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**Clearbridge BioMedics partners with the ICR and The Royal Marsden to demonstrate label-free approach in isolating heterogeneous Circulating Tumour Cells (CTCs) and PD-L1 positive CTCs**

**Study also showcased the reliability of the ClearCell<sup>®</sup> FX1 system.**

15 April 2016, *Louisiana, U.S* – A research collaboration between The Institute of Cancer Research, London, (ICR) and The Royal Marsden NHS Foundation Trust – which together form a leading cancer research and treatment centre in the U.K, and Clearbridge BioMedics, a Singapore-based clinical stage oncology research and diagnostic company, has demonstrated the superior accuracy of the ClearCell<sup>®</sup> FX1 System. This is a label-free, automated, clinically ready system that is able to isolate intact and viable circulating tumour cells (CTCs), based on their physical properties. More research is being conducted on CTCs, as they play a significant role in metastasis of the cancer, and are believed to form the ‘seeds’ for the spread and growth of new tumours. These results will be presented next week at the 2016 American Association for Cancer Research Annual Meeting in New Orleans.

The study compared the Clearbridge BioMedics’ label-free ClearCell<sup>®</sup> FX1 System with the only FDA-approved CTC device which captures CTCs using EpCAM (Epithelial Cell Adhesion Molecule). Researchers compared CTCs isolated by both systems from blood samples of patients with advanced non-small cell lung cancer (NSCLC) and prostate cancer, as well as blood from healthy volunteers spiked with EpCAM-high and EpCAM-low cancer cell lines. They found that the ClearCell<sup>®</sup> FX1 System consistently demonstrated high CTC recovery rates, regardless of EpCAM status. The ClearCell<sup>®</sup> FX1 System was also able to achieve high CTC detection rate and sensitivity in advanced NSCLC patients; CTCs have been traditionally difficult to isolate using EpCAM methods.

Apart from counts, the researchers also tested the recovered CTCs for PD-L1 (Programmed Death – Ligand 1), a protein associated with evasion of the immune system and tumour survival. Studying of PD-L1 expression has been of keen interest in stratifying patients for checkpoint inhibitor therapy. When evaluating PD-L1 expression on the CTCs, PD-L1 heterogeneity was observed in the identified CTC populations. This might, in part, explain the differences in response to cancer treatments using drugs targeting PD-1/PD-L1 pathways.

“We are honoured to partner with The Institute of Cancer Research (ICR) and The Royal Marsden, which together are ranked in the top four centres for cancer research and treatment worldwide. Clearbridge BioMedics believes that circulating tumour cells will play a key role in cancer research, diagnostics and management. We are delighted our collaboration has provided new insights into cancer heterogeneity, and the potential for use in immuno-oncology and look forward to further work that will enable clinically actionable diagnostic information,” said Mr Johnson Chen, Managing Director and Founder of Clearbridge Biomedics.

Dr Timothy Yap, Clinician Scientist at The Institute of Cancer Research, London, and Consultant Medical Oncologist at The Royal Marsden, said:

"Novel immunotherapies such as PD-1 and PD-L1 inhibitors work optimally when appropriate patients are selected based on the molecular characteristics of their tumours. However, tumour biopsies are challenging to obtain in patients with lung cancers. CTCs provide a relatively less invasive method of obtaining fresh tissue samples from patients for analysis such as for their PD-L1 status when considering patients for treatment with PD-1 and PD-L1 inhibitors."

Moving forward, the ICR, The Royal Marsden and Clearbridge BioMedics are exploring subsequent studies, following this early promising data.

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#### **About Clearbridge BioMedics**

Clearbridge BioMedics is a clinical stage oncology research and diagnostics company that enables real-time liquid biopsy using a label-free Circulating Tumour Cell (CTC) enrichment platform. It is a National University of Singapore (NUS) spin-off company that is committed to revolutionizing cancer diagnostics and patient care. The ClearCell® FX1 System, using the CTChip®, is based on novel microfluidics technology that effectively isolates intact and viable CTCs from patients' blood. The system uses inertial focusing microfluidics for label-free CTC enrichment, capturing heterogeneous and dynamic cancer cells that could be used for cancer screening, diagnosis, staging, personalized medicine and treatment monitoring. Utilizing the next generation non-invasive liquid biopsy to analyze blood samples for CTCs, the device allows for real time analysis of disease before, during, and after treatment, which has become increasingly critical in the new era of precision medicine.

Headquartered in Singapore, Clearbridge BioMedics currently has customers spanning Asia, Europe and North America. The company has won numerous awards and garnered global recognition for the ClearCell® FX1 System. Clearbridge BioMedics has attained ISO 13485 certification in 2011.

Company website: [www.clearbridgebiomedics.com](http://www.clearbridgebiomedics.com). Introductory video: <http://youtu.be/aRBuOxLfX3g>

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