

**EMPLOYMENT**

Designation	Organization, Place	Years
Scientist – G	National Institute of Animal Biotechnology, Hyderabad, India	30-03-2017 to present
Associate Director	Ella Foundation (Formerly Bharat Biotech Foundation), Hyderabad, India	01-04-2013 to 27-03-2017
Group Leader		30-06-2006 to 31-03-2013
Research Assistant Professor	Dept. of Molecular Microbiology and Immunology, Oregon Health & Science University, Portland, Oregon, USA	04/2004 to 05/2006
Post-doctoral Research Fellow		08/1998 to 03/2004
Graduate Research Associate	Dept. of Veterinary and Biomedical Sciences, University of Nebraska, Lincoln, Nebraska, USA	07/1993 to 07/1998
Graduate Research Assistant		01/1993 to 06/1993

**EDUCATION**

**1993 – 1998** **Ph.D.**, Department of Veterinary and Biomedical Sciences, Medical Sciences Inter-Departmental Area, University of Nebraska Medical Center, Omaha, Nebraska, USA  
Dissertation: Bovine cytotoxic T lymphocyte response to bovine herpesvirus 1

**1990 – 1992** **M.V.Sc.**, Department of Veterinary Microbiology and Public Health, Veterinary College, University of Agricultural Sciences, Bangalore, India.  
Thesis: Hemagglutination by *peste des petits ruminants* virus (PPRV), characterization of hemagglutinin protein and seroconversion in experimental sheep and goats

**1984 – 1989** **B.V.Sc.**, Veterinary College, University of Agricultural Sciences, Bangalore, India

**RELEVANT RESEARCH EXPERIENCE**

- Epidemiology and genetic characterization – bluetongue virus, mastitis-associated staphylococci
- Vaccines – bluetongue, poultry salmonellosis, staphylococcal mastitis, human influenza, Ebola, hantavirus disease
- Diagnostics – adventitious agents, virus/cell identity, genetic testing and health monitoring of laboratory animals, hemagglutination by *peste des petits ruminant* virus
- Host-pathogen interaction – virus entry and movement, immune evasion
- Basic biology – bovine major histocompatibility complex

**PUBLICATIONS** (\* = corresponding author)**Original Articles**

1. YV Reddy, B Susmitha, YN Reddy, D Sreenivasulu, K Putty, KSR Siva Sai, PP Rao\*, **NR Hegde**. 2018. Evidence of shared genomic segment 6 between bluetongue virus serotypes 1 and 2. *Indian Journal of Veterinary and Animal Sciences Research*, in press.
2. S Sundareshan\*, S Isloor, Y Hari Babu, R Sunagar, J Gogoi-Tiwari, C Babra-Waryah, TK Mukkur, **NR Hegde**. 2018. Isolation and molecular characterization of rare coagulase-negative *Staphylococcus aureus* variants isolated from bovine milk samples. *Indian Journal of Comparative Immunology Microbiology and Infectious Diseases*, in press.
3. M Uma, SR Hegde, PP Rao, K Nagalekshmi, S Gauthami, D Kumar, **NR Hegde\***. 2018. A novel point mutation (L70P) inactivates poliovirus 3C protease. *Acta Virologica* 62:68-77.
4. YV Reddy, B Susmitha, S Patil, Y Krishnajyothi, K Putty, KV Ramakrishna, Sunitha, Vimala, Kavitha, Deepthi, KSR Siva Sai, YN Reddy, GH Reddy, KP Singh, NS Maan, D Hemadri, S Maan, PP Mertens, **NR Hegde**, PP Rao\*. 2018. Isolation and evolutionary analysis of Australasian topotype of bluetongue virus serotype 4 from India, *Transboundary and Emerging*

- Diseases*, in press, E-pub ahead of print, 9 Nov 2017, doi: 10.1111/tbed.12738.
5. K Nithin Prabhu, S Isloor\*, BH Veeresh, D Rathnamma, R Sharada, LJ Das, ML Satyanarayana, **NR Hegde**, SA Rahman. **2018**. Application and comparative evaluation of fluorescent antibody, immunohistochemistry and reverse transcription polymerase chain reaction tests for the detection of rabies virus antigen or nucleic acid in brain samples of animals suspected of rabies in India. *Veterinary Sciences* **5:24** (electronic only).
  6. D Hemadri\*, S Maan, MM Chanda, PP Rao, K Putty, Y Krishnajyothi, GH Reddy, V Kumar, K Batra, YV Reddy, NS Maan, YN Reddy, KP Singh, SB Shivachandra, **NR Hegde**, H Rahman, PPC Mertens. **2017**. Dual infection with bluetongue virus serotypes and first time isolation of serotype 5 in India. *Transboundary and Emerging Diseases* **64(6):1912-7**.
  7. S Gauthami, D Kumar, KSR Siva Sai, **NR Hegde\***. **2017**. The use of BirA-BAP system to study the effect of human cytomegalovirus US2 and US11 on MHC class I heavy chain in cells, *Immunology Letters* **190:233-9**.
  8. J Gogoi-Tiwari, V Williams, CB Waryah, P Costantino, H Al-Salami, S Mathavan, K Wells, HK Tiwari, **N Hegde**, S Isloor, H Al-Sallami, T Mukkur\*. **2017**. Mammary gland pathology subsequent to acute infection with strong versus weak biofilm forming *Staphylococcus aureus* bovine mastitis isolates: a pilot study using non-invasive mouse mastitis model. *PLoS ONE* **12(1):e0170668**.
  9. M Uma, PP Rao, **NR Hegde\***. **2016**. Expression and purification of polioviral proteins in *E. coli*, and production of antisera as reagents for immunological assays. *Protein Expression and Purification* **128:115-22**.
  10. M Uma, S Mallavarapu, N Kartika, PP Rao, **NR Hegde\***. **2016**. Parameters of controlled expression of potentially toxic recombinant proteins in *E. coli* with picornaviral 3ABC as a model. *Indian Journal of Comparative Microbiology Immunology and Infectious Diseases* **37(1):9-15**.
  11. YV Reddy, Y Krishnajyothi, B Susmitha, BV Devi, Y Brundavanam, SR Gollapalli, N Karunasri, B Sonali, K Kavitha, SR Patil, G Sunitha, K Putty, GH Reddy, YN Reddy, **NR Hegde**, PP Rao\*. **2016**. Molecular typing of bluetongue viruses isolated over a decade in South India. *Transboundary and Emerging Diseases* **63(5):e412-8**.
  12. Y Krishnajyothi, S Maan, K Kandimalla, NS Maan, RB Tutika, YV Reddy, A Kumar, N Mrunalini, GH Reddy, K Putty, SM Ahmed, YN Reddy, D Hemadri, KP Singh, PPC Mertens, **NR Hegde**, PP Rao\*. **2016**. Isolation of bluetongue virus 24 from India – an exotic serotype to Australasia. *Transboundary and Emerging Diseases* **63(4):360-4**.
  13. PL Preethirani, S Isloor, S Sundareshan, V Nuthanalakshmi, K Deepthikiran, AY Sinha, D Rathnamma, K Nithin Prabhu, R Sharada, TK Mukkur, **NR Hegde\***. **2015**. Isolation, biochemical and molecular identification, and in-vitro antimicrobial resistance patterns of bacteria isolated from bubaline subclinical mastitis in South India. *PLoS ONE* **10(11):e0142717**.
  14. KM Chandrashekhar, S Isloor, BH Veeresh, R Hegde, D Rathnamma, S Murag, BM Veeregowda, HA Upendra, **NR Hegde\***. **2015**. Limit of detection of genomic DNA by conventional PCR for estimating the load of *Staphylococcus aureus* and *Escherichia coli* associated with bovine mastitis. *Folia Microbiologica (Praha)* **60(6):465-72**.
  15. PP Rao, YV Reddy, **NR Hegde\***. **2015**. Isolation and complete genome sequencing of bluetongue virus serotype 12 from India. *Transboundary and Emerging Diseases* **62(5):e52-9**.
  16. A Singh, M Mitra, G Sampath, P Venugopal, JV Rao, B Krishnamurthy, MK Gupta, SS Krishna, B Sudhakar, NB Rao, Y Kaushik, K Gopinathan, **NR Hegde\***, MM Gore, VK Mohan, KM Ella. **2015**. A Japanese encephalitis vaccine from India induces durable and cross-protective immunity against temporally and spatially wide-ranging global field strains. *Journal of Infectious Diseases* **212(5):715-25**.
  17. J Gogoi-Tiwari, CB Waryah, R Sunagar, HB Veeresh, V Nuthanalakshmi, PL Preethirani, R Sharada, A Bhat, S Isloor, H Al-Salami, **NR Hegde**, TK Mukkur\*. **2015**. Typing of *Staphylococcus aureus* isolated from bovine mastitis cases in Australia and India. *Australian Veterinary Journal* **3(8):278-82**.
  18. S Manjunath, PG Kulkarni, K Nagavelu, RJ Samuel, S Srinivasan, N Ramasamy, **NR Hegde\***, RS Gudde\*. **2015**. Sero-prevalence of rodent pathogens in India. *PLoS ONE* **10(7):e0131706**.
  19. S Gauthami, K Meena, M Uma, YV Reddy, D Kumar, PP Rao\*, **NR Hegde**. **2015**. MPGIT: a

