



CANCER PREVENTION & RESEARCH INSTITUTE OF TEXAS

Award ID:
RP140411

Project Title:
Targeting Tumor Cell Invasion in Glioblastoma

Award Mechanism:
Individual Investigator

Principal Investigator:
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Entity:
The University of Texas M.D. Anderson Cancer Center

Lay Summary:

Gliomas are devastating malignancies that afflict approximately 15,000 people within the United States each year. They represent the most common types of primary brain tumor, and in their advanced stages they are one of the deadliest forms of cancer. Most high-grade gliomas, and particularly glioblastomas (GBMs), are refractory to standard surgical, radiation, and chemotherapeutic interventions. Survival rates have changed little in the last few decades; nearly 100% of patients will succumb to the disease within three years after diagnosis. GBM remains incurable because of its highly invasive and infiltrative growth properties. Single cells are able to invade far away from the primary tumor mass and elude removal by surgery. These invasive cells invariably contribute to tumor recurrence after chemotherapy and radiation. Rationally designed anti-angiogenesis agents were expected to benefit patients with GBM; however, these agents have had limited benefits because they do not eradicate invasive cells. Unexpectedly, many patients treated with anti-angiogenesis drugs acquire resistance that is often associated with a burst in tumor cell invasion leading to lethal satellite lesions. Hence, targeted therapies for inhibiting GBM cell invasion are greatly needed. Recently, we have discovered a group of proteins in GBM cells that play central roles in driving invasion during tumor progression and following treatment with anti-angiogenesis agents. In this project we will study basic mechanisms for how these proteins cooperatively function in GBM cells. We will then translate these basic discoveries to pre-clinical animal models and human samples with the long-term goal of inhibiting tumor cell invasion in patients with GBM.