“Exploring the -Omics of Glioblastoma using Patient-Derived Models of Cancer”

Abstract:
Current methods of preclinical testing of potential therapeutics have been, for the most part, underwhelming in terms of their ability to yield a clinical impact. This is particularly true for glioblastoma (GBM) where prognosis has increased only by 2-3 months over the last 75 years with a 5-year survival of less than 4%. Many promising preclinical studies have failed to live up to expectations when tested clinically. This problem is likely due to: a) limitations of the preclinical model system and b) lack of reliable biomarkers for proper patient selection. To address these issues, investigators are increasingly utilizing patient-derived models of cancer (PDMC) coupled with comprehensive molecular profiling. Over the last decade, we have developed a large cohort of GBM patient-derived xenograft (PDX) animal models many of which have been characterized for radiation and temozolomide sensitivity, the current standard of care therapies for this disease. In addition, derivative PDMC models have been developed that are more suitable for high throughput testing. Ongoing research efforts are focused on tumor microenvironmental (TME) manipulations that can improve the derivative models, namely spheroid cultures (neurospheres) and human biomatrix embedded 3D microtumors. The phenotypic assessment of these PDMC’s coupled with comprehensive molecular profiling at the genomic, transcriptomic, and kinomic (global kinase activity assessment through a peptide substrate microarray) level provide an opportunity to better understand and develop this critical biologic resource. Current bioinformatics collaboration will support this endeavor to facilitate dissemination and utility of our GBM PDMC program.

Friday, 10/26/2018 at 10:15am
Shelby Biomedical Research Building, Room 105
1825 University Boulevard, Birmingham, AL 35294

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