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University Seminar Series
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A Novel 3-Dimensional High-Throughput Assay for Targeting Invasive Cancer Cells

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ABSTRACT
The ability of breast cancer cells to invade into surrounding matrices is a critical determinant of metastasis. Despite improved rational drug design and remarkable progress in genomic, proteomic, and high-throughput (HT) screening methods, no effective drugs have yet been developed to prevent or treat metastasis in patients with breast cancer. In an effort to expedite the overall drug screening process, considerable efforts have been focused on development of practical three-dimensional (3-D) cell culture platforms for drug discovery. However, 3-D cell-based assays have not yet been incorporated into mainstream drug development programs that target metastatic process (e.g., cancer cell invasion), due to the lack of reproducible techniques for rapid, standardized analysis of cellular responses *in vitro*. We have developed a practical, simple, and cost effective 3-D HT invasion assay that will facilitate identification of inhibitory lead compounds aimed at preventing cancer metastasis. This novel approach will serve as a model for future anti-cancer drug discovery focused on the metastatic process, the major cause of death from cancer. Ultimately, such an approach has the potential to expedite the translation of effective cancer treatment from bench to bedside.

BIOGRAPHY
Dr. Cao is a Medical Scientist who received his medical doctoral degree at Zhenzhou University School of Medicine (Henan Medical University), following his masters degree training in experimental pathology in Peking Union Medical College, Tsinghua University. His postdoctoral training was in the field of molecular and cellular biology of cancer in the laboratories of Dr. M. Seiki in Japan and Dr. S. Zucker in New York. He was among the first scientists to discover the membrane type 1-matrix metalloproteinase (MT1-MMP) and demonstrated that this novel protease plays a key role in cancer metastasis. Dr. Cao joined Stony Brook in 1998 as an Assistant Professor, and was promoted to an Associate Professor of Research Medicine in 2008. His current research interests cover three broad aspects of cancer metastasis: 1) to better understand the mechanism of cancer invasion and metastasis; 2) to develop novel tools for early cancer diagnosis and prognosis; and 3) to identify inhibitors of cancer dissemination.

EVENT DETAILS

DATE:
Wednesday Sept. 19, 2012

TIME:
11:00 AM

LOCATION:
Babbio Center, Room 122
Stevens Institute of Technology

ATTENDANCE:
This event is open to Stevens' Faculty, Students, Staff, and Invited Guests

Co-Sponsored by the ME Department