News Release

Arzeda and SGI-DNA Pair *In Silico* and DNA Technologies To Build A Better Enzyme Design Pipeline

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(SEATTLE, WA AND LA JOLLA, CA)

Seattle-based Arzeda Corporation recently implemented the BioXp™ 3200 System from SGI-DNA, allowing the biotechnology company to significantly shorten their enzyme design research cycles. Arzeda's ability to quickly synthesize DNA fragments with SGI-DNA's technology in house, as opposed to time-intensive outsourcing, means that the company can now better optimize the development of industrial enzymes and microbial systems for the sustainable production of chemicals. Arzeda's adoption of SGI-DNA's technology has broader implications for improving the production of non-petroleum based, sustainable chemicals such as those used in solvents, coatings, and polymers. The market for sustainable chemicals is predicted to grow a staggering 24 times more than the market for conventional chemicals from 2011 to 2020.[1]

Enzymes are key to developing sustainable chemicals, as they catalyze the reactions between precursor molecules to produce them. Enzyme functions have been optimized by evolution, a natural process that takes place through an organism's DNA on a generational time scale. Arzeda utilizes their proprietary software platform Arzetta™ to speed up enzyme optimization using computational protein design methods. The software screens enzyme libraries on the order of 10^{24} and provides DNA sequences which are used to produce and test new versions of the enzymes. Until now, a major bottleneck Arzeda faced was how quickly they could synthesize DNA sequences output by the software.

Alexandre Zanghellini, Ph.D., Co-Founder and CEO of Arzeda, said "With the BioXp™ (System), we are looking at having the DNA sequences we need in 1 week, where we previously had to wait 5 weeks to get them. Coupled with other major improvements that we are investing heavily upon, this will result in a more streamlined and robust enzyme design pipeline. Our vision is to ultimately be able to design enzymes with new function in a matter of days instead of months for the state-of-the-art. "

SGI-DNA, a Synthetic Genomics company, designed the BioXp™ 3200 System to meet the needs of biotechnology companies like Arzeda, whose growth potential is limited by current, conventional DNA synthesis options. The customer loads the instrument with custom reagents and it assembles up to 32 DNA fragments from 400 to 1.8 kb virtually hands-free overnight. Each fragment can easily be cloned and expressed as an enzyme whose function can be tested quickly by Arzeda scientists.

Nathan Wood, President of SGI-DNA, commented "We are pleased that Arzeda has integrated our DNA assembly technology into their pipeline. The BioXp™ 3200 System's capabilities will be expanded to meet

Arzeda's enzyme cloning and expression needs as well, and we look forward to accelerating their enzyme engineering platform even further in the future."

For more information on the BioXp™ 3200 System and the Early Access Program, please visit www.sgidna.com.

All products are not intended for human diagnostic uses.

About SGI-DNA

SGI-DNA, a wholly owned subsidiary of Synthetic Genomics, Inc (SGI), is responsible for all commercial aspects of SGI's synthetic DNA business and focuses on strategic business relationships with both academic and commercial researchers. Building on the scientific advancements and breakthroughs from leading scientists such as J. Craig Venter, Hamilton Smith, Clyde Hutchison, Daniel Gibson and their teams, SGI-DNA utilizes unique and proprietary DNA technologies to produce complex synthetic genes and reagents. SGI-DNA also offers a comprehensive suite of genomic services, including whole genome sequencing, library design, and other bioinformatics services.

About Arzeda

Arzeda, a Seattle-based synthetic biology company, is transforming the chemical and industrial biotechnology industries to make our future sustainable. Arzeda's enzyme and pathway design technology enables the design of enzymes and fermentation organisms unknown in Nature but tailored to industrial processes. Through successful partnerships with Fortune 500 companies and industrial leaders, Arzeda has validated its technology and created significant value for its customers. Arzeda continues to engage in industrial partnerships in the fields of green chemistry, agricultural biotech and industrial enzymes. The company is also developing a proprietary portfolio of fine and specialty chemicals that are sustainable, cost-advantageous, and performance-improved over their petroleum-derived counterparts.

1. American Sustainable Business Council. *Making the Business & Economic Case for Safer Chemistry* April 24, 2015. Link, accessed 5/29/2015: http://asbcouncil.org/sites/default/files/asbcsaferchemicalsreportpresred.pdf

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