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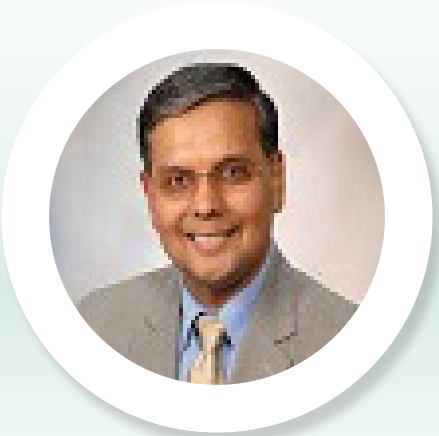

Debabrata (Dev) Mukhopadhyay
Mayo Clinic College of Medicine and Science
USA

Targeting axonal guidance proteins in tumorigenesis: Role of genetic status of KRAS and TGF-1 signaling pathways

The current body of works suggests that most of the axon guidance proteins interplay with vascular system that leads to vascular development and abnormalities of those pathways usually cause several pathological consequences including cancer. The axon guidance molecules and their receptors are often incongruously expressed in cancers; however, the molecular pathways of those axon guidance proteins in the tumor cells related to tumorigenesis processes need deeper evaluation. Neuropilin-1 (NRP1), a non-tyrosine kinase receptor, originally discovered as one of the axonal guidance receptor, is overexpressed in several cancers including renal, pancreatic and lung cancers. Originally, our laboratory demonstrated that inhibition of NRP1 expression can lead to differentiation of tumor cells and growth inhibition in renal cell carcinoma and later other laboratories also demonstrated the similar observation on different tumor types including melanoma and brain tumors. Interestingly, our recent data defined a differential role of NRP1 on tumorigenesis, depends upon genetic status of KRAS in the tumor cells. More in depth signaling pathways and its intricacy with respect to drug development will be discussed in this meeting.

Biography

Debabrata Mukhopadhyay is a Professor of Biochemistry and Molecular Biology, Mayo Clinic, Rochester, MN, has a joint appointment with the Department of Physiology and Biomedical Engineering and Associate Director of Mayo Clinic Comprehensive Cancer Center for Global Alliances. He has a broad background in tumor microenvironment, with specific training and expertise in key research areas including Cancer, Cardiovascular Diseases, and Diabetes. As a Post-doctoral fellow, later as an Independent Investigator followed by as an Associate Professor at Harvard Medical School, Boston, he carried out angiogenesis and tumor microenvironment related research. After moving to Mayo Clinic as a Professor and also as Directors of both Tumor Microenvironment and Nanomedicine programs, he has been supervising additional research areas including stellate cell biology, new drug delivery systems and trained several young investigators who are now independent faculties in different institutes. Recently, he has received a Tumor Microenvironment Training Grant (T32) from National Cancer Institute. Additionally, he has initiated the biannual Mayo Clinic Angiogenesis and Tumor Microenvironment Symposium, which has been widely attended by international and national scientists and also Mayo Clinic and University of Minnesota Nanotechnology workshops. He has been serving as reviewer for several study sections in NIH, and also international funding agencies and also participating as Editorial Board Member of well received journals including *Cancer Research and Nanomedicine*.

mukhopadhyay.debabrata@mayo.edu

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