

Flexibility and efficiency four times over

Innovative drug discovery company Siena Biotech, based in Italy, has chosen four highly tailored Freedom EVO® systems for different roles within the company and each one has been invaluable in increasing throughput and accuracy in testing compounds as potential therapeutic drugs.



The Screening and Technologies team (from l to r): Marco Rossi (Oncology), Chiara Ghiron (Head of Screening and Technologies), Federico Cappelli (Biomolecular Screening), Marta Gherardi (Compound Management and Analysis), Wolfgang Fecke (Head of Biomolecular Screening), Raffaella Brandi (Compound Management and Analysis) and Hendrick Bothmann (Biomolecular Screening).

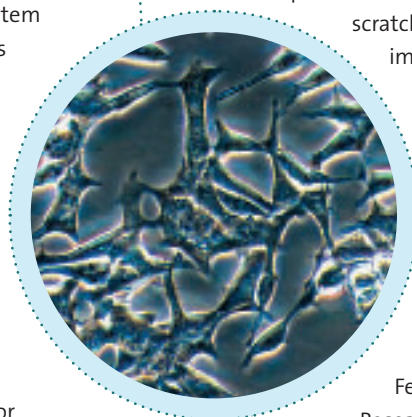
Siena Biotech S.p.A. is a drug discovery company whose research efforts are focused on diseases of the Central Nervous System, both neurodegenerative and proliferative and including rare diseases, with the aim of discovering new drugs for therapeutic intervention. In order to support the drug discovery process from target identification to clinical studies, the Company applies the most advanced technologies available in the biomedical and biotechnology fields. Siena Biotech is owned by the Monte dei Paschi di Siena Foundation, which is one of the 10 largest foundations in the world.

The Screening and Technologies Department at Siena Biotech is headed by Chiara Ghiron and is comprised of a Compound Management and Analysis unit, a Biomolecular Screening unit, a Metabolic Profiling unit and a centralized Cell Culture laboratory. Four Freedom EVO systems equipped with various modules are used for a range of applications in the department. Chiara explained: "Our collective aim is to increase our efficiency both in higher throughput screening of compound libraries, and later in quality screening and compound

profiling phases. Automation is helping us to keep up with requests for a range of assays, from biochemical to high content readout formats. In Biomolecular Screening, two Tecan systems prepare assay plates for single point and concentration response analysis, pipetting all solutions and reading the plates by measuring absorbance, fluorescence or luminescence; in Compound Management and Analysis, a further system prepares compound plates in different formats for screening; while in Cell Culture, applications for the fourth system include plate coatings, seeding cells in plates and manipulating trans-well plates for permeability assays."

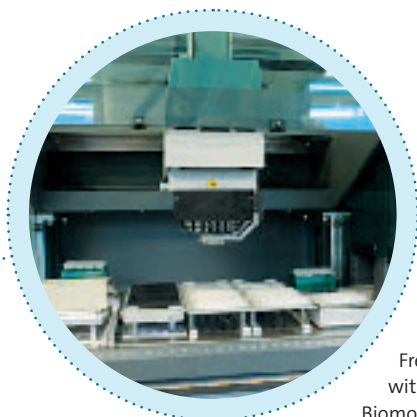
Hendrick Bothmann, Senior Scientist in Biomolecular Screening, explained: "I had worked with Tecan systems before I came to Siena Biotech, and recommended that we approach Tecan when we were experiencing problems with an existing automated system. We

eventually replaced the old instrument with a Freedom EVO system and, from then onwards, the excellent service we are receiving is making all the difference. The high flexibility of the Tecan systems, including the ability to integrate other instruments is the first thing I like about them. Secondly, the open concept of the Tecan software gives more possibilities for integrating systems and setting up assays which require non-standard operations. One example of this is our scratch assay; this assay tracks the time taken for cultured cells to move over a space on the bottom of the well created by scratching the cell layer with a 50 µl pipette tip. This gives us important information about whether test compounds affect cell migration, for example for cells from glioblastoma multiforme, one of the most common and aggressive brain tumors. Performing this test manually was too time-consuming with low reproducibility; an automated method was essential to achieve precise width and direction of the scratch, and validate this using imaging software. Working closely with Tecan, I designed a vector that works really well, allowing the pipette tips to touch the bottom of the wells and scratch over a defined distance."



Federico Cappelli, Research Technician in Biomolecular Screening, added:

"We are still in the early stages of adapting some of the existing manual assays for our Freedom EVO system, and we are currently working on automating our Madin-Darby canine kidney (MDCK) cell line permeability



Freedom EVO platform with multichannel arm in Biomolecular Screening.

assays in collaboration with the Metabolic Profiling Unit. The flexibility of the system will allow us to reproduce the results currently obtained by a dedicated operator, increase the throughput and minimize inter-operator variability.”

Marta Gherardi, Research Technician in Compound Management and Analysis, continued: “After hearing about Hendrick’s and Federico’s experiences with the Tecan systems, we chose our own Freedom EVO system to improve throughput, customized to exactly meet our needs thanks to the Tecan Integration Group (TIG). We visited TIG in Switzerland and looked at all the possibilities for customization, choosing the ones that best suited us. The system was then built in Switzerland and integrated on-site with our automated compound storage system.” Raffaella Brandi, Scientist in Compound Management and Analysis, added: “When our customized system arrived, it only took one week of testing before it was ready for routine tasks, allowing plates to be retrieved from and returned to the storage system without manual intervention, and giving greater throughput and longer unattended run times.”

Marta continued: “The ability to leave the Freedom EVO unattended while it is plating for three or four hours at a time, or even overnight, is very appealing. The Freedom EVO can potentially be left running for days as we have a sealer for our compound plates. Running the system to its full capacity is something we will consider in the future to accommodate increases in our compound screening workload.”

Hendrick concluded: “Tecan has offered us training when we needed it, tailoring it to our requirements, and the service is outstanding and very efficient.” Federico agreed: “Our interaction with the Tecan Service Engineers in Milan has been extremely important and beneficial. They have taught us many things we needed to know for our routine applications.”

www.tecan.com/tig

Scientific instrumentation. Not for use in human clinical or *in vitro* diagnostic procedures.



The Freedom EVO platform in Compound Management and Analysis prepares compound plates for screening.