Biopharma by design

Isogenica provides peptide, protein and antibody discovery and design services to pharmaceutical and biotechnology companies, and has invested in two Freedom EVO® liquid handling platforms to increase its capacity for the selection of next generation molecules.

Isogenica Ltd, based at Chesterford Research Park near Cambridge, UK, specializes in the discovery, identification and design of new therapeutic peptides, proteins and antibodies for pharmaceutical and biotechnology companies. The Company's proprietary technology – CIS display – enables rapid library construction and selection, generating faster hits and better leads to reduce discovery time and improve the quality of candidate options. To meet the demand for higher throughput, Isogenica has purchased two Freedom EVO 200 platforms for the selection of next generation molecules and for running ELISAs. Neil Cooley, Operations Manager at Isogenica, explained: "Our clients provide us with a target molecule and we use our CIS display technology to discover binders to that target. We have automated this technology on the Freedom EVO platform to make it less labor-intensive and to increase our throughput, allowing us to do more of these selections in parallel."

Tecan held comprehensive discussions with Isogenica to establish the Company's exact needs and design the most appropriate platforms for their selection and ELISA protocols. Two Freedom EVO 200 workstations were chosen, each equipped with a Robotic Manipulator (RoMa) Arm, an eight-channel Liquid Handling (LiHa) Arm with low-volume disposable tips and a MultiChannel Arm™ (MCA) 96. The selection platform also has an integrated Infinite® F200 PRO multimode reader for PicoGreen® analysis of DNA levels, an LPT 220 EVO™ Carousel, an extended Z-axis RoMa, low disposable tip ejector option and a dust cover, and is used to run a protocol based on the Company's CIS display technology. This platform also takes advantage of Tecan's SBS format disposable tip boxes, allowing large quantities of tips to be stored on the Carousel for increased walkaway times.

Neil continued: "Tecan offered a cost-effective solution and the Company has a good reputation; we also liked the training that was provided with the system. They took the time to get to know exactly what we needed and to ensure that we understood what options were available to us – and the advantages of each option – including presentations that explained the benefits of different semi-automated versus fully integrated systems. It was particularly tricky deciding whether to have everything integrated on the candidate selection platform or not, where to put all the options we needed and how to get the highest throughput."

Although the Company has had the workstations for less than a year, the advantages of automating the selection protocol can already be observed. Automating the process enables multiple target molecules to be tested against a number of libraries under different selection conditions, offering the capability to multiplex across a 96-well plate. This provides more versatility and improves consistency, which is an important consideration, as well as allowing many more selections to be performed than would be possible manually. The maximum number of selections that can be comfortably performed at one time manually is 12 to 16. In contrast, the microplate format used by the automated process enables 96 selections to be performed simultaneously.

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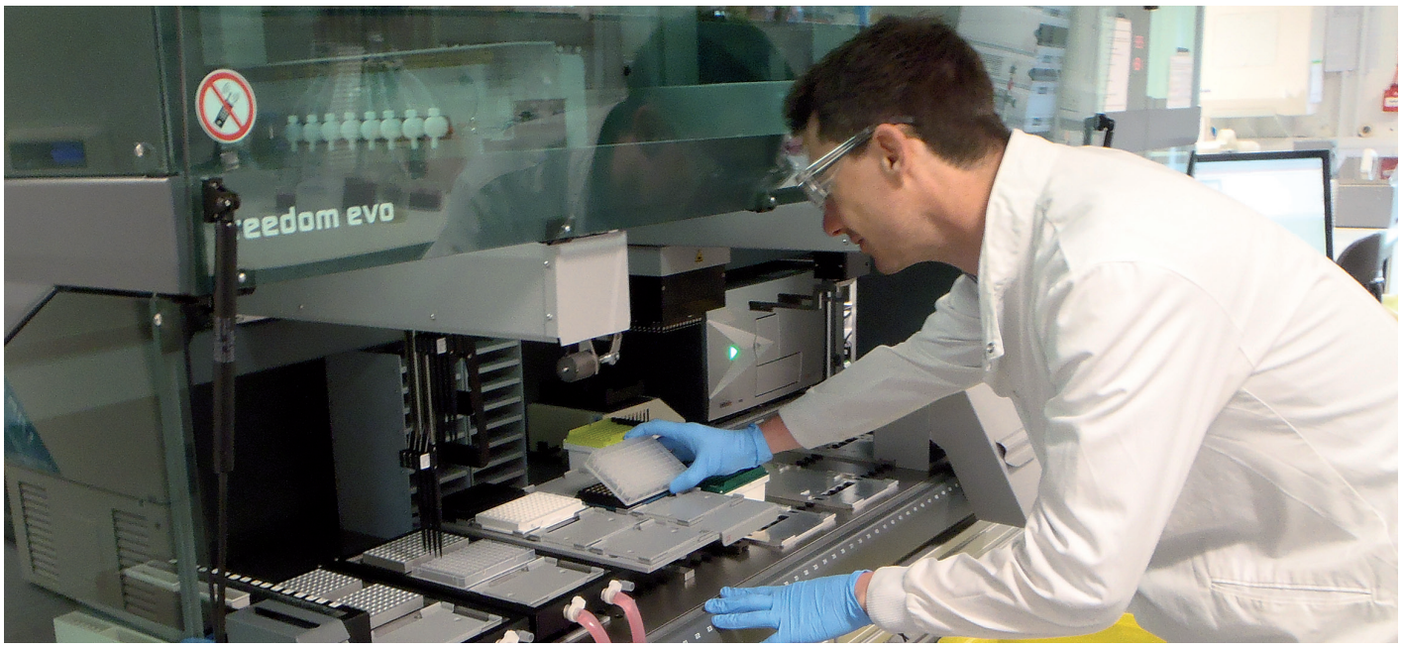
Automation of the DNA/protein binding ELISA protocol on the Freedom EVO has also proved popular with staff, and has significantly increased Isogenica's screening capacity. When the ELISA is semi-automated using 96-well plates, one person can process



Isogenica's selection platform offers multiplexing capabilities in a 96-well format

up to 48 plates a day. Automation has also enabled the Company to miniaturize its assays into 384-well plates, which allows many more clones to be screened with the same targets in the same time period. "We need to keep the amount of target used to a minimum, and moving to 384-well plates reduces the amount of material we need," said Neil. "The platforms' ease of use has also encouraged widespread use of the systems; staff became comfortable with operating the instruments very quickly. As a result, we have extended the functions that we currently carry out on the Freedom EVO beyond those initially envisaged."

Isogenica's clients also reap the benefits of automation. When a larger number of selections need to be performed, it is now possible to run one large batch of samples on the Freedom EVO, rather than several small batches manually, enabling more rapid and consistent delivery of peptide or protein candidates. "For our clients, the big advantage of automating the selection process is that it allows a larger number of selection conditions and different types of library – peptides, scaffolds or even antibodies – to be tested with their target molecule, providing them with greater choice," concluded Neil.

To find out more on Tecan's drug discovery solutions, visit **www.tecan.com/drugdiscovery**

To find out more about Isogenica, visit **www.isogenica.com**