

Resume

Naveen Kumar, Ph.D

Senior Scientist (Veterinary Virology)
Room No. 118, Division of Animal Health
Central Institute of Research on Goats
Indian Council of Agricultural Research
Makhdoom, PO-Farah, Mathura, UP-281122
Tel: +91 565-2763260 Ext 269
+91 8171301889 (cell)
Fax: +91 565-2763246
email: naveenkumar.icar@gmail.com



Career:

- 2011- Cont. Senior Scientist (Veterinary Virology)
Central Institute for Research on Goats, Makhdoom, Mathura, India
- 2006-2011: Postdoctoral research fellow
Emory University, Atlanta, USA
- 2004-2006: DAAD fellow (PhD research)
Friedrich Loeffler Institute, InselRiems, Greifswald, Germany
- 2003-2006: Ph.D. (Veterinary Virology)
CCS Haryana Agricultural University, Hisar, India
- 2002-2003: Scientist
BioMed Pvt. Ltd. Ghaziabad, UP, India
- 2000-2002: M.V.Sc. (Veterinary Microbiology)
Rajasthan Agricultural University, Bikaner, India
- 1995-2000: B.V.Sc. & A.H.
Rajasthan Agricultural University, Bikaner, India

Other current assignments:

Faculty member of the Indian Veterinary Research Institute (IVRI), Izzatnagar for teaching and guidance of the research work of PG and PhD students.

Awards:

- 2012: First prize among best posters in ISSGPU annual conference 2012
- 2010: Fellowship, American Society of Virology, USA
- 2008: Fellowship, American Society of Virology, USA
- 2008: Fellowship, Influenza Pathogenesis & Immunology Research Center, Atlanta, USA
- 2006: Postdoctoral research fellowship, Emory University, Atlanta, USA
- 2004: DAAD fellowship, DAAD Bonn, Germany
- 2002: Gold Medal, RAU Bikaner, India for first in MVSc (Vety. Microbiology).
- 2000: Sarabhai Zydus Animal Health Award for academic achievements.

Research Interest: (System biology of virus infection, Pathogen induced host cell signalling & antiviral drug discovery, epidemiology and molecular diagnostics)

Currently I am working on Peste des Petits Ruminants (PPR), a disease primarily of small ruminants caused by a RNA virus (family *Paramyxoviridae*, genus *morbillivirus*). The disease is economically so devastating that upto 90% of the animals on a farm/village may die within few days; goats and sheep are mainly affected whereas cattle remain unaffected (undergoes sub clinical infection). I am trying to unravel host markers of disease (PPR) resistance. Stimuli to host following exposure to pathogens leads to differential expression of several host genes some of which might be unique to specific pathogen. Therefore, using system biology approach (microarray/RNA-seq analysis), the broad objective of my study is to analyze the global gene expression pattern of goats (susceptible) and cattle (resistant) following PPRV infection.

Besides, I am very much interested in isolation of some novel viruses from goats, a field which is neglected worldwide. So far, I have isolated a unique PPR virus, a rotavirus (first time from goats), a goatpox virus, Orf virus, and a yet unidentified virus from mouth lesions in goats. Unknown viruses associated with common pathological conditions such as abortion, pneumonia and diarrhea are underway for isolation. Identification and characterization of such novel viruses will enable us to prepare the proper diagnostic reagents and vaccine.

In the recent past, I have established that the NF- κ B and receptor tyrosine kinase signaling pathways are required for efficient replication of influenza virus and hence may be used as targets to develop novel therapeutic agents. I also contributed in development of reverse genetics of Arenavirus (Pichinde), virus mutagenesis, rescue of recombinant viruses and development of guinea pig as an animal model to study the pathogenesis of Lassa hemorrhagic fever virus.

Previously, I developed a DIVA system (differentiation of infected and vaccinated animals) for FMD (introduced first time in India) together with study on FMD virus persistence in a high containment laboratory (BSL-4).

