Studies on Cancer Invasion and Metastasis

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FACILITATOR	**: Dr. GU Zhizhan**

Abstract

Patients with cancer often have a poor prognosis due to the ability of the cancer cells to invade into surrounding tissues and spread via the blood stream to distant organs to form metastases. My laboratory has been interested in understanding how tumor cells invade and how the tumor cells may use normal cells such as macrophages to help them disseminate throughout the body. We have focused on using mouse models of breast cancer to learn how tumor cells behave in living tissues, using multiphoton microscopy to follow individual cells as they move in and around the tumor. We have found that tumor cells can interact with macrophages to form a paracrine signaling loop in which tumor cells can stimulate macrophages using colony stimulating factor (CSF1), and macrophages in turn stimulate tumor cells using epidermal growth factor (EGF).   This synergy between breast cancer cells and macrophages stimulates both tumor cell invasion and entry into the blood, or intravasation.   We have found that a similar mechanism may play a role in the local invasion of brain cancers (glioblastomas).   The goal of our studies is to identify new ways to attack cancer by reducing tumor cell invasion.

Speaker

Prof. Jeff Segall is Professor of Anatomy and Structural Biology, and Pathology at the Albert Einstein College of Medicine, and is the Betty and Sheldon Feinberg Senior Faculty Scholar in Cancer Research. He has received awards from the Max Planck Society, EMBO, American Heart Association and the Mellam Family Foundation. He has chaired the Gordon Research Conference on Sensory Transduction in Microorganisms and is the founding co-chair of the Conference on Gradient Sensing and Directed Cell Migration.

****All are Welcome****