

Abridged CV - Prof. Narayan Rishi



Prof. Narayan Rishi is founder Director and Advisor, Amity Institute of Virology and Immunology (AIVI), Amity University Uttar Pradesh (AUUP), Noida. He has immensely contributed to the cause of Virology albeit research, teaching and promoting this subject. Prof. Rishi served CCS Haryana Agricultural University (HAU), Hisar for 28 years in various positions. He developed there a strong school of Plant Virology and established a state of art laboratory. His all 22 doctorate students are occupying high national and international positions in India and abroad. Prof. Rishi was Visiting Professor to the University of Hohenheim, Stuttgart, Germany during 1993, Oregon State University, Corvallis, USA during 1986 and University of Arizona, Tucson, USA during 1998. He is recipient of Foreign Research Fellowship of the Japan society for Promotion of Science and worked at the University of Tokyo, Tokyo during 1971–1974. In addition, Prof. Rishi visited and worked for brief period in several premier laboratories in USA, France, Germany, UK, and Denmark. He was President, Indian Virological Society during 2004-2008 and President, Indian Society of Plant Pathologists during 2002-2003. Prof. Rishi was founder member and Secretary of Indian Virological Society for two terms (1985-1991). He was Member, International Committee on Taxonomy of Viruses, National representative to Virology Division, International Union of Microbiological Society and General Secretary, International Working Group on Tropical Virology. Prof. Rishi was Member, Research Advisory Committee of five ICAR institutes and Member, Quinquennial Review Team, of ten ICAR Institutes during 1992-2012. He was member, ICAR National Core Committee on Restructuring of PG Curricula in Plant Protection during 2000-2002. He has successfully organized 3 International Conference, 1 International Congress and several national conferences and symposia on important current topics in virology. During 1996 he organized International Training Program in Diagnostic Virology at CCS Haryana Agricultural University, Hisar in which 30 trainees from 15 developing countries participated. His important research findings are: - (A) First time identification of the strains of sugar cane mosaic virus in India, its purification and raising high titer antiserum which was used in ELISAs and other serological tests. (B) Identification of sources of resistance to important viruses in chilly, tomato, Vigna crops which were used in developing tolerant/resistance varieties. (C) First time purification and raising high titer antiserum of Potato leaf roll virus in India which was used in ELISAs and other serological tests. (D) Established genetic variability in cotton leaf curl virus (CLCuV), cloning and sequencing of coat protein and movement genes. (E) Developed for the first time in world GM cotton plants resistant to CLCuV. (F) First time sequencing and diversity in DNA β associated with some monopartite begomovirus. (G) Phytofabrication of silver nanoparticles using pomegranate fruit seeds. These biologically synthesized nanoparticles were found highly toxic against different multi-drug resistant human pathogens. Prof. Rishi participated in several international congresses, national/international conferences, and chaired sessions. He was international expert for evaluating European Union Post-Doctoral Project applications in some European Universities, faculty promotion applications in some African Universities and PhD theses evaluation of universities of some SAARC and ASEAN countries.

Prof. Rishi is recipient of Prof. S. N. Das Gupta Memorial Lecture Award, 2003, Indian Phytopathological Society, IARI, New Delhi; Prof. M. V. Nayudu Memorial Award, 2010, SV University, Tirupati; Prof. K. S.

Bhargava Memorial Award, 2011, University of Gorakhpur and Prof. Kameshwar Sahai Bhargava Oration Award, 2014, Indian Virological Society, Tamil Nadu Agricultural University, Coimbatore.

Contributions at Amity University Uttar Pradesh, Noida

Prof. Narayan Rishi has developed strong PG and Ph.D. programs in Immunology, Virology, Genomics and Medical Microbiology and PG Diploma in Clinical Virology and Immunology. He developed strong research collaborations with several national and foreign institutes including two universities in the USA.

Research findings:

- (A) Different forms of vaccine antigen delivery against Human Papilloma virus (HPV) were evaluated and efforts were made to develop cost-effective prophylactic vaccine against HPV infections.
- Measles vectored HPV and Pichia based HPV were produced and corresponding vaccine formulations were prepared. The immunogenicity of the vaccine formulations was checked in animal model.
 - Comparable and high anti-HPV 16L/18L ELISA titers were observed in adjuvanted vaccine formulations and commercially available HPV vaccine.
 - Both HPV vaccine candidates (Measles vectored and Pichia based HPV) showed comparable immune response with respect to each other as well as available VLP based commercial vaccines.
- (B) Immune response in the patients with venereal warts was examined and effect of levamisole as an adjunct to the standard therapy using topical 20% podophyllin solution on the warts was observed.
- Enrichment of HPV antigen specific Th1 immune response was observed in patients treated with levamisole which indicates the immunomodulatory role of levamisole.
 - There is significant role of regulatory T cell subsets such as FoxP3+ T reg cells that play an important role in dictating the host immune response among venereal wart patients.
- (C) Environmental surveillance was done for prevalence of poliovirus in Delhi followed by molecular characterization and intratypic differentiation.
- Wild type poliovirus has not been isolated in Delhi region after 2010 and Vaccine derived poliovirus (VDPV) was last isolated in Delhi in 2015.
 - Out of the three polioviruses, mutations which result in VDPVs are commonest in Type 2 poliovirus.
- (D) The frequency, dynamics, function, and cross-regulation of Th1, Th17 and T reg cells were examined in peripheral blood and bone marrow of Leishmania patients.
- Immunological profile of VL patients were compared with endemic controls in peripheral blood and it was observed that VL patients have suppressed immune response which was proportional to parasitic load in bone marrow.
 - Prophylactic and therapeutic role of IL-17A was evaluated in animal model of visceral leishmaniasis. The parasitic persistence drives the host immune cells to over produce suppressive cytokines, especially in response to inflammatory cytokines (IL-17A & IFN-Gamma) for homeostasis.

- (E) Immunological factors contributing to different spectrum of clinical presentations of TB were determined.
- Increased soluble HLA-G was observed in military TB compared to TB-PE which suggests that soluble HLA-G contributes to immune-suppressed state and dissemination of MTB.
 - There are differential modes of suppression of immune response among TB-PE and MTB patients. TB-PE showed suppression in terms of preferential inhibition of Th1 cytokines production while MTB showed suppression in terms of apoptosis of effector T cells.
- (F) Velvet bean severe mosaic begomovirus genes AV2, AV1 and AC2 showed suppressor activity; AV2 showed strong suppressor activity.
- (G) He showed first in-silico evidence of interaction of any begomoviral VSRs (viral suppressors of RNA silencing) with Dicer of host.
- (H) Reported *Verbesina encelioides* (wild sunflower) a weed plant as new host of Croton yellow vein mosaic virus.
- (I) Reported efficient immunodiagnosis of Citrus yellow mosaic virus using polyclonal antibodies with an expressed recombinant virion-associated protein
- (J) Production of polyclonal antiserum using recombinant virion-associated protein as fusion protein, which could be used for screening Citrus yellow mosaic virus -infected plants by ELISA and IC-PCR
- (K) Developed and standardized an isothermal based recombinase polymerase amplification assay for a sensitive, rapid, easy, and cost-effective method for detection and diagnosis of Citrus yellow mosaic virus.