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Collaboration Between Bio-Rad and Layerlab Enables High Throughput Kinetic Analysis of Any Transmembrane Protein

Bio-Rad's ProteOn™ XPR36 System and Layerlab's Lipid Bilayer Immobilization Method Overcomes Hurdles to Kinetic Analysis of Membrane-Bound Proteins

Hercules, CA – April 5, 2010 – Bio-Rad Laboratories, Inc. (NYSE: BIO and BIOb), a multinational manufacturer and distributor of life science research and clinical diagnostic products, today announced a collaboration with Layerlab of Sweden to enable researchers to study the binding kinetics of any transmembrane protein using surface plasmon resonance (SPR) technology. Using Layerlab's novel methodology and easy-to-use chemistry kit, memLAYER, researchers can easily immobilize liposomes containing any transmembrane protein to Bio-Rad's ProteOn XPR36 protein interaction array system sensor chip surfaces for label-free high throughput kinetic analysis with high signal quality.

The novel array-based ProteOn XPR36 system offers researchers the ability to speed their drug discovery workflow due to its capability to simultaneously monitor 36 interactions. The combination of the ProteOn XPR36 system and memLAYER accelerates and enhances membrane protein research.

"The Layerlab kit overcomes low receptor density and promotes universal immobilization of liposomes and, when combined with the ProteOn XPR36 system, enables high-throughput SPR analysis of any membrane-bound protein," said Laura Moriarty, Ph.D., Bio-Rad Product Manager.

Examining transmembrane proteins in liposomes, as opposed to isolated and bound to a sensor surface, enables researchers to mimic the cellular environment and preserve protein functionality. Immobilizing and capturing liposomes directly to the biosensor surface, however, can be challenging. Some liposomes bind weakly with SPR biosensors. Analyzing the captured liposomes can be difficult since liposomes contain fewer proteins than a standard sensor surface, reducing signal quality.

Universal Immobilization

The memLAYER tag is spontaneously incorporated into any liposome membrane, including those of synthetic lipoparticles available through Bio-Rad's collaboration with Integral Molecular, fractionated cell membranes, and cellular lipid vesicles like microsomes and endosomes. This allows for kinetic analysis of transmembrane proteins in liposomes that cannot be immobilized by standard techniques such as through Biotin-NeutrAvidin derivitization.

Overcoming Low Receptor Density
Layerlab's lipid bilayer immobilization method allows researchers to achieve previously impossible densities of membrane-bound receptor molecules. Additional liposome-incorporated tags can link to other tagged liposomes, creating multiple layers of lipoparticles above the sensor surface. These layers boost the density of receptor proteins and increase data quality.

Reusable, Shorter Preparation Time
Layerlab's immobilization method allows for continual regeneration of biosensor surfaces, thus extending the lifetime and utility of Bio-Rad sensor chips. The biosensor surface can be regenerated with readily available deionized water, which breaks apart the hybridized memLAYER tag pairs and washes away the previously attached liposomes.

Using Layerlab's memLAYER chemistry kit requires little hands on time. Incorporation of the memLAYER tag to any liposome in the laboratory requires a 15-minute incubation at room temperature. Immobilization of the liposomes to the ProteOn XPR36 sensor surface requires 10 to 20 minutes.

To learn more about how robust, multiplexed kinetic analyses of transmembrane proteins can be performed using Bio-Rad's ProteOn XPR36 protein interaction array system and Layerlab's immobilization method, visit Bio-Rad's ProteOn XPR36 website at www.bio-rad.com/osk.

About the ProteOn XPR36 Protein Interaction Array System
The ProteOn XPR36 protein interaction array system is a multiplexed SPR biosensor that allows users to simultaneously measure the interactions of six different ligand proteins with panels of six different concentrations of analyte, obtaining comprehensive kinetic profiles in a single experiment without the need for regeneration—termed One-shot Kinetics™ technology. Utilizing a novel optical design and state-of-the-art microfluidics, the ProteOn XPR36 system provides much higher throughout for rapid screening of protein interactions than traditional SPR devices.

Biologics, such as antibodies, are vital reagents in basic biomedical research and for the diagnosis and treatment of various diseases. A number of antibodies are currently being used to treat diseases such as cancer, arthritis and Crohn's Disease. Screening, profiling, and characterizing antibodies can be tedious and time-consuming. The ProteOn XPR36 system reduces the amount of time required for screening targets—including transmembrane proteins which are often drug targets—as well as optimizing assay design, and profiling and characterizing antibody interactions.

The ProteOn XPR36 system is ideal for scientists conducting antibody research in drug discovery and development. Key application areas for these customers include protein interface analysis, interaction proteomics, and drug target interactions.

To obtain technical articles, go to www.bio-rad.com/osk.

About Bio-Rad
Bio-Rad Laboratories, Inc. (NYSE: BIO and BIOb) has remained at the center of scientific discovery for more than 50 years manufacturing and distributing a broad range of products for the life science research and clinical diagnostic markets. The company is renowned worldwide among hospitals, universities, major research institutions, as well as biotechnology and pharmaceutical companies for its commitment to quality and customer service. Founded in 1952, Bio-Rad is headquartered in Hercules, California, and serves more than 85,000 research and industry customers worldwide through its global network of operations. The company employs approximately 6,800 people globally and had revenues of nearly $1.8 billion in 2009. For more information, visit www.bio-rad.com.

About Layerlab
Layerlab AB is a biotech-tools company with focus on biosensing to widen the usability of biosensors and biosensor-based applications. The company has developed proprietary technologies for analyzing membrane proteins and membrane processes, biosensing beyond mass using impedance, and unique nano-structured surfaces for analyses of molecules in need of specialized anchoring or surface interactions. The company was founded in 2002 and is based on technologies developed at Chalmers Technical University and Göteborg University in Göteborg, Sweden. For more information visit www.layerlab.se.

NOTE TO THE EDITOR:
Information in this release applies specifically to products available in the United States. Product availability and specifications may vary in non-U.S. markets.

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