- concentrated monophasic phenol guanidinium isothiocyanate reagent for isolation of viral RNA. *Indian Journal of Biotechnology* 14(3):376-81.
20. S Maan\*, NS Maan, M Belaganahalli, PP Rao, KP Singh, D Hemadri, K Putty, A Kumar, K Batra, Y Krishnajyothi, BS Chandel, GH Reddy, K Nomikou, YN Reddy, H Attoui, **NR Hegde**, PP Mertens. 2015. Full genome sequencing as a basis for molecular epidemiology of bluetongue virus in India. *PLoS ONE* 10(6):e0131257.
  21. J Gogoi-Tiwari, CB Waryah, KY Eto, M Tau, K Wells, P Costantino, HK Tiwari, S Isloor, **N Hegde**, TK Mukkur\*. 2015. Relative distribution of virulence-associated factors among Australian bovine *Staphylococcus aureus* isolates: potential relevance to development of an effective bovine mastitis vaccine. *Virulence* 6(5):419-23.
  22. S Maan, NS Maan, M Belaganahalli, A Kumar, K Batra, PP Rao, D Hemadri, YN Reddy, K Putty, Y Krishnajyothi, GH Reddy, KP Singh, **NR Hegde**, K Nomikou, D Sreenivasulu, PP Mertens\*. 2015. Genome sequence of bluetongue virus type 2 from India: evidence for reassortment between outer capsid protein genes. *Genome Announcements* 3(2):e00045-15.
  23. S Sundareshan, S Isloor\*, Y Hari Babu, B Awati, R Hegde, R Sunagar, CB Waryah, J Gogoi-Tiwari, TK Mukkur, **NR Hegde**. 2014. A comparative evaluation of four detection tests and the isolation of coagulase-negative staphylococci from subclinical mastitis cases in South Indian cattle. *Indian Journal of Comparative Microbiology Immunology and Infectious Diseases* 35(2):73-8.
  24. CB Waryah, J Gogoi-Tiwari, K Wells, P Costantino, H Al-Salami, R Sunagar, S Isloor, **N Hegde**, P Richmond, T Mukkur\*. 2014. Serological versus molecular typing of surface-associated immune evading polysaccharide antigen-based phenotypes of *Staphylococcus aureus*. *Journal of Medical Microbiology* 63(11):1427-31.
  25. C Babra, J Gogoi-Tiwari, P Costantino, R Sunagar, S Isloor, **N Hegde**, T Mukkur\*. 2014. Human methicillin-sensitive *Staphylococcus aureus* biofilms: potential associations with antibiotic resistance persistence and surface polysaccharide antigens. *Journal of Basic Microbiology* 54(7):721-8.
  26. SB Rao, V Gupta, M Kumar, **NR Hegde**, GA Splitter, P Reddanna, GK Radhakrishnan\*. 2014. Draft genome sequence of the field isolate *Brucella melitensis* strain Bm IND1 from India. *Genome Announcements* 2(3): e00497-14.
  27. VH Basavaraj, G Sampath, **NR Hegde\***, VK Mohan, KM Ella. 2014. Evaluation of safety and immunogenicity of HNVAC, an MDCK-based H1N1 pandemic influenza vaccine, in Phase I single centre and Phase II/III multi-centre, double-blind, randomized, placebo-controlled, parallel assignment studies. *Vaccine* 32(35):4592-4597.
  28. **NR Hegde\***, D Kumar, PP Rao, PK Kumari, Y Kaushik, R Ravikrishnan, SD Prasad, KM Ella. 2014. Development and preclinical testing of HNVAC, a cell culture-based H1N1 pandemic influenza vaccine from India. *Vaccine* 32(29):3636-43.
  29. V Sairaju, B Susmitha, PP Rao\*, **NR Hegde**, K Meena, YN Reddy. 2013. Type-specific seroprevalence of bluetongue in Andhra Pradesh, India, during 2005-2009. *Indian Journal of Virology* 24(3):394-97.
  30. AK Santhosh, AR Gomes, R Hegde, D Rathnamma, BM Veeregowda, SM Byregowda, C Renukaprasad, V Bhanuprakash, K Prabhudas, **NR Hegde\***, S Isloor. 2013. Comparative immunogenicity of two peste des petits ruminants (PPR) vaccines in South Indian sheep and goats under field conditions. *Indian Journal of Virology* 24(3):373-9.
  31. C Babra, J Gogoi-Tiwari, G Pier, TH Thein, R Sunagar, S Sundareshan, S Isloor, **NR Hegde**, S de Wet, M Deighton, J Gibson, P Costantino, J Wetherall, T Mukkur\*. 2013. The persistence of biofilm-associated antibiotic resistance of *Staphylococcus aureus* isolated from clinical bovine mastitis cases in Australia. *Folia Microbiologica* 58(6):469-74.
  32. PP Rao, YN Reddy, K Ganesh, SG Nair, V Niranjana, **NR Hegde\***. 2013. Deep sequencing as a method of typing bluetongue virus isolates. *Journal of Virological Methods* 193(2):314-19.
  33. R Hegde, S Isloor, K Nithin Prabhu, BR Shome, D Rathnamma, VVS Suryanarayana, S Yathiraj, CR Prasad, N Krishnaveni, S Sundareshan, DS Akhila, AR Gomes, **NR Hegde\***. 2013. Incidence of subclinical mastitis and prevalence of major mastitis pathogens in organized farms and unorganized sectors. *Indian Journal of Microbiology* 53(3):315-20.
  34. R Sunagar, SN Deore, PV Deshpande, A Rizwan, AD Sannejal, S Sundareshan, DB Rawool, SB

- Barbuddhe, MK Jhala, AS Bannalikal, DM Mugalikal, VJ Kumari, K Dhanalakshmi, YN Reddy, PP Rao, C Babra, JG Tiwari, TK Mukkur, P Costantino, JD Wetherall, S Isloor, **NR Hegde\***. **2013**. Differentiation of *Staphylo-coccus aureus* and *Staphylococcus epidermidis* by PCR for the fibrinogen binding protein gene (*fib*). *Journal of Dairy Science* **96(5):2857-65**.
35. S Sundareshan\*, Y Hari Babu, S Isloor, B Awati, **NR Hegde**. **2012**. Isolation and phenotype-based speciation of coagulase-negative staphylococci (CoNS) isolated from bovine milk samples. *Frontier Journal of Veterinary and Animal Science* **1(1):34-9**.
36. PP Rao, YN Reddy, **NR Hegde\***. **2012**. Complete genome sequence of bluetongue virus serotype 9: implications for serotyping. *Journal of Virology* **86(15):8333**.
37. B Susmitha, D Sudheer, PP Rao\*, M Uma, G Prasad, P Minakshi, **NR Hegde**, YN Reddy. **2012**. Evidence of bluetongue virus serotype 21 (BTV-21) divergence. *Virus Genes* **44(3):466-9**.
38. PP Rao, YV Reddy, K Meena, B Susmitha, N Karunasree, M Uma, PUVS Prasad, P Chaitanya, YN Reddy, **NR Hegde\***. **2012**. Genetic characterization of bluetongue virus serotype 9 isolates from India, *Virus Genes* **44(2):286-94**.
39. SRK Gollapalli, S Mallavarapu, M Uma, PP Rao\*, B Susmitha, PUVS Prasad, P Chaitanya, G Prasad, **NR Hegde**, YN Reddy. **2012**. Sequences of genes encoding type-specific and group-specific antigens of Indian isolates of bluetongue virus serotype 10 (BTV-10) and implications for their origin. *Transboundary and Emerging Diseases* **59(2):165-72**.
40. D Kumar, NM Beach, X-J Meng, **NR Hegde\***. **2012**. Use of PCR-based assays for the detection of the adventitious agent porcine circovirus type 1 in vaccines, and for confirming the identity of cell substrates and viruses used in vaccine production. *Journal of Virological Methods* **179(1):201-11**.
41. D Safronetz, **NR Hegde**, H Ebihara, M Denton, GP Kobinger, S St Jeor, H Feldmann\*, DC Johnson\*. **2009**. Adenovirus vectors expressing hantavirus proteins produce sterile immunity and protect hamsters against lethal challenge with Andes virus. *Journal of Virology* **83(14):7285-95**.
42. **NR Hegde**, MS Chevalier, TW Wisner, MC Denton, K Shire, L Frappier, DC Johnson\*. **2006**. The role of BiP in ER-associated degradation of major histo-compatibility complex class I heavy chain induced by cytomegalovirus proteins. *Journal of Biological Chemistry* **281:20910-19**.
43. **NR Hegde**, C Dunn, DM Lewinsohn, MA Jarvis, JA Nelson, DC Johnson\*. **2005**. Endogenous human cytomegalovirus gB is efficiently presented by MHC class II molecules to CD4+ CTL. *Journal of Experimental Medicine* **202(8):1109-19**.
44. **NR Hegde**, DC Johnson\*. **2003**. Human cytomegalovirus US2 causes similar effects on both major histocompatibility complex class I and II proteins in epithelial and glial cells. *Journal of Virology* **77(17):9287-94**.
45. **NR Hegde**, RA Tomazin, TW Wisner, C Dunn, J Boname, DM Lewinsohn, DC Johnson\*. **2002**. Inhibition of assembly, transport and loading of HLA-DR by human cytomegalovirus glycoprotein US3: a novel mechanism for evading MHC class II antigen presentation. *Journal of Virology* **76(21):10929-41**.
46. MS Deshpande, TC Ambagala, **NR Hegde**, M Navaratnam, MJ Hariharan, S Srikumaran\*. **2002**. Induction of cytotoxic T lymphocyte and antibody responses to bovine herpesvirus-1 by DNA immunization. *Vaccine* **20(31-32):3744-51**.
47. MT Huber, TW Wisner, KA Goldsmith, **NR Hegde**, KA Goldsmith, D Rauch, RJ Roller, C Krummenacher, RJ Eisenberg, GH Cohen, DC Johnson\*. **2000**. Herpes simplex virus with highly reduced gD levels can efficiently enter and spread between human keratinocytes. *Journal of Virology* **75(21):10309-18**.
48. R Tomazin, J Boname, **NR Hegde**, DM Lewinsohn, Y Altschuler, TR Jones, P Cresswell, JA Nelson, SR Riddell, DC Johnson\*. **1999**. Cytomegalovirus US2 destroys two components of the MHC class II pathway, preventing recognition by CD4+ T cells. *Nature Medicine* **5(9):1039-43**.
49. **NR Hegde**, MS Deshpande, DL Godson, LA Babiuk, S Srikumaran\*. **1999**. Bovine lymphocyte antigen A11-specific peptide motif as a means to identify bovine cytotoxic T lymphocyte epitopes of bovine herpesvirus 1. *Viral Immunology* **12(2):149-61**.
50. S Zatechka, Jr., **NR Hegde**, K Hariharan, S Srikumaran\*. **1999**. Identification of murine cytotoxic T lymphocyte epitopes of bovine herpesvirus 1. *Vaccine* **17(7-8):686-94**.
51. **NR Hegde**, HA Lewin, MJ Duggan, JR Stabel, S Srikumaran\*. **1998**. Development of a syngeneic bovine fibroblast cell line: Implications for the generation of the study of bovine

