

NIDDK P30 Center for Molecular Studies in Digestive and Liver Diseases



NIDDK P30 Center for Molecular Studies in Digestive and Liver Diseases Research Seminar



Devraj Basu MD, PhD, FACS

Associate Professor of Otorhinolaryngology
Full Member, Abramson Cancer Center
Department of Otorhinolaryngology, Head and Neck Surgery
Hospital of the University of Pennsylvania

"Exploiting Differences in HPV Oncoprotein Function to Personalize Therapy for Oropharynx Cancer"

Thursday, May 4, 2023
12:00 – 1:00 PM EST

901 Biomedical Research Building or [Via Zoom](#)

As a surgeon-scientist, my overall goal is to improve our ability cure the most aggressive head and neck cancers while also abating treatment toxicity for ones readily curable by existing therapies. My lab's work has pursued how multiple discrete subpopulations of malignant cells within these tumors cooperatively resist therapy via both tumor cell autonomous mechanisms and crosstalk with the stromal microenvironment. In the process, we have developed the ability to analyze heterogeneity and phenotypic plasticity within cancer cell lines, patient-derived xenografts, and primary human cancer samples based on molecular and functional criteria. My group seeks precise molecular definition of the epigenetic plasticity that promotes homeostasis of tumor cells that retain malignant potential in the face of standard therapy. Our studies integrate known drug resistance mechanisms into a conceptual framework where oncogenic signal dependence is regulated by flux between distinct cell states. Our work demonstrates that activation of oncogenic signaling pathways is remarkably heterogeneous and plastic within any single tumor. As a result, rapid compensation to targeting these pathways occurs not only at the level of signaling networks in individual cells but also through dynamics among diverse cell states cooperatively sustaining cancer progression. We are presently exploiting such intra-tumor diversity as a basis to improve the marginal efficacy of current targeted agents in head and neck cancer therapy with new drug combinations.

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