

Presentation Abstract

Presentation Title	Challenges in Isolating Circulating Tumor Cells: From A Technological Perspective
Presentation Time	Sunday, May 3, 2015, 10:30 ~ 11:10
Location	Taiwan Veterans General Hospital, 1 st Meeting Room
Abstract Body	<i>Technological Challenges in Isolating Circulating Tumor Cells –To capture and to collect viable circulating tumor cells with sufficient purity and viability for sensitive enumeration, genomic analysis, and culture</i>

Circulating tumor cell has emerged as an important tool as a “liquid biopsy” that could potentially shift the paradigm of cancer management- from early cancer detection, risk assessment, diagnosis, monitoring, treatment selection, prognosis, to drug screening and discovery. However, to realize this goal, the prerequisite of a CTC platform has to demonstrate the maximal sensitivity, and to be able to release those captured CTCs with sufficient purity and viability for the subsequent downstream enumeration, molecular analysis and cell culture. The major CTC progress over the past few years were mainly focused on the design on the mechanical, physical aspects such as the implementation of microfluidics, miniature of flow cytometry, application of magnetic field, and size (filtration, or microfluidic flow property) or electrical property (dielectrophoresis) discrimination. In this talk, I will discuss the key design strategies concerning capturing and staining antibodies, materials, fluidic parameters, imaging setting to reducing error while maximizing the capture efficiency, purity, and long term viability of CTCs. The clinical data based on the fully optimized CTC platform, CMx (CTC in **Maximum**), developed in Sinica, have enabled the clinical utility of CTCs for all staged cancer detection , monitoring and cell culturability.

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Presentation Abstract

Presenter



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- Consulting Professor at Stanford University, USA
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Professor Chang is a renowned leader in rare-cell isolation research, with expertise in a variety of fields such as nanomaterials, biomaterials and microfluidics. Her research focuses on mediating materials-cell interactions to efficiently select, purify, and maintain rare cells, such as circulating tumor cells in blood.

Professor Chang received her bachelors in Chemical Engineering from the National Taiwan University, Taiwan and her Ph.D., Chemical Engineering from Stanford University. She has authored numerous peer-reviewed publications and holds several patents and has extensive collaborations with various hospitals in Taiwan.

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