

## **Primary cilia, developmental diseases, and cancer**

A postdoctoral position is available in the [Mukhopadhyay laboratory](#) in the Department of Cell Biology to study the role of cilia and cilia-generated signaling in development and disease. The first cellular organelle to be described in biology, the primary cilium was long mistaken as a vestigial appendage. The primary cilia are now considered as vital sensory organelles for detection and transmission of a broad range of chemical and mechanical signals in most cells. Signaling mediated by the primary cilia plays fundamental roles in cellular differentiation, polarity and cell cycle control. We utilize a variety of biochemical, cell biological, structural and reverse genetic approaches to understand signaling mediated by cilia and dissecting their role during normal development and disease, ranging from atomic, subcellular to tissue level scales. Studying signaling paradigms in cilia instructs us about developmental programs, previously unknown phenotypic outcomes, and disease pathogenesis. Description of current lab projects can be found at: <http://www.utsouthwestern.edu/labs/mukhopadhyay/> and in recent publications or preprints on structural aspects of ciliary trafficking and ciliary GPCRs, renal cystogenesis, neural tube development, and ciliary loss in cerebellar granule neurons.

Going forward, we will focus in translating our understanding in ciliary signaling in:

- (a) high throughput screening of small molecules and peptides targeting ciliary trafficking in polycystic kidney disease,
- (b) targeting the cilia-centrosomal complex in treating medulloblastoma, a cerebellar tumor,
- (c) targeting neural tube defects from high hedgehog signaling,
- (d) dissecting novel cilia loss paradigms in differentiated cells, and
- (e) drugging ciliary GPCRs for surface accessibility and allosteric regulation.

We are a closely-knit group of scientists with diverse sets of expertise and passionate about solving the particular biological problem, often embarking on newer methods and paradigms as necessary. We utilize a variety of high-quality core services inside and outside UT Southwestern that enables us to address a biological problem using expertise from various fields. We also collaborate with groups inside UT Southwestern and Children's Hospital, and outside campus for addressing the relevance of our findings in the context of human disease.

Information on our postdoctoral training program, benefits, and a virtual tour can be found at <http://www.utsouthwestern.edu/postdocs>.

Candidates must have a recent Ph.D. or M.D./Ph.D., with less than three years of prior postdoctoral experience, and a demonstrated research record with at least one first author publication. Preference will be given to applicants with a strong background in cell and molecular biology, chemical biology or mouse genetics.

Interested individuals should email [saikat.mukhopadhyay@utsouthwestern.edu](mailto:saikat.mukhopadhyay@utsouthwestern.edu) their current curriculum vitae, contact information for references, and a cover letter highlighting prospective research plan.

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