

Focused Seminar Series on Microdevices in Biological Studies
25 Jul 2016 – 10 Oct 2016

MICROFLUIDIC CLUSTER ASSAY FOR CIRCULATING TUMOR CELLS WITH RELEVANCE IN PATIENT PROGNOSIS

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NMRC Young Individual Grant Award Receiptient
Singapore MIT Alliance for Research and Technology

Date: 19th September 2016, Monday
Time: 12pm to 1pm
Venue: Perseverance Room, Enterprise Level 5



Abstract

We developed a novel circulating tumor cell (CTC) cluster microfluidic assay designed to mimic the *in vivo* tumor microenvironment for the label-free expansion of CTCs from clinically relevant blood volumes. Using specialized tapered microwells which promotes and mimics confined fluidic niche, we successfully expanded >50% of clinical blood samples (n=73) to achieve CTC clusters within two weeks. Putative CTCs may be presented throughout the cluster as single cells or aggregated microemboli, and could be detected with a panel of downstream analysis. The assay demonstrates superior performance in generating positive cultures over previously reported studies (<20%).

Short Biography

Bee Luan is currently a Post Doctoral Associate in SMART. She received her PhD from Mechanobiology Institute (MBI)/NUS Graduate School (NGS). Her research interests focus on microfluidic systems, disease management and immuno-oncology. She aims to contribute to personalized global health through medical care and practical support by providing lab-on-a-chip devices for diagnosis or disease evaluation. She is awarded the Young Individual grant from National Medical Research Council (NMRC) for her recent work.