Stephenson School of Biomedical Engineering Seminar Series Presents

DEVELOPMENT OF CANCER TRAPS FOR COMBATING METASTATIC CANCER

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1:30 p.m. Friday, October 12, 2018
CEC, Rm. 100

BIO: Dr. Tang's research interest is to understand the mechanisms of foreign body reactions to different medical implants. Dr. Tang's group is also actively working on the development of bioactive materials and drug delivering nanomaterials which enhance tissue regeneration associated with a variety of diseases. His expertise covers a broad area of biocompatibility, biomaterials, inflammation, infection, stem cells, wound healing and cancer therapy. His research has been supported by funding from NIH, DOD, AHA, CPRIT, and several foundations. He was the recipient of the Young Investigator Award from the Society for Biomaterials, the Established Investigator Award from the National AHA, UTA College of Engineering Board of Advisors Endowed Professorship, Distinguished University Professor, and many other awards. He was elected to be a Fellow of the AHA, a Fellow of the AIMBE, and a Fellow of Biomaterials Science and Engineering.

ABSTRACT: A major cause for cancer mortality is the inability to eliminate the spreading of cancer cells to vital organs. Despite major progress in the development of cancer therapy in recent years, there is no effective treatment for highly metastatic tumors in which cancer cells spread throughout and then destroy the patients' vital organs. A number of therapeutic interventions like radiation therapy and chemotherapeutic drugs have had great success with non-metastatic and early-metastatic tumors. However, these interventions are often found to be ineffective for treating highly metastatic tumors. Therefore, it is generally believed that the success of therapeutic interventions for eradicating metastatic cancer can be greatly improved if metastatic cancer cells can be gathered and then eliminated locally. Coincidentally, many recent reports have identified several cytokines, chemokines, and growth factors that are essential for cancer cell metastasis to various organs and tissues. Based on these observations, we hypothesize that such chemokine-releasing cancer traps can be fabricated for luring and then annihilating metastatic cancer cells via localized chemotherapy. To test this hypothesis, we have made many interesting discoveries which led to the development of cancer trap technology. I will be talking about how we translate this technology to improve treatment of prostate cancer, enhancing the survival chances of patients and possibly even eliminating the threat of mortality due to cancer.

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