



Dr. Nishi Raj Sharma

PhD (Ramalingaswami Fellow)
Principal Research Scientist

BRIEF PROFILE

Before joining to Department of Education and Research at Artemis Hospitals, Dr Nishi Raj Sharma worked as an Assistant Professor (Ramalingaswami Fellow) at Department of Molecular Medicine in Hamdard University (Jamia Hamdard, 2019-23) with over 9 years of postdoctoral experience in the field of virus- host interactions including viral entry and post-entry steps in the process of viral replication. During his PhD research work with Prof. Debi P. Sarkar at Dept of Biochemistry, University of Delhi, he discovered the regulation of membrane fusion step of an enveloped animal virus by host cell signalling (MAP kinase and AKT). His postdoctoral work with Prof. Gregory Melikian at Emory University (Atlanta, GA) identified a priming event of Hepatitis C Virus by host's CD81 Protein for Low pH-dependent membrane fusion. His postdoctoral work at National Institutes of Health (NIH) at Bethesda, Maryland (USA) with Dr. Zhi-Ming (Thomas) Zheng discovered for the first time the mechanistic regulation of mammalian cell RNA granules (stress granules and processing bodies) by an oncogenic DNA herpesvirus (KSHV). He was trained in molecular virology, biochemistry, Cell biology and RNA biology during his doctoral and post-doctoral period at National Institute of Health (NIH), Bethesda, Maryland. Before relocating to India, he also served as a scientist at Dept of Biochemistry, USUHS (a federal University in Bethesda, United states) in the laboratory of Dr. Prasanna Satpute-Krishnan and learnt about the mechanistic basis of selective ER- export of mis-folded secretory pathway proteins. Dr. Sharma is a recipient of several awards including FARE (fellow award of research excellence sponsored by NIH) and DBT- Re-entry Ramalingaswami Fellowship.

PRESENT RESEARCH INTEREST:

His research aims to understand the role of virus-host interactions in viral infection and pathogenesis. This program is combined with translational efforts to apply derived knowledge for the development of broad-spectrum host-centred antiviral approaches to combat emerging virus infections including Chandipura virus, Chikungunya virus and SARS-CoV-2 and Dengue. One of the major goals is to understand role of host's cell RNA binding protein and phospho-proteomic changes during viral replication and pathogenesis. Another focus is on identifying the host's factors including receptor(s) involved in viral infection and to understand the mechanism of viral entry. Dr Sharma's laboratory approaches these problems using state-of-the-art techniques in cell and molecular biology, genetics and bioinformatics.

RESEARCH IN SUPPORT OF PATIENTS:

1. Dr Sharma will be the in-charge for the maintenance and operation of the state-of-the-art Biosafety Level-3 (BSL-3) facility, located at Artemis Research department, for handling and experimentation with hazard group III pathogenic viruses. This facility fully complies with the Biosafety in Microbiological and Biomedical laboratories (BMBL) guidelines. The facility is fully equipped with Biosafety cabinets, incubators, centrifuges, deep freezers, CO2 incubators and has autoclaves for handlings of the hazardous waste generated while working on pathogens.

2. Development of viral diagnostic tests: The laboratory will focus on developing new diagnostic test for viral infections.

3. Isolation of virus and serotyping/genotyping: Virus with a risk for public health concern and causing seasonal outbreaks will be isolated from patients specimen for genotyping screening, molecular characterization and its correlation with disease severity. This will help design better treatment strategies.

Team:

1. Ms Sharmistha Sarkar (DBT-JRF)
2. Ms Surabhi Gautam (UGC-JRF)

Funding

Extramural: Analysis and modulation of virus-host interplay in Chandipura Virus infection and pathogenesis Department of Biotechnology (DBT), Ministry of Science and Technology, India (113.60 Lakhs, 2019-24)

Contact information

Email: nishi.sharma@artemishospitals.com