- cytotoxic T lymphocytes. *Viral Immunology* 11(1):37-48.
52. **NR Hegde**, S Srikumaran\*. 1997. The use of bovine MHC class I allele-specific peptide motifs and proteolytic cleavage specificities to predict potential cytotoxic T lymphocyte epitopes of bovine viral diarrhea virus. *Virus Genes* 14(2):111-21.
  53. MS Rao\*, **NR Hegde**, Jayashreet CR, Raghavan R. 1997. Investigation into a severe outbreak of ulcerative stomatitis due to *Fusobacterium necrophorum* in a piggery farm. *Indian Journal of Animal Science* 67(1):31-2.
  54. **NR Hegde**, S Srikumaran\*. 1996. Prediction of potential cytotoxic T lymphocyte epitopes of bovine herpesvirus 1 based on allele-specific peptide motifs and proteolytic cleavage specificities. *Virus Genes* 13(2):121-31.
  55. **NR Hegde**, SA Ellis, RM Gaddum, CA Tregaskes, G Sarath, S Srikumaran\*. 1995. Peptide motif of cattle MHC class I antigen, BoLA-A11. *Immunogenetics* 42(4):302-03.

### Reviews

1. **NR Hegde\***, S Gauthami, HM Sampath Kumar, J Bayry. 2018. The use of databases, data mining and immunoinformatics in vaccinology: where are we? *Expert Opinion in Drug Discovery* 13(2):117-130.
2. **NR Hegde\***, MM Gore. 2017. Japanese encephalitis vaccines: immunogenicity, protective efficacy, effectiveness, and impact on the burden of disease. *Human Vaccines and Immunotherapeutics* 13(6):1-18.
3. PP Rao\*, YV Reddy, B Susmitha, Y Krishnajyothi, GH Reddy, K Putty, D Sreenivasulu, **NR Hegde**, YN Reddy. 2016. A decade of BTV research in Andhra Pradesh, a southern state of India. *Veterinaria Italiana* 52(3-4):299-304.
4. R. Sunagar, **NR Hegde\***, GJ Archana, AY Sinha, K Nagamani, S Isloor. 2016. Prevalence and clonotype distribution of methicillin-resistant *Staphylococcus aureus* (MRSA) in India. *Journal of Global Antimicrobial Resistance* 7:46-52.
5. PP Rao\*, **NR Hegde**, YN Reddy, YK Jyothi, YV Reddy, B Susmitha, K Putty, GH Reddy. 2016. Epidemiology of bluetongue in India. *Transboundary and Emerging Diseases* 63(2):e151-64.
6. **NR Hegde\***. 2015. Cell culture-based influenza vaccines: a necessary and indispensable investment for the future. *Human Vaccines and Immunotherapeutics* 11(5):1223-34.
7. S Sundareshan, S Isloor\*, Y Hari Babu, TK Mukkur, **NR Hegde**. 2014. Coagulase-negative staphylococci in mastitis. *Journal of Commonwealth Veterinary Association* 30(1):5-15.
8. **NR Hegde\***, SV Kaveri, J Bayry. 2011. Recent advances in the administration of vaccines for infectious diseases: microneedles as painless delivery devices for mass vaccination. *Drug Discovery Today* 16(23-24):1061-68.
9. **NR Hegde\***. 2011. The saga of the humanized mouse: a giant leap into the galaxy or a small step for humankind? *Journal of Laboratory Animal Science* 1(1):9-23.
10. **NR Hegde\***, PP Rao, J Bayry, SV Kaveri. 2009. Immunotherapy of viral infections, *Immunotherapy* 1(4):691-711.
11. **NR Hegde\***, DN Strelbow. 2008. Understanding the biology of animal viruses and the pathophysiology of animal viral diseases through genomics, proteomics and systems biology. *International Journal of Integrative Biology* 2(1):32-42.
12. **NR Hegde**, M Chevalier, DC Johnson\*. 2003. Viral inhibition of MHC class II antigen presentation. *Trends in Immunology* 24(5):278-85.
13. AS de Groot\*, V Nene, **NR Hegde**, S Srikumaran, J Rayner, W Martin. 2003. T cell epitope identification for bovine vaccines: an epitope mapping method for BoLA-A11. *International Journal of Parasitology* 33(5):641-53.
14. **NR Hegde**, S Srikumaran\*. 2000. Reverse immunogenetic and polyepitopic approaches for the induction of cell-mediated immunity against bovine viral pathogens. *Animal Health Research Reviews* 1(2):103-18.

### Chapters in books, monographs, compendia

1. PP Rao, **NR Hegde\***, KP Singh, K Putty, D Hemadri, NS Maan, YN Reddy, S Maan, PPC Mertens.\* 2016. Bluetongue: aetiology, epidemiology, pathogenesis, diagnosis and control. In

“Emerging and re-emerging infectious diseases of livestock.” Ed. J Bayry, Springer International Publishing AG, Switzerland, Chapter 1, pg. 3-54.

2. DC Johnson\*, **NR Hegde**. 2002. Inhibition of the MHC class II antigen presentation pathway by human cytomegalovirus. In “Viral proteins counteracting host defences,” *Current Topics in Microbiology and Immunology* 269:101-15, Springer-Verlag, Berlin Heidelberg, Germany.

### **Correspondences, Editorials, Opinions, Views**

1. PP Rao, **NR Hegde\***, YN Reddy. 2012. Intercontinental movement of blue-tongue virus and consequences for trade. *Journal of Virology* 86(15): 8341.
2. **NR Hegde**, Maddur MS, SV Kaveri, J Bayry\*. 2009. Reasons to include viruses in the tree of life. *Nature Reviews Microbiology* 7(8):615.
3. **NR Hegde**, MS Mohan, PP Rao, SV Kaveri, J Bayry\*. 2009. Thermostable foot-and-mouth disease virus as a vaccine candidate for endemic countries: a perspective. *Vaccine* 27:2199-201.
4. **NR Hegde**, DC Johnson\*. 2005. A seek and hide game between CD1-restricted T cells and herpesviruses. *Journal of Clinical Investigation* 115(5):1146-9.

### **PATENTS**

1. **NR Hegde**, PP Rao, M Umakantha. Vaccine against foot-and-mouth disease. Provisional Indian Application No. TEMP/E-1/2730/2017/CHE filed 24-01-2017.
2. PP Rao, **NR Hegde**. Bluetongue virus vaccine. PCT/IN2014/000204 filed 28-03-2014; Indian Patent Application No. 1268/CHE/2013 filed 22-03-2013.
3. KM Ella, K Sumathy, JS Pydigummala, **NR Hegde**. A vaccine for Chikungunya virus infection. IN/1583/CHE/2006 (Priority 1<sup>st</sup> September 2006), WO/2008/026225 (Published 6<sup>th</sup> March 2008), PCT/IN2007/000383 (27<sup>th</sup> Feb 2009), US8865184 (Granted 21<sup>st</sup> October 2014).
4. DC Johnson, R Tomazin, J Boname, **NR Hegde**. Inhibition of the MHC class II antigen presentation pathway and presentation to CD4+ cells. WO/2000/0046361, US2000/002740, EP1157102, Published 8<sup>th</sup> October 2000.

