

Bioengineering Seminar

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Organotypic Slice Culture: An “ex vivo” Platform For Testing Personalized Therapy In Malignant Brain Tumors

Personalizing therapy for cancer patients has become a topic of increasing importance in modern health care. Approaches for personalizing therapy have traditionally targeted specific genetic or protein changes that are presumed to be critical to the inherent viability of a cancer cell. However, in many cases these “static” changes do not predict the biological response to targeted therapy on a clinical level. This is particularly true for patients with malignant brain tumors: although there have been many success stories in the research setting, these results have not borne fruit when translated to the clinic.

This failure has in part been ascribed to the lack of biological correlation between traditional experimental systems (for example, cell culture) and the originating brain tumor on a per-patient basis. To address this limitation, we recently developed a system allowing for thin slices of human brain tumors to be kept alive in culture for several weeks. This technique provides maintenance of the various cellular and architectural elements of the tumor while offering a controlled platform for testing drugs that target various elements of tumor biology. We have used this system to confirm the differential response of human brain tumors to gefitinib, a drug that targets the Epidermal Growth Factor Receptor. The seminar will outline measurable biological responses and candidate drug testing in the organotypic slice model, focusing on the potential for personalized drug selection in patients suffering with malignant brain tumors.

Thursday, January 30, 2013

12:00PM-1:00PM, Room 3507

Nguyen Engineering Building

BIOGRAPHY

Allen Waziri, MD is a neurological surgeon who specializes in the treatment of patients with malignant brain tumors. He received his medical degree from the University of Iowa, during which time he spent several years in the Neuroimmunology Branch at the NIH as a Howard Hughes Research Scholar. He subsequently completed his neurosurgical residency at the Neurological Institute of New York. He spent two years as a post-doctoral fellow at Columbia University studying the role of regulatory T cells in the suppression of cellular immunity in patients with glioblastoma. Following residency he joined the Department of Neurosurgery at the University of Colorado, serving as Co-Director of the Skull Base Program and as faculty in the Cancer Biology and Medical Scholars Training (MSTP) Programs.

Dr. Waziri joined the Krasnow Institute of George Mason University in 2013 as Affiliate Associate Professor of Molecular Neuroscience. His primary clinical appointment is with the Inova Neuroscience Institute, where he serves as a clinical brain tumor specialist and Co-Director of the Inova Neuro-Oncology Program. His ongoing research at the Krasnow focuses on the use of human tissue models to explore translationally relevant strategies for targeting various aspects of brain tumor pathophysiology.



*For any questions
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