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Xencor Expands Protein Optimization Technology To Develop Next-Generation Biotechnology Products

(BW Healthwire)—February 20, 2002—Monrovia, CA – February 20, 2002 – Xencor today announced that it has signed licensing agreements with the California Institute of Technology and Pennsylvania State University to further expand its proprietary Protein Design Automation™ (PDA™) platform. The two licensing agreements expand the patent estate of the PDA technology and increase Xencor's computational throughput and accuracy in protein optimization, according to Bassil Dahiyat, Ph.D., president and chief executive officer of Xencor.

"The methods and algorithms for protein structure design developed by Dr. Stephen Mayo at Caltech and Dr. John Desjarlais at Penn State University will improve the performance of our PDA technology and strengthen our dominant patent position in the field of protein optimization," Dr. Dahiyat stated. The enormous capacity of these in silico screening methods allows us to optimize protein properties including activity, binding affinity and specificity, stability, expression level and potency. With the PDA technology, Xencor is creating a new generation of biotechnology products tuned for specific applications, such as more potent and specific biopharmaceuticals, more effective and robust proteins for chemical processing and new agricultural products.

The PDA technology is the first and only protein optimization method to combine advanced computational methods, the power of high performance computing, and experimental screening. Using protein structure modeling, PDA technology screens 70 orders of magnitude more protein sequence diversity than directed evolution methods.

"We are seeking additional product development collaborations for the PDA technology to optimize protein lead candidates and create new products," Dr. Dahiyat added. "The PDA technology creates new intellectual property, continually broadening our patent portfolio by generating sets of novel proteins sequences, which are distinct from naturally occurring proteins."

Protein Design Automation™Technology

Protein Design Automation uses three-dimensional structure information to screen protein sequences. A structural model of a protein is computationally determined, from public database information or created by modeling from homologous proteins. A structural region for design is selected based on the protein properties to be optimized. Because the amino acid sequence of the protein is defined by the structures of the amino acid side chains, the PDA technology is then used to accurately model the atomic interactions among the side chains to screen for the best sequence of amino acids for this protein structure. The optimal sequence for the design region is determined, as well as from thousands to millions of other nearly optimal sequences.

Highly efficient computational search methods allow the screening of over 1080 sequences, exploiting protein diversity unreachable by non-computational methods. Following this in silico pre-screen, the predicted sequences are then experimentally tested in vitro, either singly or as small libraries, for improved performance. By testing only those sequences that are compatible with the protein structure, the PDA technology eliminates deleterious changes that are created by directed evolution, creating focused libraries that require far less effort and cost to screen for optimized proteins.

Xencor, a privately held company, is focused on using its cutting edge protein analysis and optimization technologies to accelerate the discovery of therapeutic proteins and novel compounds. With its proprietary ProCode™ and Protein Design Automation™ (PDA™) technologies, Xencor scientists can rapidly determine the interactions and functions of a cell's entire protein complement, identify proteins of interest, and then optimize key properties of these proteins to fit commercial applications. The use of these technologies alone or in combination will accelerate the compound identification and development programs of Xencor's strategic partners in the pharmaceutical, biotechnology, agricultural and chemical industries. Xencor is headquartered in Monrovia, California.