Pfizer Logo

X-Chem Enters into Multi-Target Collaboration with Pfizer Inc.

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-- Goal to Establish Novel Small Molecule Leads Using X-Chem's Discovery Engine Fueled by its Proprietary Library of More Than 100 Billion DNA-encoded Compounds --

WALTHAM, Mass. – June 11, 2014 - X-Chem, Inc., a privately held biotechnology company applying its cutting-edge lead discovery capabilities to the generation of novel small molecule therapeutics, today announced a multi-target collaboration with Pfizer Inc. The collaboration is focused on the potential development of several programs for the treatment of inflammatory and orphan diseases.

Under the terms of the agreement, X-Chem is applying its discovery engine, which leverages a high diversity, proprietary DNA-encoded small molecule library to seek the identification of novel leads for the Pfizer programs. Pfizer has an exclusive option to license any compounds generated in the course of the collaboration. The financial terms of the agreement were not disclosed.

"The use of ultra-large and highly diverse DNA-encoded small molecule libraries has emerged as a novel technology with potential to generate leads for difficult targets of high importance," said Tony Wood, Senior Vice President, Worldwide Medicinal Chemistry, Pfizer. "At Pfizer we are keen to explore new technologies that may help expand our pipeline of innovative medicines and are pleased to initiate this collaboration with X-Chem to access their innovative lead generation approach."

"With the ongoing expansion of X-Chem's library, informatics capabilities, and screening expertise, we continue to identify lead molecules to challenging, high value therapeutic targets," said Rick Wagner, Ph.D., Chief Executive Officer of X-Chem. "Our vision is to enable breakthroughs in the treatment of diseases with high unmet medical need by partnering our lead discovery engine with leaders in the pharmaceutical industry such as Pfizer."

"Through a series of strategic research collaborations, and repeated success at reaching collaboration goals and licensing programs to our partners, X-Chem has demonstrated its ability to structure and execute partnerships that bring significant value to both parties," said Diala Ezzeddine, Ph.D., Chief Business Officer of X-Chem.

About the X-Chem Drug Discovery Platform
Due to the size and diversity of the library, X-Chem has the potential to discover multiple series of novel, potent and selective lead compounds at an accelerated rate of success against a wide range of targets, including some that previously failed using conventional screening methods. A number of proprietary innovations in library design, screening methodology and bioinformatics underlie the strong performance of the platform. A key advancement was a library synthesis process that enables addition of the DNA tag using chemical methods, as exemplified in the following publication by X-Chem scientists: Litovchick A, Clark MA, Keefe AD. Universal strategies for the DNA-encoding of libraries of small molecules using the chemical ligation of oligonucleotide

tags. Artificial DNA: PNA & XNA; 5 (1) e27896 1 – 11 (2014). X-Chem's approach to library design allows for additional chemical reactions to become useable in DNA-encoded library synthesis. Together, these developments have the potential to result in a much greater repertoire of diversity for small molecules, which cover a range of categories, including fragment molecules, small molecular weight heterocyclic compounds, and macrocyclic structures. This diverse library, combined with a heightened ability to detect active molecules, has yielded a robust process that has been highly successful against targets categorized as difficult or intractable.

About DNA Encoding
The X-Chem drug discovery engine is based on a library generated by iterative combinatorial synthesis of small molecules tethered to DNA tags which record the synthetic history of the small molecule. Every small molecule in the library has a unique DNA barcode attached to it. The library is screened as a mixture using affinity-based binding to a target of interest. Certain rare molecules in the library that bind to the target can be "fished out," while the rest of the molecules wash away. DNA sequencing methods are then used to detect molecules that are enriched when bound to the target. The diverse nature of the library produces multiple families or clusters of related molecules that bind to the target, forming a basis for emergent structure-activity relationships. Structure-activity relationships are typically used by medicinal chemists to guide iterative chemical maturation of a lead molecule into a drug. Based on the synthetic history encoded in the DNA sequence information, molecules are then made without the DNA tag attached, and tested for activity in conventional assays.

About X-Chem. X-Chem, Inc. is a biotechnology company based in Waltham, MA. The company's mission is to apply its powerful product engine to the discovery of small molecule lead compounds against high-value therapeutic targets. X-Chem has established partnerships with Roche, AstraZeneca, Bayer, and several other leading pharmaceutical companies, biotechnology organizations, and academic centers.

In 2010, X-Chem and Pharmaceutical Product Development, LLC (PPD) formed a strategic partnership, including an investment from PPD. For further information on X-Chem, please visit: http://www.x-chemrx.com/.

About PPD
PPD is a leading global contract research organization providing drug discovery, development, lifecycle management and laboratory services. Our clients and partners include pharmaceutical, biotechnology, medical device, academic and government organizations. With offices in 46 countries and more than 12,500 professionals worldwide, PPD applies innovative technologies, therapeutic expertise and a commitment to quality to help clients and partners accelerate the delivery of safe and effective therapeutics, and maximize the returns on their R&D investments. For more information, visit www.ppdi.com.

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Forward-looking Disclaimer

Except for historical information, all of the statements, expectations and assumptions, including statements, expectations and assumptions about X-Chem's small molecule drug discovery technology and its collaboration with Pfizer, contained in this news release are forward-looking statements that involve a number of risks and uncertainties. Although X-Chem attempts to be accurate in making these forward-looking statements, it is possible that future circumstances might differ from the assumptions on which such statements are based and could cause actual results to differ materially from the forwardlooking statements. Other important factors that could cause future results to differ materially include the following: rapid technological advances that make our

services less competitive; risks associated with and dependence on strategic relationships; the ability to attract, integrate and retain key personnel; competition in the outsourcing industry; X-Chem's ability to win new business; the rate of conversion of backlog into revenue and earnings; actual operating performance; overall global economic conditions; economic conditions, research and development spending, and outsourcing trends in the pharmaceutical, biotechnology and government-sponsored research sectors; consolidation in the pharmaceutical and biotechnology industries; loss, delay or modification of large contracts; compliance with drug development regulations; changes in the regulation of the drug development process; risks associated with acquisitions and investments; and the ability to control SG&A spending. PPD and XChem assume no obligation and expressly disclaims any duty to update these forward-looking statements in the future, except as required by applicable law. These forward-looking statements should not be relied upon as representing X-Chem's estimates or views as of any date subsequent to the date hereof.

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