, including oncology, neurodegenerative, cardiovascular and metabolic diseases, as well as a number of neglected parasitic diseases. Our major strength lies in target-based assays – both biochemical and cell-based – but we also perform a large number of phenotypic assays, so need the flexibility to quickly switch between various assay formats to meet the timetables and demands of each project."

Automation is an essential part of IME ScreeningPort's laboratory workflow, and the increasing popularity of high content, multiplexed assays meant that the Company

was looking for a new liquid handling and automation workstation capable of running these applications. After initial project discussions with Tecan in late 2013, it was clear that the Fluent platform offered both the flexibility and precision required for the drug discovery projects at IME ScreeningPort. Philip continued: "Having worked with Tecan in several of my previous roles, I was aware of what the Company could offer in terms of automated solutions to run microplate-based assays. A partnership was also a very good fit for both parties, providing a unique opportunity for us to benefit from Tecan's application expertise and latest generation of liquid handling instrumentation, and for the Company to test the performance of this innovative solution in a real-world setting."

Following a one week training course for two IME ScreeningPort researchers at Tecan's Männedorf headquarters, the Fluent platform was installed in March 2014, and was quickly brought into operation for cell-based assays. Liquid handling and automation scripts for many of the assays were established in a very short time frame, enabling a rapid start on instrument testing and validation. "We initially identified five assay groups that would be good candidates for running on the Fluent and, working hand-in-hand with the Tecan technical team, we were able to develop protocols very quickly. The Fluent workstation's fully-integrated design is ideal for our needs, allowing us to incorporate many of the auxiliary devices needed to perform our assays into a single, compact workstation. Our platform has an Infinite® M1000 PRO multimode reader and a HydroSpeed™ plate washer – both of which are extremely good instruments – as well as an incubator and a carousel to store labware and assay plates. This gives us the capacity and flexibility to quickly switch between, for example, a kinetic assay that only takes a

few hours and a cell-based assay with long incubation times that can take several days, helping to ensure project deadlines are met and the instrument is being used efficiently."

One of the IME ScreeningPort assays now benefitting from complete automation on the Fluent platform is screening for anti-cancer agents. Using the CellTiter-Glo® Luminescent Cell Viability Assay (Promega) and cell lines from the NCI-60 panel, IME ScreeningPort has developed a protocol that allows triplicate dose-response curves to be generated for up to 100 compounds against 20 different cell lines in a single, unattended run. Performed in 384-well culture plates, this workflow offers exceptional throughput, and uses Fluent's three, task-specific arms and the integrated Infinite M1000 PRO to provide precisely controlled liquid handling and analysis, ensuring consistent, high quality results. "The Fluent solution offers far greater flexibility than the high throughput screening systems we were used to, allowing us to precisely define how liquid transfers and other operations are scheduled and performed. Although this level of functionality requires you to devote time and effort to fully understanding the system's capabilities, the interface and software are very user-friendly, and you are amply rewarded for your investment. So far, we haven't found anything that we can't do, and we've already identified a second tranche of assays that we'll be transferring to the Fluent platform," Philip concluded.

To learn more about IME ScreeningPort, go to [www.screeningport.com](http://www.screeningport.com)

To find out more on Tecan's Fluent Laboratory Automation Solution, as well as details of other cell-based applications which have already been automated on this system, visit [www.tecan.com/fluent](http://www.tecan.com/fluent)

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Left to right: Philip Gribbon, Gesa Witt and Markus Wolf with the Fluent system