A personal approach to cancer treatment

Cambridge Consultants

Innovative technology design and development firm Cambridge Consultants [1] is working with Singapore-based Clearbridge BioMedics [2] on a groundbreaking device to improve cancer testing and research. The innovative second-generation ClearCellTM System enables tumor cells to be retrieved and detected even faster, and potentially more accurately, from a simple blood sample – paving the way for a new generation of personalized cancer treatments and increasing the chance of saving lives*.

There were an estimated 12.7 million new cancer cases diagnosed around the world in 2008 – the latest year for which figures are available – and 7.6 million deaths. The number of cases is expected to increase to 21 million by 2030. The spread of the disease around the body is the major cause of death from cancer*. But the traditional diagnosis method of a tumor biopsy often involves invasive surgery and cannot easily detect whether the disease has spread.

Clearbridge BioMedics's proprietary second-generation ClearCellTM System is a new low-cost non-invasive 'liquid biopsy' that is drawing on the diagnostic device expertise of Cambridge Consultants – particularly in the fields of microfluidics and automation control – to give early warning of the spread of the disease. It detects circulating tumor cells (CTCs) in the bloodstream that have detached from a patient's primary tumor – even at concentrations of as low as one in a billion blood cells.

Early detection of these CTCs can increase patients' chances of survival – and tracking the cell count over time could help ensure treatment is more effective. The new testing device has also solved the technical challenge of retrieving the cells intact – offering detailed insight into the exact nature of the cancer and its unique characteristics, and so paving the way for a new generation of personalized cancer treatments to fit the needs of each patient's unique tumor biology.

"It is a tribute to our world-leading track record in diagnostic device development that we have been approached from Singapore to help with this development work," said Duncan Bishop, program director in the Medical Technology division of Cambridge Consultants. "We can also offer a complete end-to-end solution, including blood handling, rapid prototyping and manufacturing trial devices, which is invaluable to start-up companies."

Clearbridge BioMedics is a spin-off from the National University of Singapore and the first member of the Clearbridge Accelerator technology incubator, which is supported by the Singapore government's National Research Foundation and SPRING Singapore. Clearbridge BioMedics specializes in novel applications for cancer research and diagnostics, and has customers spanning Asia, Europe and North America.

Johnson Chen, managing partner of Clearbridge Accelerator, said: “The ClearCellTM System from Clearbridge BioMedics is designed to resolve the current limitations of today’s technologies for detecting and isolating circulating tumor cells. It potentially represents the next generation of cancer screening, diagnosis, personalized medicine and treatment monitoring. The world-class diagnostic device expertise of Cambridge Consultants made it the clear winner when it came to selecting a development partner.”

* World Health Organization fact sheet no 297, February 2012

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