Research Study of Triple Negative Breast Cancer Highlights Ability of NextBio Clinical to Identify Biomarkers

The Associated Press

SANTA CLARA, Calif.--(BUSINESS WIRE)--Sep 13, 2012--The ability of NextBio Clinical to rapidly identify biomarkers and possible disease targets in an aggressive form of breast cancer was highlighted this week in a poster presentation at the American Society of Clinical Oncology's 2012 Breast Cancer Symposium. NextBio Clinical was used to investigate a cohort of published patient data, curated by NextBio, for key differences between Triple Positive Breast Cancer (TPBC) and Triple Negative Breast Cancer (TNBC), a form of the disease that offers a worse prognosis for those diagnosed. Results of the study quickly identified several key differences in gene expression and methylation status between the two breast cancer types, as well as a novel biomarker and potential alternate way of treating TNBC.

"This study clearly demonstrates the power of curated public data and the ability of NextBio's sophisticated computational engine to employ 'big data' technology for rapid discovery in translational research studies," said Anita Umesh, Ph.D., NextBio scientist and lead author of the study. "Our work involved stratification of a patient population and comparison of the biomarkers between the two patient sub-groups, an otherwise complex task that was easily accomplished in a short amount of time by the NextBio platform. A similar process can be applied by all NextBio users in their translational research projects to enable unique insights." The researchers first stratified the NextBio-curated TCGA roster of breast cancer patients into two distinct groups: those with Triple Positive Breast Cancer (TPBC) versus those with Triple Negative Breast Cancer (TNBC). A comparison of the two cohorts in NextBio Clinical identified a biomarker Anterior Gradient 3 or AGR3, which was reduced in the TNBC group but up-regulated in the TPBC group. The researchers also found significant differences in the methylation status of the AGR3 gene between TPBC and TNBC, with significantly higher percentage of hypo-methylation in the former, suggesting that methylation was a regulatory mechanism for the gene.

"These findings, along with the fact that reduction of AGR3 was associated with severe mutations of TP53, suggest that the AGR3 gene should be further evaluated to identify alternate ways of treating TNBC," said Dr. Umesh. "Triple Negative Breast Cancer patients have a much worse prognosis than those that are triple positive. The ability to rapidly identify novel biomarkers and potential targets for drug discovery offers the opportunity to improve future outcomes for this hard-to-treat form of breast cancer." About NextBio NextBio provides a state of the art scientific platform to aggregate and interpret large quantities of molecular and other life sciences data for research and clinical applications. NextBio's platform integrates data from multiple repositories and diverse technologies by means of a unique correlation engine, which pre-computes billions of significant connections between disparate public and proprietary clinical and experimental data. This

feature enables interpretation of an individual's molecular data. It also provides translational researchers the ability to look across the clinical and molecular data of entire populations for clinical trial stratification and selection, hypotheses generation, and biomarker discovery. NextBio Clinical, which recently passed an independent HIPAA audit, is designed for seamless integration with existing clinical and research systems. Backed by highly scalable, Big Data technology, it is capable of analyzing petabytes of data. NextBio's platform is delivered as a SaaS (Software as a Service) solution resulting in quick deployment and rapid return on investment.

Today, NextBio is used by researchers and clinicians in over 50 top commercial and academic institutions including the University of Southern California, Sanford-Burnham Medical Research Institute, Celgene, Eli Lilly, Genzyme, Johnson & Johnson, Merck, Regeneron, Scripps Research Institute, Stanford University, University of California at Berkeley, Takeda and many others. To learn more about NextBio, please visit our website at http://www.nextbio.com [1].

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