December 17, 2007

For Immediate Release

MEDIA RELEASE

Cheaper Drugs Now Closer to Realization with New DropArray Technology
IBN's First Spin-off Company, Curiox Biosystems, to Bring DropArray to Market

SINGAPORE, 17 December 2007 — A standard laboratory tool for measuring pharmacological activity of biological substances and performing other related tests may soon be replaced by a new miniaturized bioassay that will be faster, cheaper and more efficient for scientists to use, with new technology developed by Singapore’s Institute of Bioengineering and Nanotechnology (IBN).

The new assay, named DropArray, slashes the time needed to run certain lab tests by over 60 per cent and reduces consumable costs by nearly 90 per cent, while maintaining the same level of flexibility and convenience as conventional platforms.

According to IBN Team Leader Dr Namyong Kim, “Our technology has the potential to accelerate life science, drug discovery and clinical research. Using our technology, companies can benefit from huge savings in time and money spent on research and development and this would have a direct impact on the cost of medication and new drugs for the consumer.”

IBN's DropArray represents a unique integration of surface chemistry and microfluidics designed to reduce the amount of material and reagent required by up to 1,000 times, while simultaneously cutting the reaction time by up to 10 folds, making it faster and cheaper than standard bioassays.

Each DropArray chip comprises a small (1 inch by 3 inch) flat rectangular patterned glass slide, with hundreds or thousands of hydrophilic glass “wells” surrounded by a hydrophobic coating. These chips can be used for common laboratory processes such as the heterogeneous bioassay, which is typically used by scientists in diagnostic tests to determine how a blood sample interacts with various other substances. The “wells” act as small test tubes in which the reagents are added, mixed and incubated, and a bench-top station automatically completes the rinsing process in heterogeneous bioassay.

IBN's DropArray is able to miniaturize bioassays from 50-100 microliters down to 100 nanoliters, making it possible for researchers to conduct various cell-based tests including cancer stem cell immunoassays that had previously been extremely challenging with conventional technology.

Furthermore, the reduction in the volume of samples and reagents required provides similar advantages for protein-based assays such as ELISA with limited human and animal serum such as Human Leptin and Endostatin assays.
“This DropArray was realized through the efforts of an interdisciplinary team of researchers, which is typical of the project-oriented research at IBN,” said Prof Jackie Y. Ying, Executive Director of IBN, one of the 14 research institutes of Singapore’s Agency for Science, Technology and Research (A*STAR). Prof. Ying was one of the youngest professors at the Massachusetts Institute of Technology, and has received many awards for her research in nanotechnology. She was elected to the German Academy of Natural Scientists, Leopoldina, in April 2005 as the youngest member of the Academy.

“IBN was established less than 5 years ago with the mission to conduct exciting scientific research with significant commercial impact. Since then, we have filed more than 420 patents, and we are delighted that our entrepreneurial research team of one chemist, one biologist, one biomedical engineer, one mechanical engineer and one chemical engineer has taken less than three years to develop a novel technology platform that would contribute significantly to reducing the cost of drug development and medication. Curiox Biosystems, the company we set up to market this technology, is IBN’s first spin-off.”

Nanostart AG, the German-based world’s leading nanotechnology investment company, has invested in Curiox Biosystems, which will further develop and commercialize the DropArray technology. Curiox will be headed by 2 IBN researchers, Dr. Kim Nam Yong, a Korean and Singapore permanent resident who received his Ph.D. in Chemistry from the Massachusetts Institute of Technology, and Dr. Leck Kwong Joo, a Singaporean who received his Ph.D. in Medical Sciences from the Australian National University.

For Nanostart AG, the investment in Curiox marks its first in Asia, and is of strategic importance. Nanostart is investing in Curiox as the lead investor and is thus assuming an active role with its investment managers in the ongoing development of the company, jointly with Exploit Technologies, the commercialization arm of A*STAR.

“Our new investment holding, Curiox, is our first step into the highly promising Asian market,” explained Marco Beckmann, CEO of Nanostart AG. “Singapore has established an outstanding position for itself in Asia in nanotechnology. Through our investment in Curiox, we aim to directly participate in the dynamic growth of this region and to live up to our claim of global leadership. Further investments in Asia will follow.”

“We are delighted to learn that Nanostart is planning further activities including a local office in Singapore. It would bring along a significant international network of business contacts, and help other local enterprises in creating high value added jobs based on home-grown, cutting-edge technologies,” said Prof. Ying. She will hold a seat on the company’s board of directors along with a representative from Nanostart AG.

The U.S. represents Curiox’s largest potential market with more than 12,000 suitable academic and government labs, which spent $14.3 billion on lab instruments, consumables and reagents in 2005, and more than 14,000 industrial pharma and biotech labs, which spent $37.4 billion in 2005.
About the Institute of Bioengineering and Nanotechnology (IBN)

The Institute of Bioengineering and Nanotechnology (IBN) is a member of the Agency for Science, Technology and Research (A*STAR). Established in March 2003, IBN is headed by its Executive Director, Professor Jackie Y. Ying. The Institute’s mission is to establish a broad knowledge base and conduct innovative research at the interface of bioengineering and nanotechnology. Positioned at the frontiers of engineering, IBN is focused on creating knowledge and cultivating talent to develop technology platforms in the following six areas:

- Delivery of Drugs, Proteins and Genes
- Cell and Tissue Engineering
- Artificial Organs and Implants
- Pharmaceuticals Synthesis and Nanobiotechnology
- Medical and Biological Devices
- Bioimaging and Biosensing

For more information on IBN, please log on to www.ibn.a-star.edu.sg

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