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National Cancer Centre Singapore and Clearbridge BioMedics partner to bring circulating tumour cell technology closer to clinic with opening of “Singapore CTC CoRE” (Circulating Tumour Cell Centre of Research Excellence)

New collaboration aims to push cancer diagnostics to the next level

16th January 2014, *Singapore* – A collaboration between National Cancer Centre Singapore (NCCS) and Clearbridge BioMedics, in partnership with the Pathology Department at Singapore General Hospital (SGH) has resulted in the establishment of the region’s first Circulating Tumour Cell Centre of Research Excellence (CTC CoRE). This new Centre facilitates the use of circulating tumour cells (CTCs)¹ in clinical diagnostics, in order for new technologies to be applied by healthcare institutions.

The CTC CoRE is a key enabler in Singapore’s efforts to advance the development of personalised medicine, which is the customised healthcare of an individual patient. The research being undertaken at the CTC CoRE aims to understand the genetic make-up of a patient’s cancer cells, which can evolve over time.

To determine the effectiveness of treatment, blood samples will be drawn from the patient pre- and post-treatment. The blood samples are sent to the Cytology Lab at SGH and put through the ClearCell[®] FX system to separate the cancer cells from other blood components. Using a cytogenetic test, the number of cancer cells are counted and documented. If there is no significant reduction in the number of cancer cells, the oncologist may decide to modify the treatment regime to best combat the cancer. Not only does this result in a dramatic effectiveness in cancer therapy management, it also leads to reduced side effects and significant cost savings.

The CTC CoRE is located at the newly-opened Academia, within SGH’s 12,000 sqm Pathology Department. This allows researchers at the CTC CoRE to have access to the cytology, immunohistochemistry, cytogenetics and molecular capabilities at the Department.

¹ CTCs are cells that have detached from a primary tumour and are circulating in the blood stream. They are rare, with only a few CTCs mixed with billions of blood cells per millilitre of blood.

The CTC CoRE will focus on a number of research programmes and clinical trials at NCCS and SGH, with support from Clearbridge BioMedics. These include the pilot use of the ClearCell® FX system, which is Clearbridge BioMedics' novel label-free enrichment system for CTCs, first invented at the National University of Singapore. The CTC CoRE will also be developing novel CTC diagnostic assays for personalised medicine that will enable clinicians to tailor therapies to individual patients' unique genetic make-up. It is envisioned that these diagnostic assays will eventually be adopted as part of routine clinical service, enabling clinicians to obtain real-time feedback on therapeutic effectiveness, in order to improve cancer management and patient outcomes.

“With the establishment of this CTC CoRE, Clearbridge BioMedics is now entering the clinical diagnostics field. We are delighted to work with the leading cancer centre in Singapore, to validate the clinical utility of our ClearCell® FX system, which we target to be in the clinic by 2015. The ultimate aim is for the CTC CoRE to allow cancer clinicians to access technologies that reliably process and analyse patients' blood, for actionable clinical results,” said Johnson Chen, Director, Clearbridge BioMedics Pte Ltd.

“Circulating tumour cells have the potential to become a powerful tool in how oncologists diagnose, treat and manage cancers. Setting up this CTC CoRE facility will allow our researchers to characterise these cells real-time, even as a patient's tumour evolves due to treatment and time. This will boost NCCS's position as a centre for cancer management, as well as enhance Singapore's reputation as an oncology thought leader in Asia,” said Professor Soo Khee Chee, Director, National Cancer Centre Singapore.

“Pathology represents the final bridge between basic science and clinical medicine. The Pathology Department at SGH is able to serve as an incubator for biomedical care, research and innovation. By understanding the genetic make-up of a patient's cancer cells, personalising cancer treatment can be achieved. This collaboration will enable us to leverage on each other's expertise and explore new technologies to improve patient care and outcomes,” said Associate Professor Tan Puay Hoon, Head, Department of Pathology, Singapore General Hospital.

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About Clearbridge BioMedics Clearbridge BioMedics specializes in novel platforms with applications in oncology research and diagnostics. It is a National University of Singapore (NUS) spinoff company that is committed to developing medical devices, which will impact the world and revolutionize cancer diagnostics and patient care, by leveraging on ground-breaking technology from research partners.

The ClearCell™ System comprises patent-pending CTChips®, which are microfluidic biochips able to effectively detect, isolate and also retrieve wholly-intact CTCs (Circulating Tumor Cells) from small quantities of patient blood samples. The isolated CTCs can then be stained for identification and

enumeration, or retrieved for further molecular analysis. The ClearCell™ System aims to be the next generation of non-invasive “liquid biopsy” approach for cancer screening, diagnosis, staging, personalised medication, and treatment monitoring. Headquartered in Singapore, Clearbridge BioMedics currently has customers spanning Asia, Europe and North America.

www.clearbridgebiomedics.com

About NCCS

National Cancer Centre Singapore (NCCS) is dedicated to providing a holistic and multidisciplinary approach to cancer treatment and patient care. We treat almost 70 per cent of the public sector oncology cases. Through developing sub-specialisation among its clinical oncologists, NCCS patients receive the best in treatment and care.

The Centre is simultaneously engaged in cutting-edge clinical and translational research which has received international recognition. NCCS was accredited by the Joint Commission International in 2010 for quality patient care and safety.

NCCS, which is set to be a global leading institution, offers specialist training programmes and research training to local and international medical professionals.

www.nccs.com.sg

About SGH

Singapore General Hospital, a member of Singapore Health Services, is the public sector's flagship hospital. Established in 1821, SGH is Singapore's largest acute tertiary hospital with 1,700 beds and national referral centre offering a comprehensive range of 36 clinical specialties on its campus. Every year, about 1 million Singaporeans benefit from advanced medical care delivered by its 800 specialists. As an academic healthcare institution and the bedrock of medical education, SGH plays a key role in nurturing doctors, nurses and allied health professionals, and is committed to innovative translational and clinical research in her continual strive to provide the best care and outcomes to her patients.

www.sgh.com.sg

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