### **CONTRIBUTION AT SCIENTIFIC CONFERENCES/MEETINGS (\*presenter)**

#### **Presentations only**

1. Viral haemorrhagic fevers, 19th Asian Regional Meeting of Commonwealth Veterinary Association and International Conference on Control of Zoonotic Diseases - a One Health Initiative, Hassan Veterinary College, India, 2017
2. Priorities and control strategies for animal influenza group of viral zoonoses. XIII Annual Conference of The Indian Association of Veterinary Public Health Specialists & National Symposium on Safety of Foods of Animal Origin for Domestic and Export Markets, Bengaluru, India, 2015
3. Live attenuated vaccines: from blind to rational approaches. Seminar on New Vaccine Development and Immunology of Infectious Diseases, Indo-French Centre for the Promotion of Advanced Research (IFCPAR), Hyderabad, India, 2012
4. Food-borne zoonoses: the need to be nosy about the zoo of microbes. Department of Biotechnology (India) – Biotechnology and Biological Sciences Research Council (BBSRC, UK) Livestock Health and Disease Workshop, New Delhi, India, 2012
5. Vaccine technologies: developments and challenges. 71<sup>st</sup> Congress of the International Pharmaceutical Federation, Hyderabad, India, Hyderabad, India, 2011
6. Manufacturing pandemic flu vaccines in cell culture versus eggs in developing countries: which system provides more promises in the long run? Influenza India Summit, New Delhi, India, 2011
7. The painful wait for painless vaccine delivery: technological advances and mechanistic implications. Andhra Pradesh Science Congress and Annual Convention of Andhra Pradesh Akademi of Sciences, Hyderabad, India, 2010

**Full papers published as part of the proceedings**

1. S Gauthami\*, D Kumar, KSR Siva Sai, **NR Hegde**. A non-radioactive method of protein labelling. International Conference on Biotechnology and Bioengineering Trends. pp. 162-168, **2017**
2. YV Reddy\*, PP Rao, KSR Siva Sai, **NR Hegde**. Growth kinetics of bluetongue virus in insect and mammalian cells. International Conference on Biotechnology and Bioengineering Trends. pp. 157-161, **2017**
3. **NR Hegde\***. Assays to monitor laboratory animal health: an assortment to choose from. National Workshop on Health Monitoring of Laboratory Animals, Bengaluru, India, pp. 2-6, **2012**
4. **NR Hegde\***, PP Rao, J Bayry and SV Kaveri. Immunotherapy of viral infections. National Conference on Biotechnology Perspectives in The New Millennium, Hyderabad, India, pp. 175-195, **2009**
5. SN Singh\* and **NR Hegde**. Application of biotechnology in animal health and production for livestock development. National Symposium on Animal Biotechnology: Biotechnological Intervention for the Enhancement of Livestock Productivity, Bangalore, India, pp. 27-30, **2007**
6. **NR Hegde\***, PP Rao and DN Streblov. Current trends in integrative approaches to understanding viruses, their interaction with hosts and viral pathogenesis. National Seminar on Genome Analysis Perspective in the Post-Genomic Era and its Relevance to Society, Hyderabad, India, pp. 57-64, **2007**

**Poster presented without abstract publication**

1. D Kumar, S Gauthami, U Madala, PP Rao, A Basu, KM Ella, **NR Hegde\***. Adenovirus vectored Ebola vaccine. India-Africa Health Sciences Meet, New Delhi, India, **2016**

**Proceedings Abstracts**

1. S Gauthami\*, D Kumar, PP Rao, **NR Hegde**. The study of accelerated turnover of BAP-tagged MHC class I A2 mediated by US and US11 using the BirA-BAP system. International Conference on Molecular Signalling, University of Hyderabad, Hyderabad, India, **2018**
2. **NR Hegde\***. Viral zoonoses and animal-human interface in One Health, ViroCon-2017, 26<sup>th</sup> Annual National Conference of the Indian Virological Society, Nitte University, Mangaluru, India, **2018**
3. **NR Hegde\***, D Kumar, S Gauthami, M Uma, PP Rao. Vaccine platform technologies with special reference to Ebola hemorrhagic fever. International Conference on Biotechnology and Bioengineering Trends, Jawaharlal Nehru Technological University, Hyderabad, India, **2017**
4. PP Rao\*, **NR Hegde**. Trends in viral genomics and disease diagnosis. Golden Jubilee Memorial National Conference on Molecular Insights in Genetics and Biotechnology – Emerging Trends and Future Prospects, Hyderabad, India, **2017**
5. M Jacquot,\* PP Rao, YV Reddy, **NR Hegde**, R Biek. Contrasting selective patterns across the genome of a segmented vector-borne virus in a reassortment hotspot. Population Genetics Group 50, Cambridge, UK, **2017**
6. AK Santosh\*, D Kumar, S Isloor, R Nandhini, R Sharada, V Balamurugan, D Rathnamma, S Yathiraj, ML Sathyanaraya, **NR Hegde**. Cloning of rabies virus glycoprotein in baculovirus expression system. Association for the Prevention and Control of Rabies in India Conference, Bengaluru, India, **2016**
7. D Kumar, S Gauthami, U Madala, PP Rao, A Basu, KM Ella, **NR Hegde\***. Ebola hemorrhagic fever: biology, vaccines and therapeutics. Symposium on biology and molecular pathogenesis of viruses, Indian Institute of Science, Bengaluru, India, **2016**
8. D Kumar\*, S Gauthami, U Madala, PP Rao, KM Ella, **NR Hegde**. Development of a vaccine candidate for ebolavirus disease. 103<sup>rd</sup> Indian Science Congress, Mysuru, India, **2016**
9. U Madala\*, PP Rao, N Karthika, **NR Hegde**. Generation and mutagenesis of an infectious clone of poliovirus. 103<sup>rd</sup> Indian Science Congress, Mysuru, India, **2016**
10. D Kumar, S Gauthami, U Madala, PP Rao, A Basu, KM Ella, **NR Hegde\***. Development of an Ebola vaccine based on an inducible adenovirus system. 6<sup>th</sup> Vaccine World Summit, Hyderabad, India, **2016**

11. D Kumar\*, S Gauthami, U Madala, PP Rao, KM Ella, **NR Hegde**. An Ebola vaccine candidate based on controlled expression of antigen through the recombinant adenovirus system. 17<sup>th</sup> International Congress on Infectious Diseases (ICID), Hyderabad, India, **2016**
12. KV Pramina\*, S Isloor, BH Veeresh, D Rathnamma, S Yathiraj, M Narayanaswamy, R Sharada, Y Chaitanya, **NR Hegde**. A study on genetic variability of G-L intergenic region sequences of Indian rabies virus strains circulating in animals. 17<sup>th</sup> ICID, Hyderabad, India, **2016**
13. PP Rao\*, V Reddy, **NR Hegde**. Epidemiology of bluetongue virus in Australasia. 17<sup>th</sup> ICID, Hyderabad, India, **2016**
14. S Akula\*, N Kammili, D Kumar, **N Hegde**, PR Anuradha. Serological and virological profile of Dengue fever in southern part of Hyderabad during 2011-2012. National Conference on Emerging and Re-emerging Viral Outbreaks in India – Clinical Challenges and Management, Hyderabad, India, **2015**.
15. S Gauthami\*, D Kumar, **NR Hegde**. Interaction of human cytomegalovirus US2 protein with host major histocompatibility complex (MHC) class II DR $\alpha$  protein. National Conference on Emerging and Re-emerging Viral Outbreaks in India – Clinical Challenges and Management, Hyderabad, India, **2015**.
16. U Madala\*, PP Rao, **NR Hegde**. Generation of infectious clone for poliovirus type – 1. National Conference on Emerging and Re-emerging Viral Outbreaks in India – Clinical Challenges and Management, Hyderabad, India, **2015**.
17. YV Reddy\*, YN Reddy, YK Jyothi, GH Reddy, K Putty, **NR Hegde**, PP Rao. Isolation of bluetongue virus using *Culicoides* cells. National Conference on Emerging and Re-emerging Viral Outbreaks in India – Clinical Challenges and Management, Hyderabad, India, **2015**.
18. YV Reddy, Y Krishnajyothi, GH Reddy, YN Reddy, K Putty, S Maan, NS Maan, D Hemadri, KP Singh, **NR Hegde**, PP Rao.\* Circulation of multiple serotypes of BTV in southern states of India. Double-stranded RNA Virus Symposium, Goa, India, **2015**
19. PP Rao\*, S Maan, YV Reddy, YK Jyothi, YN Reddy, B Susmitha, GH Reddy, K Putty, NS Maan, PPC Mertens, **NR Hegde**. Evolution of a foreign topotype segment bluetongue virus in India. 5<sup>th</sup> International Conference on Bluetongue and Related Orbiviruses, Rome, Italy, **2014**
20. YN Reddy, YK Jyothi, YV Reddy, B Susmitha, GH Reddy, K Putty, D Sreenivasulu, **NR Hegde**, PP Rao\*. A decade of BTV research in Andhra Pradesh, a southern state of India. 5<sup>th</sup> International Conference on Bluetongue and Related Orbiviruses, Rome, Italy, **2014**
21. PP Rao\*, YN Reddy, YN Reddy, K Putty, B Susmitha, S Gollapally, YK Jyothi, GH Reddy, **NR Hegde**. Epidemiological factors influencing incidence and severity of bluetongue in India. International Conference on Host-Pathogen Interactions (ICHPI), Hyderabad, India, **2014**
22. D Kumar\*, S Gauthami, **NR Hegde**. A novel method to study the protein-protein association and protein fate. ICHPI, Hyderabad, India, **2014**
23. M Uma\*, **NR Hegde**, PP Rao. A novel point mutation L70P in 3C protease of picornaviruses inactivates the enzyme. ICHPI, Hyderabad, India, **2014**
24. SR Gollapalli\*, S Mallavarapu, **NR Hegde**, PP Rao, YN Reddy. Possible entry of an exotic bluetongue virus into India. ICHPI, Hyderabad, India, **2014**
25. YV Reddy\*, YK Jyothi, GH Reddy, B Susmitha, K Putty, YN Reddy, **NR Hegde**, PP Rao. RT-PCR typing of bluetongue viruses isolated in Andhra Pradesh over a decade. ICHPI, Hyderabad, India, **2014**
26. R Nandhini\*, M Shrruthi, N Krishnaveni, JS Rosa, S Sandhya, GK Prachet, **NR Hegde**. Seroprevalence of rodent pathogens in India. ICHPI, Hyderabad, India, **2014**
27. D Kumar\*, S Gauthami, **NR Hegde**. Human cytomegalovirus (HCMV) US2 and US3 proteins interact through their luminal domain with the major histocompatibility complex class II (MHC-II) proteins. Indian Immunology Society Continual Medical Education and National Seminar, Vishakhapatnam, India, **2013**
28. PP Rao\*, YN Reddy, YK Jyothi, GH Reddy, **NR Hegde**. Diagnosis and epidemiology of bluetongue in Andhra Pradesh. XXXIII Indian Veterinary Congress and XX Annual Convention of Indian Association for the Advancement of Veterinary Research, Bengaluru, India, **2013**
29. S Gauthami\*, K Meena, M Uma, YV Reddy, D Kumar, PP Rao, **NR Hegde**. MPGIT: a concentrated monophasic phenol-guanidium isothiocyanate reagent for isolation of viral RNA. 100<sup>th</sup> Indian Science Congress, Kolkata, India, **2013**



30. JG Tiwari\*, C Babra, R Sunagar, S Isloor, **NR Hegde**, TK Mukkur. Serological versus molecular capsular typing of *Staphylococcus aureus* isolates from bovine mastitis cases in Australia. 5<sup>th</sup> Congress of European Microbiologists, Leipzig, Germany, **2013**
31. YV Reddy\*, B Yoganand, B Susmitha, GS Krishna, Karunasri, M Sonali, PP Rao, YN Reddy, **NR Hegde**. Standardization of serotype-specific RT-PCR for the Indian isolates of bluetongue virus. XXVI Annual Convention of Indian Association of Veterinary Microbiologists, Immunologists and Specialists in Infectious Diseases (IAVMI), Chennai, India, **2012**
32. PP Rao\*, YN Reddy, **NR Hegde**. Next generation sequencing as a method of genotyping of bluetongue virus. XXVI Annual Convention of IAVMI, Chennai, India, **2012**
33. Sairaju, B Susmitha\*, PP Rao, **NR Hegde**, K Meena, YN Reddy. Type-specific seroprevalence of bluetongue in Andhra Pradesh. XXVI Annual Convention of IAVMI, Chennai, India, **2012**
34. B Susmitha\*, D. Sudheer, PP Rao, **NR Hegde**, YN Reddy. Isolation of BTV-1 and BTV-16 from 2008 bluetongue outbreaks in Andhra Pradesh. XXVI Annual Convention of IAVMI, Chennai, India, **2012**
35. V Nuthanalakshmi\*, VB Hanchinal, S Sundareshan, TK Mukkur, **NR Hegde**, S Isloor. Detection of biofilm production in coagulase-negative Staphylococci isolated from bovine mastitis cases in Karnataka. XXVI Annual Convention of IAVMI, Chennai, India, **2012**
36. VB Hanchinal\*, V Nuthanalakshmi, BM Akshatha, TK Mukkur, **NR Hegde**, S Isloor. Application of multiplex PCR for detection of accessory gene regulator (*agr*) in *Staphylococcus aureus* isolated from bovine mastitis in Karnataka. XXVI Annual Convention of IAVMI, Chennai, India, **2012**
37. BM Akshatha\*, S Sundareshan, VB Hanchinal, V Nuthanalakshmi, D Rathnamma, JG Tiwari, TK Mukkur, **NR Hegde**, S Isloor. Development of duplex PCR for detection of *ClfA* and *IsdA* surface proteins of *Staphylococcus aureus* of bovine mastitis origin. XXVI Annual Convention of IAVMI, Chennai, India, **2012**
38. S Sundareshan\*, YH Babu, S Isloor, B Awati, **NR Hegde**. Detection and molecular characterization of rare coagulase negative variants of *Staphylococcus aureus* in bovine milk samples. XXVI Annual Convention of IAVMI, Chennai, India, **2012**
39. S Sundareshan\*, S Isloor, YH Babu, B Awati, PV Deshpande, S Deore, R Hegde, KN Pradhu, R Sunagar, C Babra, JG Tiwari, TK Mukkur, **NR Hegde**. Development of multiplex PCR for the detection of coagulase negative staphylococci (CoNS) – the emerging mastitis pathogens in bovines in India, and their antimicrobial resistance. XXVI Annual Convention of IAVMI, Chennai, India, **2012**
40. BM Akshatha\*, S Sundareshan, VB Hanchinal, V Nuthanalakshmi, D Rathnamma, BR Shome, BM Veeregowda, HA Upendra, R Sunagar, C Babra, JG Tiwari, TK Mukkur, **NR Hegde**, S Isloor. Biofilm formation and antibiotic resistance in *Staphylococcus aureus* isolates from bovine mastitis. XXVI Annual Convention of IAVMI, Chennai, India, **2012**
41. G Arakere\*, B Chakrakodi, S Prabhakara, S Isloor, **N Hegde**. Comparison of Bengal Bay clone ST772 with bovine *Staphylococcus aureus* isolates from India. 52<sup>nd</sup> Interscience Conference on Antimicrobial Agents and Chemotherapy, San Francisco, USA, **2012**
42. PP Rao\*, GS Krishna, YV Reddy, K Meena, B Susmitha, N Karunasree, B Yoganand, Sairaj, YN Reddy, **NR Hegde**. Diagnosis and serotyping of bluetongue: does one assay fit all? XXVII Annual Conference of the Indian Association of Veterinary Pathologists, Chennai, India, **2011**
43. SN Deore\*, R Sunagar, P Deshpande, A Rizwan, AD Sannejal, S Sundareshan, C Babra, JG Tiwari, P Constantino, DB Rawool, PP Rao, VJ Kumari, K Dhanalakshmi, YN Reddy, MK Jhala, DR Kalorey, SB Barbuddhe, TK Mukkur, SM Isloor, **NR Hegde**. Development of multiplex PCR for the rapid detection of mastitis-associated *Staphylococcus aureus*. XVIII Annual Convention of the Indian Society for Veterinary Immunology and Biotechnology (ISVIB), Sardarkrushinagar, India, **2011**
44. PV Deshpande\*, R Sunagar, S Sundareshan, SN Deore, AK Sannejal, A Rizwan, RV Hegde, K Nithin Prabhu, DB Rawool, VJ Kumari, K Dhanalakshmi, YN Reddy, AS Banalikal, DM Mugalikal, AB Mahadevappa, D Rathnamma, C Babra, JG Tiwari, P Constantino, MK Jhala, SB Barbuddhe, TK Mukkur, **NR Hegde**, S Isloor. Capsular typing of *Staphylococcus aureus* isolates from bovine mastitis cases by triplex PCR. XVIII Annual Convention of ISVIB, Sardarkrushinagar, India, **2011**

