

Protein interaction analysis for drug lead discovery

Label-free protein interaction analysis is used increasingly throughout discovery and development programmes for traditional low-molecular-weight compound therapeutics as well as in the expanding area of biotherapeutics.

Biacore AB has recently reported further commercial progress in the supply of its protein interaction analysis systems based on surface plasmon resonance (SPR) technology to support pharmaceutical companies' drug discovery and development programmes. Last September the company received its second order for its Biacore® A100 from a major European based pharmaceutical company which is now utilising the system to enhance its biotherapeutic screening capabilities. Biacore A100 can be used for a range of small-molecule and biotherapeutic applications, and a number of organisations have made presentations on working with the system, including the University of Utah, Hoffman La-Roche, Glaxo SmithKline and the Japanese Biological Informatics Consortium, which also works closely with Biacore's first customer, The National Institute of Advanced Industrial Science and Technology (AIST), based in Japan.

More recently, in November 2005, Biacore received a further order for Biacore A100 from a major US pharmaceutical company. The system is being used to enhance small-molecule screening capabilities.

"The purchase decision was made after an evaluation of the capabilities of Biacore A100 to monitor the kinetics of small molecules binding to target proteins," says Erik Walldén, Biacore's president and CEO. "This is an important application development as earlier purchasers of Biacore A100 used the system to focus on protein-protein interactions. The fact that customers intend to utilise the system for their work with small-molecule drug candidates provides further evidence of the broad range of applications for Biacore A100. Given the reaction that we have received, we are confident that Biacore A100 is a

truly enabling tool, which will advance the productivity of pharmaceutical and biotech companies in the discovery and development of new drugs, as well as academic researchers in the elucidation of the proteome."

Combining expertise for new technology

Biacore AB was founded over 15 years ago by combining know-how and expertise from the former Pharmacia, the Linköping Institute of Technology, and the Swedish National Defense Research Institute (FOA) to create Pharmacia Biosensor AB (which became Biacore AB in 1996). The initial research phase for the company was concluded with the development of the fundamentals of its surface plasmon resonance (SPR)-based technology, comprising surface chemistry, flow systems and optical detection methods.

"Subsequently, the company has concentrated its commercial and product development activities on basic and applied life sciences," says Walldén. "Biacore's general business model to all customer groups is to supply 'the complete solution' for their application, that is, instrumentation, software, sensor chips, reagents, other consumables, training and service support.

"The company has focused on developing systems that reflect the specific customer needs from research through to drug discovery and development and onwards into manufacturing and QC. For example, Biacore A100 and Biacore T100 are designed to comply with the regulatory requirements demanded in the industrial environment. We see a growing opportunity for our protein interaction analysis systems further downstream in drug development as factors such as comparability and immunogenic responses become increasingly important," he says.

Three new products were launched in 2005: Biacore T100 designed for use from research to QC; Biacore A100, the company's first array-based system with productivity suited for larger-scale studies; and Flexchip, which was acquired from HTS Biosystems Inc in March 2005, and which offers simultaneous profiling of up to 400 protein interactions.

Protein characteristics and interaction parameters

Biacore's systems define the characteristics of proteins in terms of their specificity of interaction with other molecules, the rates at which they interact (binding and dissociation), and their affinity (how tightly they bind to another molecule). The systems also provide sensitive, accurate concentration measurements. The latter, based on the ability of the biomolecule of interest to interact with a specific binding partner, may be more informative than generic measurement



The Biacore T100 system - protein interaction studies for small-molecule and antibody drug discovery.

Life science discovery & development



Show Catalogue 2006



Welcome to the third BioFine event organised by avakado, this year taking place in the beautiful city of Barcelona. The event features the BioFine exhibition of drug discovery and development services for the international pharmaceutical and biotech industries, plus three conferences and a series of workshops.

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Asinex (has gained more than 12 years of experience in collecting and creating diverse and drug-like small molecule libraries since its foundation in 1994. The company has gained a reputation for reliability having delivered more than 7,000,000 samples to customers throughout Asia, Europe and North America. The current focus is on increasing the level of drug-likeness, novelty and ease-of-optimisation features.

Asinex first started providing chemistry services in 1998, and additional services in computational chemistry and biology have since been established. To date Asinex has completed more than 400 chemistry projects for 50 customers. The company is well positioned to

offer integrated drug discovery services in parallel with a high quality compound resource. Currently around 60 Asinex chemists are working on an FTE or fee-for-service basis for clients such as J&J, BioVitrum, Merz and Avalon.

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BioCatalytics Inc is a provider of enzymes for the synthesis of pharmaceutical intermediates and drug metabolites, with a product line that spans a wide range of different reaction types. Enzyme products include lipases for resolution, ketoreductases for stereoselective ketone reduction, nitrilases for hydrolysis of nitriles, amino acid dehydrogenases and transaminases for the production of non-natural amino acids, aryl alcohol oxidases, cyanohydrin synthases, and many others. All enzymes are available in quantities to support research, process development and manufacturing.

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Biotage

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Biotage is a global leader in life science technology. The company provides complete solutions, knowledge and experience in the areas of



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Celtic Catalysts is an innovative chemical discovery and development company based in Ireland, focusing on providing its end-user clients and partners in the pharmaceutical and fine chemical industries with a pioneering set of chemistries.

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