

## **GNS HEALTHCARE COLLABORATES WITH NCI IN NEW APPROACH TO LUNG CANCER; SUPERCOMPUTER ANALYSIS TO AID IN MATCHING TARGETED DRUGS TO PATIENTS**

Cambridge, Mass., July 12, 2011 – [GNS Healthcare, Inc.](#) (GNS) is collaborating with the National Cancer Institute (NCI) to accelerate lung cancer research with a supercomputing platform that can rapidly uncover cause-and-effect mechanisms hidden in huge data sets assembled from imaging, genetics, pathology, and other areas. The results could help predict which patients will respond to a given treatment.

GNS will analyze NCI data from the laboratory of Terry van Dyke, Ph.D., Director of the [Center for Advanced Preclinical Research \(CAPR\)](#) at NCI. These data were generated from genetically modified mouse models of non-small cell lung cancer (NSCLC).

This collaboration will utilize GNS's supercomputer-driven REFSTM platform to build computer models of NSCLC in a hypothesis-free, unbiased manner that will be simulated to identify key molecular mechanisms of NSCLC. The goal is to identify biomarkers and biological mechanisms that will lead to better matching of drugs to patients and new effective drugs in NSCLC.

“GNS is excited to be deploying our supercomputer-driven REFSTM platform to enable the maximal extraction of actionable knowledge from the rich lung cancer datasets generated by the NCI,” said GNS Executive Vice President and Co-Founder Dr. Iya Khalil. “Combined with the expertise of our NCI colleagues in lung cancer biology and in designing powerful experiments to uncover its key mechanisms, we are creating the opportunity to provide better outcomes for lung cancer patients.”

The data utilized in the collaboration will include data from the experimental assessment of transcriptomic and MRI data relating to NSCLC induction, regression and combination drug treatments. Starting from this data, GNS will utilize the REFSTM platform to reverse-engineer network models from the data that connect drug doses to transcriptional and imaging measurement networks to endpoints. The results from millions of *in silico* simulations of these models will provide unique insights into the fundamental mechanisms of NSCLC and its response to drug treatments, enabling the development of more effective treatments for NSCLC.

The initial phase of this project is also intended to help GNS and NCI develop standards for the exchange of data to conduct future collaborations in other relevant mouse model systems. From this starting point, the groups envision the possibility of a combined experimental and computational work flow aimed at rapidly enabling the generation of hypotheses, testing these hypothesis *in silico* and *in vivo*, generating new confirmatory data, and rapidly cycling back to additional computational modeling, with the goal of accelerating the conversion of knowledge into new clinical options for cancer patients.

### About REFSTM

REFSTM is comprised of integrated machine learning algorithms and software that

extract “causal” relationships from complex, multi-dimensional data and enable the simulation of billions of “what if?” hypotheses to explore novel unseen conditions and predictions forward in time. This model-centric discovery and simulation approach represents a paradigm shift in data analysis, leapfrogging existing approaches such as high-dimensional pattern matching. REFSTM is licensed to GNS Healthcare from Via Science.

About GNS Healthcare, Inc.

GNS Healthcare, a subsidiary of Via Science, is a healthcare IT company that applies machine learning and simulation technology to optimize patient treatment in partnership with health insurance companies, pharmacy benefit managers, and pharmaceutical & biotech companies. GNS Healthcare is the leading “big data” healthcare analytics firm between drug makers and drug buyers, matching treatments to patients to deliver on the promise of “smart” medicine.

About the National Cancer Institute CAPR

The National Cancer Institute (NCI) leads the National Cancer Program and the National Institutes of Health’s effort to dramatically reduce the burden of cancer and improve the lives of cancer patients and their families, through research into prevention and cancer biology, the development of new interventions, and the training and mentoring of new researchers.

The NCI Center for Advanced Preclinical Research (CAPR) is a national resource for the comprehensive preclinical testing of early-stage candidate drugs. The center is developing a comprehensive preclinical trial framework for evaluating the anti-tumor efficacy and selectivity, biodistribution, and metabolism of early-stage candidate drugs using genetically engineered mouse (GEM) models. Its mission is to facilitate the improvement of preclinical evaluation for effective cancer diagnosis and treatment.

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