

Seeing the light

An Infinite® M200 PRO reader is helping Californian company Sevident to establish rapid, sensitive immunofluorescence and colorimetric assays based on its proprietary NETs technology.

SEVIDENT

Sevident, based in Hayward, USA, has developed an advanced rapid capture platform (NETs) that allows the isolation and detection of multiple targets of interest in small sample volumes. This proprietary technology uses a unique three-dimensional molecular scaffold to maximize specific binding capacity and minimize non-specific binding. NETs can be applied to single- or multi-target evaluation of virtually any molecule of interest, including cells. The technology can also be applied to pre-existing assays to help enhance assay sensitivity, achieving detection levels as low as femtomoles per ml (fmol/ml). Emily Stein, President and Chief Scientific Officer of Sevident, explained: “Sevident was founded when I began experimenting in my kitchen in 2008! Initially, my aim was to resolve some of the issues I experienced in my work

analyzing patient samples. I began with some colorimetric experiments, using a borrowed plate reader. We then progressed to a small laboratory in Palo Alto, where we spent a year honing the technology and developing it to allow simultaneous protein and nucleic acid detection, before moving to our current ‘proper’ facility in Hayward.”

“Our technology is multifaceted, focusing on multi-chemistry multiplex capture. NETs can bind and extract a wide variety of molecules, including proteins, nucleic acids, carbohydrates, lipids, cells and small molecules. This allows targets of interest to be captured and isolated, simplifying removal of contaminants and producing extremely high purity samples. We can tailor this technology for a plethora of applications – testing, screening, monitoring, over-the-counter products and point-of-care diagnostics, as well as research and a broad range of environmental, industrial and manufacturing

applications – working with commercial partners to achieve our joint objectives.”

Emily continued: “We moved from simple colorimetric tests to fluorescence-based assays, as we found the multiplex capabilities very exciting. Multiple colors can be read simultaneously in the same well or on the same beads, which we thought was pretty intriguing. However, our original plate reader was quite old and cumbersome to use, and so we decided to invest in a modern, up-to-date instrument more suitable for these multiplex assays, with the flexibility to perform colorimetric, luminescence- and fluorescence-based assays as our project requirements changed. After testing all the major brands, we set our sights on the Infinite M200 PRO because of its ease of use, sensitivity and precision. It also allows us to change between different types of assay, accommodating our own fluorescence-based development programs and the colorimetric and luminescence-based programs of some of our partners. At that time, we had just entered a partnership with a government laboratory to develop a rapid immunoassay for surveillance of dengue virus infection. Reproducibility between the two laboratories was essential – we needed to know that if the same samples were run in both laboratories, the results would be similar – and so it made sense for us both to use a Tecan reader. We knew that we would have greater confidence in the comparability of the results if the laboratories were using the same equipment.”

“Intuitive software was another key requirement. We needed a reader with software that could be picked up quickly, as we cannot afford long delays in our development cycles. I really like the Infinite M200 PRO’s software, and find i-control™ very nice to use.



Emily Stein (front) and the Sevident team



Emily Stein loading samples onto the Infinite M200 PRO

Magellan™ is user-friendly too, and we are gradually implementing this as we need it. The flexibility of the reader's software and the analytical prowess of Magellan was a significant factor in the decision to buy the Infinite M200 PRO."

"At this point in time, the Infinite M200 PRO is one of the most widely used pieces of equipment in our R&D program, enabling us to use our technology to help our partners enhance the sensitivity of their assays. The reader has proved ideal for our purposes, and we are easily achieving sensitivities in the fmol/ml range. The local Tecan staff have been excellent too; the sales team is very knowledgeable, and the technical support has been really good. Everything has worked well, and I am very happy with the reader," concluded Emily.

To find out more on Tecan's Infinite M200 PRO, visit www.tecan.com/infinite200pro

For more information about Sevident, visit www.sevident.com



Achim von Leoprechting, Head of Partnering Business, Executive Vice President

Leading the debate

Tecan's Partnering Business has a long history as an OEM manufacturer, working closely with its customers to meet the demands of new and emerging technologies, reduce costs and develop solutions to cope with a greater need for data connectivity, financial pressures in the healthcare sector and changing disease patterns. As a company, we are in a privileged position, benefitting from early exposure to new trends and enabling technologies – such as next generation sequencing – as they are introduced into research laboratories and test environments. As these technologies cross over into mainstream diagnostics, the knowledge we have acquired allows us to help our partners develop highly efficient and cost-effective hardware and software solutions, leading to faster market entry. This transition is a big change, but also a great opportunity to use the knowledge that we have accumulated.

But this is just one of the challenges facing the diagnostics industry; there is also an intense focus on de-risking procedures, eliminating the likelihood of manual errors as far as possible. Combining our expertise as an OEM manufacturer with the know-how of our partner companies, we can help to establish very powerful, yet easy-to-use, software solutions, ensuring that even complex diagnostics systems provide user-friendly operation plus extreme control and traceability of results. In addition, there is great interest in developing highly functional and robust point-of-care diagnostic devices, avoiding logistic and sample deterioration issues, and this is another field in which Tecan is actively engaged. Wherever the future takes us, the Partnering Business will continue to be at the forefront.

To let us know your thoughts, contact us at hello@tecan.com



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