45. R Sunagar\*, S Sundareshan, SN Deore, R Apsana, PV Deshpande, S Isloor, **NR Hegde**. Biochemical, antibiogram and molecular characterization of *Staphylococcus aureus* isolates associated with bovine mastitis. XXV Annual Convention of IAVMI, Bengaluru, India, **2011**
46. S Sundareshan\*, R Apsana, PV Deshpande, S Isloor, N Krishnaveni, DS Akhila, R Hegde, M Thyageeswaran, SN Deore, **NR Hegde**, Y Haribabu, D Rathnamma. Isolation and speciation of coagulase negative staphylococci (CoNS) isolated from bovine milk samples. XXV Annual Convention of IAVMI, Bengaluru, India, **2011**
47. S Sundareshan\*, PV Deshpande, R Apsana, S Isloor, R Hegde, N Prabhu, Y Haribabu, B Awati, R Sunagar, **NR Hegde**. In-vitro antimicrobial sensitivity of coagulase negative staphylococci (CoNS) isolated from bovine milk. XXV Annual Convention of IAVMI, Bengaluru, India, **2011**
48. D Kumar\*, **NR Hegde**. Development of an assay for testing quality of a live attenuated vaccine: standardization of polymerase chain reaction for the detection of porcine circovirus contamination. 98<sup>th</sup> Indian Science Congress, Chennai, India, **2011**
49. **NR Hegde\***, D Kumar, G Ravi, PP Rao, K Kumari, Y Kaushik, Chakrapani, K Gopinathan, MS Kumar, R Ravikrishnan, S Prasad, VK Mohan, KM Ella. Development of a platform for cell culture-based influenza vaccine: experience with H1N1 vaccine. 98<sup>th</sup> Indian Science Congress, Chennai, India, **2011**
50. PP Rao\*, **NR Hegde**, YN Reddy. Phylogenetic analysis of bluetongue virus as a potential tool to reveal virus movement. Virocon2010, Tirupati, India, **2010**
51. **NR Hegde\***. Biotechnological applications in Virology. National Conference on Biotechnology Perspectives in the New Millennium, Hyderabad, India, **2009**
52. **NR Hegde\***. Biotechnology in basic and applied virology. Neozion09, Chaitanya Bharathi Institute of Technology, Hyderabad, India, **2009**
53. **NR Hegde**, MS Chevalier, TW Wisner, MC Denton, K Shire, L Frappier, DC Johnson\*. BiP is involved in the ER-associated degradation of MHC molecules mediated by HCMV proteins. 31<sup>st</sup> International Herpesvirus Workshop, Seattle, USA, **2006**
54. **NR Hegde**, C Dunn, M Jarvis, DM Lewinsohn, DC Johnson\*. Inhibition of endogenous antigen presentation to CD4+ cells by human cytomegalovirus immune evasion proteins. 4<sup>th</sup> International Workshop on Antigen Processing and Presentation, Bar Harbor, USA, **2004**
55. **NR Hegde**, C Dunn, T Compton, MA Jarvis, DM Lewinsohn, JA Nelson, DC Johnson\*. Inhibition of endogenous human cytomegalovirus glycoprotein B to CD4+ T cells by US2 and US3. 29<sup>th</sup> International Herpesvirus Workshop, Reno, USA, **2004**
56. **NR Hegde\***, M Chevalier, C Dunn, DC Johnson. HCMV immune evasion proteins inhibit endogenous antigen presentation to CD4+ T cells. 27<sup>th</sup> International Herpesvirus Workshop, Cairns, Australia, **2002**
57. DC Johnson\*, **NR Hegde**, M Chevalier, C Dunn. HCMV US2 and US3 inhibit MHC class II-mediated antigen presentation to CD4+ T cells. Instituto Juan March de Estudios e Investigaciones, Madrid, Spain, **2002**
58. **NR Hegde\***, M Chevalier, R Tomazin, TW Wisner, C Dunn, GM Daniels, D Tortorella, DM Lewinsohn, HL Ploegh, DC Johnson. Inhibition of MHC class II assembly and trafficking by US3: a novel mechanism of evasion of antigen presentation to CD4+ T cells. 26<sup>th</sup> International Herpesvirus Workshop, Regensburg, Germany, **2001**
59. **NR Hegde\***, R Tomazin, DM Lewinsohn, J Boname, P Cresswell, JA Nelson, SR Riddell, DC Johnson. US2-mediated degradation of human MHC molecules involves a cellular intermediate. 25<sup>th</sup> International Herpesvirus Workshop, Portland, USA, **2000**
60. R Tomazin\*, J Boname, **NR Hegde**, DM Lewinsohn, Y Altschuler, TR Jones, P Cresswell, JA Nelson, SR Riddell, DC Johnson. Human cytomegalovirus US2 destroys two components of MHC class II antigen presentation pathway. Keystone Symposium on Cell Biology of Virus Entry, Replication and Pathogenesis, Taos, USA, **2000**
61. R Tomazin\*, J Boname, **NR Hegde**, DM Lewinsohn, Y Altschuler, TR Jones, P Cresswell, JA Nelson, SR Riddell, DC Johnson. Human cytomegalovirus US2 destroys two components of the MHC class II antigen presentation pathway. 24<sup>th</sup> Herpesvirus Workshop, Boston, USA, **1999**
62. **NR Hegde**, MS Deshpande, DL Godson, LA Babiuk, S Srikumaran\*. Identification of bovine CTL epitopes of bovine herpesvirus-1. 5<sup>th</sup> International Veterinary Immunology Symposium, Ludhiana, India, **1998**

63. **NR Hegde\***, JR Stabel, S Srikumaran. Generation of a syngeneic cell line for the study of bovine cytotoxic T lymphocytes. 8<sup>th</sup> University of Nebraska Inter-campus Virology Meeting, Louisville, Nebraska, USA, **1997**
64. **NR Hegde\***, J R Stabel, S Srikumaran. Generation of a syngeneic cell line for the study of bovine cytotoxic T lymphocytes. 78<sup>th</sup> Conference of Research Workers in Animal Diseases, Chicago, USA, **1997**
65. **NR Hegde\***, S Srikumaran. The use of BoLA-A11 allele-specific peptide motif for the prediction of cytotoxic T lymphocyte epitopes of bovine herpesvirus-1. 23<sup>rd</sup> Annual University of Nebraska Medical Center Student Research Forum (UNMC SRF), Omaha, USA, **1996**
66. JJ Luebbe\*, **NR Hegde**, S Srikumaran. Cell tropism of *Pasteurella hemolytica* leukotoxin. 23<sup>rd</sup> Annual UNMC SRF, Omaha, USA, **1996**
67. **NR Hegde\***, S Srikumaran. The use of BoLA-A11 allele-specific peptide motif for the prediction of cytotoxic T lymphocyte epitopes of bovine herpesvirus-1. The 1996 Ethnic Minority Graduate Research Symposium of the University of Nebraska, Lincoln, USA, **1996**
68. **NR Hegde\***, S Srikumaran. The use of BoLA-A11 allele-specific peptide motif for the prediction of cytotoxic T lymphocyte epitopes of bovine herpesvirus-1. 77<sup>th</sup> Conference of Research Workers in Animal Diseases, Chicago, USA, **1996**
69. JJ Luebbe\*, **NR Hegde**, S Srikumaran. Cell tropism of *Pasteurella hemolytica* leukotoxin. 77<sup>th</sup> Conference of Research Workers in Animal Diseases, Chicago, USA, **1996**
70. **NR Hegde\***, S Srikumaran. The use of BoLA-A11 allele-specific peptide motif for the prediction of cytotoxic T lymphocyte epitopes of bovine herpesvirus-1. 21<sup>st</sup> Herpesvirus Workshop, DeKalb, USA, **1996**
71. **NR Hegde\***, S Srikumaran. The use of BoLA-A11 allele-specific peptide motif for the prediction of cytotoxic T lymphocyte epitopes of bovine herpesvirus-1. 10<sup>th</sup> Annual Bovine Herpesvirus Workshop, DeKalb, USA, **1996**
72. **NR Hegde\***, SA Ellis, G Sarath, RM Gaddum, CA Tregaskes, S Srikumaran. 6th Allele-specific peptide motif of a cattle MHC class I antigen, BoLA-A11. University of Nebraska Inter-campus Virology Meeting, Louisville, Nebraska, USA, **1995**
73. **NR Hegde\***, SA Ellis, S Srikumaran. Allele-specific peptide motif of a cattle MHC class I antigen, BoLA-A11. 22<sup>nd</sup> Annual UNMC SRF, Omaha, USA, **1995**
74. **NR Hegde\***, SA Ellis, S Srikumaran. The use of BoLA-A11 allele-specific peptide motif for the prediction of cytotoxic T lymphocyte epitopes of bovine herpesvirus-1. 76<sup>th</sup> Conference of Research Workers in Animal Diseases, Chicago, USA, **1995**
75. **NR Hegde\***, SA Ellis, G Sarath, RM Gaddum, CA Tregaskes, S Srikumaran. Allele-specific peptide motif of a cattle MHC class I antigen, BoLA-A11. 4<sup>th</sup> International Veterinary Immunology Symposium, Davis, USA, **1995**
76. S Ramachandran\*, **NR Hegde**, R Raghavan, MS Subbarao, G Shyam. Hemagglutination by peste des petits ruminant virus. 3<sup>rd</sup> International Sheep Veterinary Conference, Edinburgh, U.K., **1993**

### **OTHER MEETINGS / CONFERENCES / SYMPOSIA / WORKSHOPS ATTENDED**

1. BioAsia2018, Hyderabad, India, **2018**
2. The ethics of authorship, Taylor & Francis, webinar, **2018**
3. Brainstorming session on strategies on doubling farmers' income through agribusiness activities, 11<sup>th</sup> Foundation Day activities of Indian Council of Agricultural Research – National Research Council on Meat, Hyderabad, India, **2018**
4. World Zoonoses Day, Indian Council of Agricultural Research – National Research Council on Meat, Hyderabad, India, **2017**
5. Workshop on Protein Purification and Protein Interactions, Hyderabad, India, **2017**
6. Training Programme for Nominees of the Committee for the Purpose of Control and Supervision of Experiments on Animals, New Delhi, India, **2017**
7. Jackson Laboratory Seminar on Animal Health and Colony Management, Hyderabad, India, **2017**
8. Clinical Trial and Cold Chain Management, Hyderabad, India, **2016**
9. India Bioforum – Virus Safety, Hyderabad, India, **2016**

10. Keystone Symposia on Translational Vaccinology for Global Health, London, U.K., **2016**
11. Research and Development Blueprint: Technical workshop on ideas for potential platforms to support development and production of health technologies for priority infectious diseases with epidemic potential, World Health Organization, Geneva, Switzerland, **2016**
12. Informal Consultation on Regulatory Considerations for Evaluation of Ebola Vaccines Intended for Emergency Use, World Health Organization, Geneva, Switzerland, **2015**
13. One-day Workshop on Bluetongue, Bengaluru, India, **2014**
14. Workshop and Interactive Meet on Diagnosis and Control of Bluetongue and Other Arboviral Diseases, Hyderabad, India, **2014**
15. BioAsia2014, Hyderabad, India, **2014**
16. Multi-stakeholder Consultancy Workshop on Opportunities, Challenges and Strategies in Animal Biotechnology, Agri-Biotech Foundation, Hyderabad, India, **2013**
17. 5<sup>th</sup> Conference on Laboratory Animal Scientists Association, Hyderabad, India, **2013**
18. International Symposium on “Rotavirus vaccines for India – the evidence and the promise,” New Delhi, India, **2013**
19. 5<sup>th</sup> Congress of the Federation of Immunological Societies of Asia Oceania (Translational Immunology in Health and Disease), New Delhi, India, **2012**
20. 2<sup>nd</sup> Molecular Virology Meeting, Bengaluru, India, **2011**
21. Lecture on Good Laboratory Practices, Bharat Biotech International Ltd., Hyderabad, India, **2011**
22. Mini-workshop on Laboratory Animal Health Monitoring, Indian Institute of Science, Bengaluru, India, **2011**
23. Workshop on Translational Research Resources and Platforms for Veterinary Vaccines and Diagnostics, Madras Veterinary College, Chennai, India, **2011**
24. Keystone Symposium on Malnutrition, Gut-Microbial Interactions and Mucosal Immunity to Vaccines, New Delhi, India, **2011**
25. 71<sup>st</sup> Congress of the International Pharmaceutical Federation, Hyderabad, India, **2011**
26. Vaccine World Summit, New Delhi, India, **2011**
27. Dendritic cells and initiation of adaptive immunity, Keystone Symposium, Santa Fe, USA, **2011**
28. Good Manufacturing Practices (GMP) Awareness Week – lectures on Organization for Economic Cooperation and Development (OECD) Principles of Good Laboratory Practice (GLP), Animal Toxicology, and Current GMP, Bharat Biotech International Limited, Hyderabad, India, **2010**
29. International Vaccine Technology Workshop, Hyderabad, India, **2010**
30. BioAsia2010, Hyderabad, India, **2010**
31. Workshop and hands-on training on intracellular cytokine staining, Oregon Health & Science University, Portland, Oregon, USA, **1999**
32. 36<sup>th</sup> Annual Conference of the Indian Immunological Society, Bengaluru, India, **2009**
33. 10<sup>th</sup> Annual Foot-and-Mouth Disease Scientists’ Meet, Shimla, India, **2009**
34. CPCSEA National Conference on Ethical Use of Animals in Research & Education and Dissemination of Norms & Guidelines of CPCSEA, Hyderabad, India, **2009**
35. Workshop on Intellectual Property Rights and Vaccines: Promoting R&D and Production in Developing Countries, World Health Organization and the Developing Country Vaccine Manufacturers’ Network Tokyo, Japan, **2009**
36. Indo-German Workshop on Molecular Epidemiology of Infectious Diseases, Hyderabad, India, **2008**
37. 13<sup>th</sup> Human Genome Meeting: Genomics and the Future of Medicine, Hyderabad, India, **2008**
38. National Institutes of Health Grants Policy and Management Workshop, New Delhi, India, **2008**
39. Workshop on Emerging Bioagents, Haldwani, Uttarakhand, India, **2007**
40. Council for Scientific and Industrial Research-Industry Meet, Hyderabad, India, **2007**
41. Symposium on Vaccinology and Antiviral Therapeutics, Mukteshwar, India, **2007**
42. International Conference on Emerging and Re-emerging Viral Diseases of the Tropics and Sub-tropics, New Delhi, India, **2007**
43. International Workshop on Capacity Building in the Areas of Avian Viral Diseases and Animal Biotechnological Applications, Chennai, India, **2007**
44. 26<sup>th</sup> American Society for Virology Conference, Corvallis, USA, **2007**
45. 7<sup>th</sup> Asia-Pacific Congress of Medical Virology, New Delhi, India, **2006**

46. Indo-US Symposium on Viral Diagnostics, Epidemiology and Pathogenesis, Delhi, India, **2006**

### **AWARDS AND HONORS**

1. **Reference cited in Wikipedia** ([https://en.wikipedia.org/wiki/Kingdom\\_%28biology%29](https://en.wikipedia.org/wiki/Kingdom_%28biology%29)) (Hegde et al. 2009. Reasons to include viruses in the tree of life, *Nature Reviews Microbiology* 7:615)
2. **Chairman, Session on Immune and Inflammation Signalling**, 4<sup>th</sup> International conference on molecular signaling, University of Hyderabad, Hyderabad, India, **2018**
3. **Co-chairman, Session on Academia-Industry Interaction**, Annual Conference of Indian Virological Society (ViroCon 2017), Mangaluru, India, **2017**
4. **Chairman, Technical Session II, Animal Virology Section**, Annual Conference of Indian Virological Society (ViroCon 2017), Mangaluru, India, **2017**
5. **Member, National Advisory Committee, Animal Virology Section**, Viruses to Viromes in Health and Disease, Annual Conference of Indian Virological Society (ViroCon 2017), Mangaluru, India, **2017**
6. **Chairman, Technical Session III, Animal Virology Section**, Diversity and Evolution of Viruses, ViroCon 2016, Annual Conference of Indian Virological Society, Bengaluru, India, **2016**
7. **Member, National Advisory Committee, Animal Virology Section**, Annual Conference of Indian Virological Society (ViroCon 2016), Bengaluru, India, **2016**
8. **All India Radio News Coverage** (Pradesha Samachara, the regional language news bulletin in Karnataka State, India) highlighting the work on Ebola vaccine, **2016** (7<sup>th</sup> January; at the Indian Science Congress)
9. **Newspaper report** (The Hindu) highlighting the work on Ebola vaccine, **2016** (7<sup>th</sup> January; at the Indian Science Congress)
10. **Chairman, Organizing Committee (Veterinary)**, National Conference on Emerging and Re-emerging Viral Outbreaks in India – Clinical Challenges and Management, Hyderabad, India, **2015**
11. **Chairman, Session–1**, National Conference on Emerging and Re-emerging Viral Outbreaks in India – Clinical Challenges and Management, Hyderabad, India, **2015**
12. **Outstanding Reviewer**, Vaccine, **2015**
13. **Contributed** to the development of the World Health Organization’s draft guidelines on the quality, safety and efficacy of Ebola vaccines, **2015**
14. **Resource Person**, Workshop on Writing of Research Projects, Veterinary College – Shivamogga, Karnataka Veterinary Animal and Fisheries Sciences University, India, **2015**
15. **Newspaper reports** (Andhra Jyothi, Business Line, Business Week, Deccan Chronicle, Domain-B, Eenadu, Financial Express, FirstWord Pharma, Hans of India, Hindu Business Line, Indian Express, Live Mint, Metro India, PharmaBiz, Times of India) highlighting the work on Ebola vaccine, **2015** (27<sup>th</sup>, 28<sup>th</sup>, 29<sup>th</sup>, 30<sup>th</sup> April)
16. **Member, Poster and Oral Presentation Judging Committee**, International Conference on Host-Pathogen Interactions (ICHPI), Hyderabad, India, **2014**
17. **Session Chair**, ICHPI, Hyderabad, India, **2014**
18. Highlighted under **Alumni Achievement**, Fall 2013 Quarterly Newsletter, School of Veterinary Medicine and Biomedical Sciences, University of Nebraska-Lincoln, USA, **2013**
19. **Faculty Resource Person**, XVI National Training Programme on Biotechnological Applications in Veterinary Parasitology, Centre for Advanced Faculty Training, Bengaluru, India, **2012**
20. **Co-Chairman**, Round Table Discussion on Fermenter Technology for Vaccine Production (FMD and BT), XXVI Annual Convention of Indian Association of Veterinary Microbiologists, Immunologists and Specialists in Infectious Diseases (IAVMI), Chennai, India, **2012**
21. **Newspaper reports** (Financial Express, The Hindu, Indian Express, Pharma Biz) covering the award of The Bill and Melinda Gates Foundation Grand Challenges Explorations grant, **2012**
22. **Panellist**, Opening Debate “Indian influenza market: here today, gone tomorrow or not?”, Influenza India Summit, New Delhi, India, **2011**
23. **Rapporteur**, Session on “Biotechnology for Animal Health,” XXV Annual Convention of IAVMI, Bengaluru, India, **2011**

24. **Finalist**, Post-doc paper of the year, Alumni Association, Oregon Health & Science University, Portland, Oregon, USA, **2003**
25. **Best poster**, Retreat of the Department of Molecular Microbiology and Immunology, Oregon Health & Science University, Portland, Oregon, USA, **2002**
26. **International Scientist of the Year**, International Biographical Centre, Cambridge, U.K., **2002**
27. Nominated for **Outstanding Doctoral Dissertation**, University of Nebraska-Lincoln, USA, **1999**
28. **Outstanding Doctoral Dissertation** among students receiving doctorate degree between July 1 and December 31, 1998, Department of Veterinary and Biomedical Sciences, and Department of Biological Sciences, University of Nebraska-Lincoln, USA, **1999**
29. Joseph J. Garbarino **Achievement Award for Excellence** in original research relating to animal health or nutrition, Animal Health Institute Foundation, Alexandria, Virginia, USA, **1997**
30. Susan Ann Smith Mills Memorial **Outstanding Graduate Student**, Department of Veterinary and Biomedical Sciences, University of Nebraska-Lincoln, USA, **1996**
31. Widaman Trust **Distinguished Graduate Student**, Agricultural Research Division, University of Nebraska-Lincoln, USA, **1995**
32. American Association of Veterinary Immunologists **Best Student Speaker** (II place), 76<sup>th</sup> Conference of Research Workers in Animal Diseases, Chicago, USA, **1995**
33. **Graduate Research Associate**, Centre for Biotechnology, University of Nebraska-Lincoln, USA, **1993-1996**
34. Dr. Eswaran Memorial **Gold Medal** for highest grade point average during M.V.Sc. studies, **1993**
35. University of Agricultural Sciences Outstanding Merit Student **Gold Medal** for M.V.Sc. studies, **1993**
36. University of Agricultural Sciences **Merit Scholarship** for M.V.Sc. studies, **1989-1991**
37. Graduated with **Distinction** (5<sup>th</sup> out of 120) in B.V.Sc., University of Agricultural Sciences, Bangalore, India, **1989**
38. University of Agricultural Sciences **Merit Scholarship** for undergraduate studies, **1986-87**
39. Qualified for **Indian Council of Agricultural Research Merit Scholarship** for undergraduate studies (opted out), **1984**
40. **Certificate of Merit** for securing Distinction in the Karnataka State Secondary School Leaving Certificate (SSLC) Board Examination, The Inner Wheel Club of Mysore, **1982**
41. **49<sup>th</sup> Rank for State**, Karnataka SSLC Board Examination, **1982**
42. **2<sup>nd</sup> Rank, Mysore District**, Karnataka SSLC Board Examination, **1982**
43. **1<sup>st</sup> Rank for School** (of 98), Sri Ramakrishna Vidyashala, Karnataka SSLC Board Examination, **1982**
44. Government of India **Merit Scholarship**, Higher Secondary and Pre-University Education, **1979-1984**