Current Research Projects:

As Principal Investigator (PI):

1. Study on the molecular mechanism of resistance against Peste des Petits Ruminants
2. Isolation, identification and characterization of important viruses of goats

As Co-Principal Investigator (Co-PI):

1. Development and characterization of indigeneous vaccine and diagnostics for Johne's disease
2. Isolation, identification and characterization of the organisms associated with neonatal diarrhea
3. Outreach programme on zoonotic diseases

Scientific Affiliations:

- ❖ Member, European Society of Virology
- ❖ Member, American Society of Virology
- ❖ Life member, Indian Society for Sheep and Goat Production and Utilization (ISSGPU).
- ❖ Life member, Indian Association of Veterinary Microbiologist Immunologist & Specialist in Infection Diseases (IAVMI).
- ❖ Member, Veterinary Council of India
- ❖ Member, Rajasthan State Veterinary Council, India

Publications:

1. **Kumar N**, Chaudhary K, Chaubay KK, Sharma DK and Singh SV. (2013). Isolation, identification, and characterization of a Peste des Petits Ruminants virus from outbreak occurred in Nanakpur India, **J. Virological Methods** (under revision).
2. Singh SV, **Kumar N**, Singh SN, Bhattacharyya TK, Gupta S, Chaubay KK, Singh PK, Singh AV and. (2013). Complete genome sequence analysis of Indian Bison type (S5) *Mycobacterium avium* subspecies *paratuberculosis*, **J. Bacteriology** (Submitted).
3. **Kumar N**, Wang J, Lan S, Danzy S, Schelde LM, Seladi, J, Ly H and Liang Y. (2012). Characterization of virulence-associated determinants in the envelope glycoprotein of Pichinde virus, **Virology**, 433, 97-103.
4. Wang J, Danzy S, **Kumar N**, Ly H and Liang Y. (2012). Biological Roles and Functional Mechanisms of Arenavirus Z Protein in Viral Replication. **Journal of Virology**, 86, 9794-801.
5. **Kumar N**, Liang Y, Parslow TG and Liang Y. (2011). Tyrosine kinase inhibitors block multiple steps of influenza A virus replication. **Journal of Virology**, 85, 2818-27.
6. Sharma S, Sundararajan A, Suryawanshi A, **Kumar N**, Tamara VP Kuchroo VK, Thomas PG, Sangster MY and Rouse BT. Tim-3/Galectin-9 interaction regulates influenza A virus specific humoral and CD8 T cell responses. **Proc. Natl. Acad. Sc., USA**, 108, 19001-19006.
7. **Kumar N**, Liang Y, Parslow TG and Liang Y. (2011). Tyrosine kinase inhibitors as novel anti-influenza compounds and with broad spectrum antiviral activities. **Antimicrobial agents and chemotherapy**. (doi:10.1128/AAC.00725-11).
8. Xin Z, Carrol K, **Kumar N**, Song K and Ly H. (2011). Transcriptional activation of TIN2, a gene encoding the telomerase-associated protein by SP1 and NF- κ B. **PLOS one**, 6(6): e221333. doi:10.1371/journal.pone.0021333.
9. Sharma S, Mulick S, **Kumar N**, Suryavanshi A and Ruse B. (2011). An Anti-inflammatory role of VEGFR2/Src kinase inhibitor in HSV-1 induced immunopathology, **Journal of Virology**, 85, 5995-6007.
10. Lan S, McLay L, Wang J, **Kumar N**, Ly H, and Liang Y. (2009). Development of infectious clones for virulent and avirulent Pichinde viruses – a model virus to study arenavirus-induced hemorrhagic fevers. **Journal of Virology**, 83, 6357-6352.
11. **Kumar N**, Zin Z, Liang Y, Ly H and Liang Y. (2008). NF- κ B signaling differentially regulates influenza viral RNA synthesis. **Journal of Virology**. 82:9880-9889.
12. Brehm KE, **Kumar N**, Thulke, HH and Haas B. (2008). Protection against heterologous challenge with foot and mouth disease by high potency emergency vaccines. **Vaccine**, 26, 1681-1687.
13. **Kumar N**, Sharma R and Kakker NK. (2007). Non-structural protein 3A for differentiation of foot-and-mouth disease infected and vaccinated animals in a Haryana (India). **Journal of Veterinary Medicine B. (now Zoonoses and Public Health)**, 54, 376-382.

Books:

1. Naveen Kumar (2012). Persistence of foot-and-mouth disease virus in cattle. LAP Lambert Academic Publishing, AV Akademikerverlag GmbH & Co. KG, Saarbrücken, Germany, ISBN 978-3-659-22943-5, paperback, 132 Pages.