Centre for Biosystems Science and Engineering
Seminar

An anatomic transcriptional atlas of glioblastoma

4:00 PM, 20th May 2016,
Seminar Hall, MCB, Biological Sciences Building.

Dr. Nameeta Shah,

Ivy center for advanced brain tumour treatment,
Seattle, USA.

Glioblastoma is a grade IV brain tumour, affecting 3 per 100,000 people annually worldwide, with a median survival rate of 12-15 months for patients treated with total resection, radiation treatment, and chemotherapy. Extensive genomic studies of glioblastoma as a whole have provided critical insights into the disease biology but yielded limited treatment options and no cure. The Ivy Glioblastoma Atlas Project offers for the first time data for glioblastoma dissected by its distinct characteristic cell populations. This atlas will allow the worldwide research community to tackle this disease using a holistic approach, to understand its parts to put together a whole.

The molecular and cellular landscape of glioblastoma is highly complex and its relationship to histologic features routinely used for diagnosis is unclear. The speaker will talk about how this relationship was investigated by generating an anatomic transcriptional atlas of human glioblastoma, adopting a highly systematised, large-scale, histology-driven approach to the characterisation of anatomic features and cancer stem cell niches. The atlas of 42 tumours consists of several data modalities, including 270 transcriptomes, ~11,500 semi-annotated pathology images registered to ~23,000 in situ hybridisation gene expression images, ~400 MRI scans, tumour derived cell lines and xenografts, and supporting longitudinal clinical information. During this talk, the speaker will describe the resource and the technologies used to generate the resource. The talk will also show that gene expression is driven by anatomic location, molecular signatures of anatomic features are highly conserved across tumours, and reflect the cell types and micro environment of each feature.

About the speaker

Nameeta Shah did her B.E. in computer engineering from L.D. College of Engineering, Gujarat University followed by M.Tech. in computer science and engineering from IIT, Kanpur. She then obtained her Ph.D. from University of California, Davis. She went on to do her postdoctoral research in the area of cancer bioinformatics at Michigan Center for Translational Pathology at University of Michigan. She has been working as a bioinformatics scientist at the Ivy Center for Advanced Brain Tumor Treatment, Seattle, WA for the past eight years.