

9th Indo Global Summit on

Cancer Therapy

November 02-04, 2015 Hyderabad, India

Discovery of novel innate immune pathways for glioma therapeutics

Sushmita Jha

Indian Institute of Technology-Jodhpur, India

Malignant gliomas, the most common primary brain tumors that arise from glial cells within the central nervous system (CNS), are among the most fatal human cancers. With a median survival of only 14.6 months even after aggressive therapy, most patients succumb to their disease within two years of the initial diagnosis. Gliomas are heavily infiltrated by innate immune cells (~30%). Increasing evidence suggests a significant role of innate immune cells in promoting tumor growth, migration, immune-suppression and angiogenesis. My interest is in the inflammasome forming NLR (Nucleotide-binding domain; leucine-rich repeat containing receptor) proteins in gliomas. NLRs constitute a sophisticated detection mechanism for pathogens, irritants and damage. NLRs play a role in inflammation, immunity and cell death but there is no report of a link between NLRs and gliomas. Using mRNA expression data generated from microarray analysis from the cancer genome atlas analyzed using the c-Bio portal for cancer genomics (Memorial Sloan Kettering center), from 262 tumor samples for patients of low grade gliomas showed that the NLR gene network (*NLRP12*, *NLRX1*, *NOD2*, *NLRP3*, *NLRP6*, *NLRC3*, *AIM2*, *MSR1*, *NLRC4*, *CASP1*, *PYCARD*) was altered in 38.9% of all cases. In case of 135 tumor samples of Glioblastoma multi-forme, the same input gene set was altered in 38.5% of all cases. We are utilizing cell culture, biochemical, immunohistochemistry and high resolution microscopy approaches to better understand these molecular pathways so as to aid development of novel anti-tumor therapies.

Biography

Sushmita Jha completed her PhD from the Department of Cell and Molecular Physiology at the University of North Carolina at Chapel Hill (USA) and Post-doctoral studies from the Linberger comprehensive cancer care center, UNC Chapel Hill (USA). She is the Head, Department of Biology and convener, focus group in Biologically Inspired System Science at IIT Jodhpur. She has been awarded the "2013 Young Scientist Grant" from The Department of Science and Technology, Government of India and the "Hulka Innovator's award" by the Center for women's health research, UNC-CH, USA. She has published several papers in reputed, high impact journals.

sushmitajha@iitj.ac.in

Notes: