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IME, SFC Fluidics xollaborate to develop traumatic brain injury diagnostic device

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Singapore:Ã?Â A*STAR's Institute of Microelectronics (IME) and SFC Fluidics, a USA microfluidics-based biomedical device development company, will be collaborating to develop a portable diagnostic tool for rapid triaging of traumatic brain injury (TBI) victims and to improve the treatment strategies. TBI is one of the most common causes of death and disability in the world, usually resulting from blasts, falls, knocks, traffic accidents, and assaults.

The proposed diagnostic tool is a fully-integrated, automated biosensor device which requires only a drop of blood to detect up to three biomarkers released by the brain after sustaining injury. The biomarker readings will be displayed on an easy-to-read screen, along with an indicator alerting the care giver to the severity of the injury.

Unlike conventional diagnostic tools such as neurological tests and computed tomography (CT) scans, the biosensor device does not require any trained personnel for sample handling. The portable feature of the device facilitates rapid on-site diagnosis of the injury. Caregivers will be able to respond quickly with the proper course of treatment to prevent injury aggravation.

The biosensor device leverages and integrates IME's silicon-based microfluidic sensor and biosensor technology and bio-electrochemical assay development capability. IME has built up strong capabilities in biomedical microsystems and has established deep collaborations with the clinical community and key industry partners in Singapore to advance silicon-based Point-Of-Care diagnostics devices.

"This collaboration exemplifies the extension of "More-than-Moore" technologies to healthcare. Building on our core capabilities in silicon-based microfluidics and biosensor technology, we can help our partner create innovative diagnostic tools to improve TBI treatment," says Professor Dim-Lee Kwong, executive director of IME. "Working with SFC provides a good opportunity for us to deepen our knowledge in healthcare applications to enable high quality and affordable healthcare solutions."

"We are excited to partner with IME, a leading R&D institute with a diverse suite of capabilities, including microfluidics, MEMS, nanoelectronics, integration and packaging. SFC has been expanding fast for the last few years. We have developed quite a few very exciting new technologies in the microfluidics and biomedical sensor areas. Some of these technologies have been

commercialized. By leveraging on IME's industry standard mass production facilities, we can cut down the product development cycle time. "The TBI project is the start of a longer term collaboration that SFC will explore together with IME," commented by Dr Sai Kumar, vice president of research and development, SFC Fluidics.