Simon Gregory
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Dr Gregory is a tenured Professor and Director of the Brain Tumor Omics Program (BTOP) in the Duke Department of Neurosurgery, the Vice Chair of Research in the Department of Neurology, and Director of the Molecular Genomics Core at the Duke Molecular Physiology Institute (DMPI). Dr Gregory's primary areas of research involve understanding the molecular processes associated with disease development and progression in brain tumors and Alzheimer's disease, novel drug induced white matter injury repair in multiple sclerosis, and social and behavioral response to oxytocin treatment animal models of autism. He is broadly regarded at Duke as a leader in the development of novel single cell and spatial molecular technologies towards understanding the pathogenic mechanisms of disease development.

Topic: Brain Tumour Omics Programme: Understanding Tumor Microenvironment Heterogeneity

The complex heterogeneity of the glioblastoma (GBM) tumor microenvironment (TME) demands a novel, comprehensive approach to understand the development and progression of this highly aggressive tumor. The new Brain Tumor Omics Program (BTOP) at Duke University is establishing a paradigm in which extant GBM researchers are brought together with new investigators who bring novel approaches to the field. It is intended that this approach will aggregate traditional modalities, such as genomic and bulk RNA sequencing, with recent single cell and leading-edge spatial approaches to phenotype and dimensionally characterize the TME. These genomic methods will be incorporated with epigenetic and image-based modalities to generate a wholistic approach to tumor classification in the context of longitudinal sampling and reflective of the impact of therapeutic treatment. It is intended that the integration of these techniques will provide a comprehensive map of GBM heterogeneity, guiding the development of more targeted and effective therapies.