

Dr Anirban Maitra,

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Dr. Anirban Maitra obtained his medical degree from the All India Institute of Medical Sciences at New Delhi, India in 1996. Subsequently, he completed a residency in Anatomic Pathology from the University of Texas Southwestern Medical Center, Dallas and a fellowship in Pediatric Pathology from Dallas Children's Medical Center. He arrived at Johns Hopkins in 2001 for a combined clinical/research fellowship in Gastrointestinal/Liver Pathology, and joined the faculty in 2002. Dr. Maitra is currently an Associate Professor of Pathology and Oncology, and an affiliate faculty at the McKusick-Nathans Institute of Genetic Medicine. He is the Associate Editor of Current Molecular Medicine, and has received numerous awards for his research studies including the Benjamin Castleman Award, the Warren R. Lang Award, the Gordon Vawter Award, the Harry Neustein Award, and the Lotte Strauss Award

Dr. Maitra's research goals are focused on the identification and preclinical validation of rational, cancer-specific therapies for pancreatic cancer. Unlike commonly used cytotoxic agents, "mechanism-based" strategies utilize specific biochemical differences between cancer and normal cells and thus, the effects of chemotherapy are selectively detrimental to cancer cells only. For example, a compound may be lethal to pancreatic cancer cells that have deleted both copies of a particular gene, while normal cells can "bypass" the effects of this drug by retaining one or both copies of the implicated gene. Another broad class of "mechanism-based" therapies that is being pursued in Dr. Maitra's laboratory involves small molecule inhibitors of developmental signaling pathways. These pathways (for example, Notch and Hedgehog) are active during embryonic development but are quiescent in most adult somatic cells. Considerable evidence has now accrued that demonstrates the aberrant re-activation of these developmental signaling pathways in human cancers, including the majority of pancreatic malignancies. Targeting these pathways with specific small molecules provides a powerful avenue for therapy, while potential circumventing toxicities associated with conventional anti-metabolite compounds. many more awards.

Dr. Maitra is also pursuing high-throughput approaches for identification of abnormal pancreatic cancer genes using cutting edge "gene chip" technologies. These chips allow scientists to query multiple genetic loci, including in some instances, the whole human genome, for abnormalities that are unique to pancreatic cancer but are not present in normal tissues. His third major area of research involves developing novel drug and gene delivery systems for pancreatic cancers, using targeted nanoparticles. Development of such non-viral delivery systems have the potential for enhancing therapeutic efficacy while restricting side effects.