Research in the Diaz Lab

The Diaz Lab is interested in developing targeted therapeutics for the treatment of glioma. We apply molecular and computational approaches to elucidate targets and pathways mediating cancer progression. To date, some of the most effective cancer therapies have been those that hone in on molecular defects associated with specific genes. However, in highly diverse tumors, such as gliomas, clinical trials of promising targeted therapeutics have produced mixed results. This is at least partially due to intra-tumor regional heterogeneity in response to treatment. To address this pressing challenge, we combine high-throughput single-cell sequencing with state-of-the-art machine-learning algorithms, to produce quantitative models of tumor heterogeneity and micro-environment interaction. Moreover, brain tumor cells can exhibit phenotypes, and molecular signatures, of cell types found in the developing brain. We are interested in the role of early-brain developmental programs in brain tumor growth.

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