

MAR10-2009-020262

Abstract for an Invited Paper
for the MAR10 Meeting of
the American Physical Society

Circulating Tumor Cells (CTCs): Emerging Technologies for Detection, Diagnosis and Treatment

OWEN MCCARTY, Oregon Health & Science University

Circulating tumor cell enumeration and characterization have the potential of providing real-time access to epithelial cancers in patients. This fluid phase biopsy of solid phase tumors is crucial to the development of quantitative diagnostic aiding personalized medicine. Cancer is a highly heterogeneous disease over space and time. Our goal is to generate a mechanistic, yet comprehensive view of both the 'FORCE-journey' of a cancer cell during the metastatic phase, and a 'TIME-journey' of the disease as it progresses. The approach will correlate the 'FORCE' and 'TIME' journey with both the bio-clinical aspects and the genomics of this complex problem. Presented will be results from a case study in lung cancer patients for which CTC analysis is compared with clinical progression. Morphologic and molecular characterization at the single cell level will be discussed in the context of the data set and in the context of individual patient management. Preliminary data will be shown to guide a future research agenda to investigate the fluid phase of solid tumors.