Tata Institute of Fundamental Research
Survey No. 36/P, Gopanpally Village, Serilingampally Mandal, Ranga Reddy Dist., Hyderabad – 500 046

Seminar

Epigenetic Remodelling in Prostate Cancer: Opportunities for Targeted Therapies

Varadha Balaji Venkadakrishnan

Dana-Farber Cancer Institute, MA

Lineage plasticity is a hallmark of cancer, enabling cells to evade therapeutic pressures by acquiring new identities. In prostate cancer, up to 15% of treatment-resistant adenocarcinomas (PRAD) undergo lineage plasticity, histologically transforming into neuroendocrine prostate cancer (NEPC), a subtype with poor prognosis and no targeted therapies. This transformation is driven by epigenetic dysregulation. Our research reveals distinct lineage-specific activity of Polycomb repressive complex 2 in NEPC compared to PRAD. We also uncovered a cross-talk between Polycomb and DNA methylation that facilitates NEPC lineage plasticity. Furthermore, we identified and validated *PROX1* as an epigenetically de-repressed transcription factor driving NEPC lineage reprogramming and metastasis, highlighting its potential as a novel therapeutic target.

Wednesday, Nov 19th 2025

11:30 Hrs (Tea / Coffee 11:15 Hrs)

Auditorium, TIFRH