



JOINT NEWS RELEASE

IME to develop first-of-its-kind silicon nanowire biochip for genetic testing with Singapore and Australian biotech companies

Singapore, 14 February 2007 – The potential development of a new highly sensitive biochip based on silicon nanowire technology will soon revolutionise the detection and analysis of RNA and DNA, which is central to many areas of healthcare and the life sciences, ranging from uncovering and diagnosing disease to the discovery and screening of new drugs.

This silicon nanowire biochip will be made possible with a research collaboration agreement among the **Institute of Microelectronics (IME)**, Australian-based **BioChip Innovations** and local biotech company **SiMEMS**. The first between IME and an Australian company, the collaboration will bring together IME's expertise in silicon nanowire based sensor chip technology and the work that BioChip Innovations and SiMEMS had been doing on the development of silicon biochips for RNA and DNA testing.

A first-of-its-kind, the silicon nanowire biochip will be able to shorten the time for genetic testing by directly detecting single molecules of RNA or DNA. Due to nanometer scale dimension, silicon nanowires enable increased sensitivity of detection. The nanowires can also be functionalised to electronically detect biomarkers and other bio-molecules such as viral, bacterial and other specific genetic sequences.

According to Mr Uppili Raghavan, CEO of SiMEMS, most biochip systems in use or in development currently depend on complex and expensive optics, signal processing systems and data interpretation, all of which are impediments to adoption by the diagnostics industry.

“The development of nanowire sensors with electrical data readout is a breakthrough advancement in molecular based medicine. These devices can be manufactured in standard CMOS silicon foundries, which means they can be mass produced reliably and cost effectively,” said Mr Raghavan.

Professor Dim-Lee Kwong, Executive Director of IME, commented, “IME has developed highly manufacturable silicon nanowires using standard silicon technology, the same technology used in wafer fabs for making electronic chips, and demonstrated its application to CMOS nanoelectronics and as bio-sensors

with great success. We are pleased to partner BioChip Innovations and SiMEMS to expand this technology to some innovative bio-sensing applications.”

Dr Graeme Barnett, CEO of BioChip Innovations, said, “IME is a pioneer in the development of silicon nanowire biochips, and our strategic partner SiMEMS is well placed to manufacture the first silicon nanowire biochip using the excellent facilities available in Singapore. This collaborative project for the first time brings together Singapore’s strengths in silicon chip research, design and manufacture, and Australia’s expertise in molecular diagnostics, to create practical and extremely sensitive biochip platforms that may revolutionise the detection and analysis of RNA and DNA.”

Associate Professor Theo Sloots, Unit Head of Sir Albert Sakzewski Virus Research Centre at the Royal Children’s Hospital in Brisbane, Australia, said there is a huge potential market for such applications in the DNA diagnostic area.

“The silicon nanowire biochip technology promises to become the new generation of diagnostics which will surpass the potential of previous technologies. The application of this technology in infectious disease diagnostics offers the exciting promise of rapid testing in the laboratory and ultimately at the bedside. This will have a significant impact on health economics and models of patient care,” commented Associate Professor Sloots.

Notes to Editors:

About Institute of Microelectronics (IME)

The Institute of Microelectronics (IME) is a research institute of A*STAR. Positioned to bridge the R&D between academia and industry, IME's mission is to increase value-add to the electronics industry in Singapore by engaging in relevant R&D in strategic fields of microelectronics; supporting and partnering the electronics industry; and developing skilled R&D personnel. Its key research areas are in integrated circuits and systems; semiconductor process technologies and microsystems, modules and components.
(website: www.ime.a-star.edu.sg)

About BioChip Innovations Pty Ltd

BioChip Innovations is focused on the development of improved RNA and DNA testing technologies and products that use these technologies to diagnose infectious diseases and genetic conditions in humans, animals and plants. BioChip Innovations' vision is to become a global leader in DNA diagnostics by combining advanced molecular biology with biochip technology to develop affordable leading edge RNA and DNA diagnostic products.
(Website: www.biochips.com.au)

About SiMEMS Pte Ltd

SiMEMS Pte Ltd is a Singapore-based lab-on-a-chip company, developing cutting edge solutions for molecular diagnostics. In particular SiMEMS biochips are extremely important to point-of-care markets where speed, accuracy and sensitivity are important. Located in the Science Park of Singapore, SiMEMS is currently selling its lab chips to a host of diagnostic companies in Europe. SiMEMS projects to grow into a S\$180 million company five years from now and to become a leading player in vitro diagnostics.
(website: www.simemsbio.com)

For enquiries, please contact:

Jasmine Ong
Assistant Manager, Corporate Communications
Institute of Microelectronics
DID: (65) 6770 5375
Email: onggk@ime.a-star.edu.sg

Dr Graeme Barnett
CEO
BioChip Innovations Pty Ltd
DID: (61) 7 3318 9540
Mobile: (61) 413 052 310
Email: graeme.barnett@biochips.com.au

Mr Uppili Raghavan
CEO
SiMEMS Pte Ltd
Mobile: (65) 9010 4536
Email: uppili_raghavan@simemsbio.com