### **INVITED PRESENTATIONS**

1. ViroCon-2017, 26<sup>th</sup> Annual National Conference of the Indian Virological Society, Nitte University, Mangaluru, India, 2018
2. International conference on biotechnology and bio-engineering trends, Jawaharlal Nehru Technological University, Hyderabad, India, 2017
3. 19<sup>th</sup> Asian regional meeting of Commonwealth Veterinary Association and International Conference on Control of Zoonotic Diseases - a One Health initiative, Hassan, India, 2017
4. Expert Lecture on industrial applications of immunology, Sreenidhi Institute of Science and Technology, Hyderabad, India, 2016
5. Symposium on biology and molecular pathogenesis of viruses, Indian Institute of Science, Bengaluru, India, 2016
6. 6<sup>th</sup> Annual Vaccine World Summit, Hyderabad, India, 2016
7. Workshop on Writing of Research Projects, Veterinary College – Shivamogga, Karnataka Veterinary Animal and Fisheries Sciences University, India, 2015

8. XIII Annual Conference of The Indian Association of Veterinary Public Health Specialists & National Symposium on Safety of Foods of Animal origin for Domestic and Export Markets, Bengaluru, India, 2015
9. Workshop on Diagnosis and Control of Bluetongue and other Arboviral Pathogens, Veterinary Biologicals and Research Institute, Hyderabad, India, 2014
10. Workshop on Health Monitoring of Laboratory Animals, Madras Veterinary College, Chennai, India, 2013
11. Continuing Medical Education Programme, Indian Academy of Pediatricians – Infectious Diseases Chapter, Karnataka, Bengaluru, 2013
12. Zonal Continuing Medical Education Programme for Post-graduate Students, Gandhi Medical College, Hyderabad, India, 2013
13. Refresher Course on Current Research Trends in Biotechnology, Sreenidhi Institute of Science and Technology, Hyderabad, India, 2012
14. XVI National Training Programme on Biotechnological Applications in Veterinary Parasitology, Bengaluru, India, 2012
15. National Workshop on Laboratory Animal Health Monitoring, Indian Institute of Science, Bengaluru, India, 2012
16. Seminar on New Vaccine Development and Immunology of Infectious Diseases, Indo-French Centre for the Promotion of Advanced Research (IFCPAR), Hyderabad, India, 2012
17. Livestock Health and Disease Workshop, Biotechnology and Biological Sciences Research Council (BBSRC, UK) – Department of Biotechnology (DBT) – New Delhi, India, 2012
18. 71<sup>st</sup> Congress of International Pharmaceutical Federation, Hyderabad, India, 2011
19. Department of Biomedical Sciences, Curtin University, Perth, Australia, 2011
20. Mini-workshop on Laboratory Animal Health Monitoring, Indian Institute of Science, Bengaluru, India, 2011
21. Influenza India Summit, New Delhi, India, 2011
22. 98<sup>th</sup> Indian Science Congress, Chennai, India, 2011
23. Andhra Pradesh Science Congress 2010, Hyderabad, India, 2010
24. Immunocon2009: 36<sup>th</sup> Annual Conference of Indian Immunological Society, Bengaluru, India, 2009
25. Veterinary College, Bengaluru, India, 2009
26. NeoZion2009, Chaitanya Bharati Institute of Biotechnology, Hyderabad, India, 2009
27. National Conference on Biotechnology Perspectives in New Millennium, Hyderabad, India, 2009
28. National Seminar on Genome Analysis Perspective in the Post-Genomic Era and its Relevance to Society, Hyderabad, India, 2007
29. Centre for Cellular and Molecular Biology, Hyderabad, India, 2005
30. Bangalore Genei, Bangalore, India, 2005
31. Dept. of Microbiology and Cell Biology, Indian Institute of Science, Bangalore, India, 2005
32. Dept. of Veterinary & Animal Sciences, Univ. of Massachusetts at Amherst, USA, 2005
33. National Institute of Virology, Pune, India, 2004
34. International Centre for Genetic Engineering and Biotechnology, New Delhi, India, 2004
35. National Institute of Immunology, New Delhi, India, 2004
36. National AIDS Research Institute, Pune, India, 2004
37. Dept. of Biological Sciences, Tata Institute of Fundamental Research, Mumbai, India, 2004
38. National Centre for Biological Sciences, Bangalore, India, 2004
39. National Centre for Biological Sciences, Bangalore, India, 2003
40. Centre for Cellular and Molecular Biology, Hyderabad, India, 2003
41. Department of Biochemistry, Indian Institute of Science, Bangalore, India, 2003
42. National Centre for Cell Science, Pune, India, 2003
43. 27<sup>th</sup> International Herpesvirus Workshop, Cairns, Australia, 2002
44. Dept. of Biology & Microbiology, South Dakota State University, Brookings, USA
45. Dept. of Microbiology and Cell Biology, Indian Institute of Science, Bangalore, India, 2002
46. 25<sup>th</sup> International Herpesvirus Workshop, Portland, USA, 2000
47. 78<sup>th</sup> Conference of Research Workers in Animal Diseases, Chicago, USA, 1997
48. 23<sup>rd</sup> University of Nebraska Medical Center Student Research Forum, Omaha, USA, 1996

49. 77<sup>th</sup> Conference of Research Workers in Animal Diseases, Chicago, USA, 1996
50. 10<sup>th</sup> Bovine Herpesvirus Workshop, DeKalb, USA, 1996
51. Dept. of Microbiology and Cell Biology, Indian Institute of Science, Bangalore, India, 1995
52. Indian Veterinary Research Institute, Bangalore, India, 1995
53. 22<sup>nd</sup> University of Nebraska Medical Center Student Research Forum, Omaha, USA, 1995
54. 76<sup>th</sup> Conference of Research Workers in Animal Diseases, Chicago, USA, 1995

### **RESEARCH SUPPORT**

	<b>Abbreviated Title</b>	<b>Scheme and Agency</b>	<b>Duration</b>	<b>Amount</b>
<b>Principal Investigator</b>				
1.	Genomics of mastitis-associated staphylococci	Department of Biotechnology (DBT), Government of India	01/2017 – 12/ 2018	Rs. 34,19,400 (99,48,600 total)
2.	Vaccines for bovine staphylococcal mastitis ( <b>India Coordinator</b> )	Indo-Australia Biotechnology Fund, DBT, India	7/2010 – 3/2014	Rs. 60,18,000 (110,62,000 total)
3.	Adenovirus vectored vaccines for FMD	Rapid Grants for Young Investigators, DBT, India	2/2009 – 1/2012	Rs. 19,78,000
<b>Co-Principal Investigator</b>				
1.	Diagnostics for lab animal health monitoring; Phase-II	DBT, India	01/2017 – 12/2019	Rs. 65,60,400 (1,70,66,200 total)
2.	Diagnostics for health monitoring of lab animals; Phase – I	DBT, India	10/2011 – 3/2015	Rs. 52,56,800 (154,57,600 total)
<b>Co-Investigator</b>				
1.	Epidemiology and diagnostics of animal arboviruses	Indo-UK Initiative on Farmed Animal Disease and Health, DBT, India	4/2014 – 9/2017	Rs. 90,44,400 (5,09,00,000 total)
2.	Genetic vaccines for FMD	Nanotechnology Initiative, DBT, India	11/2014 – 10/2015	Rs. 13, 80,000 (18,00,000 total)
3.	Epidemiology & screening of enteric pathogens (PI at IVRI, Uttar Pradesh, India)	Rapid Grants for Young Investigators, DBT, India	2012 – 2015	None (Rs. 10,21,000 to IVRI)
4.	Reverse genetics system for bluetongue virus	Rapid Grants for Young Investigators, DBT, India	4/2010 – 3/2013	Rs. 29,04,000
5.	Check-mating polio	Grand Challenges Explorations, Gates Foundation, USA	5/2012 – 10/2013	US\$ 100,000 (Rs. 51,00,000)
6.	Subunit vaccine for poultry salmonellosis	Life Science Research Board, Defence Research and Development Organization, India	4/2010 – 9/2012	Rs. 35,00,000 (77,60,000 total)
7.	Non-replicating adeno-viruses as hantavirus vaccines	Exploratory/Developmental Grant (R21), National Institutes of Health, USA	4/2004 – 3/2006	US\$ 400,000

### **TEACHING, TRAINING, ADVISE**

#### **Teaching / training**

- **2017:** Taught “Molecular virology” as part of the course “Infection and Immunity” to Ph.D. students of National Institute of Animal Biotechnology, Hyderabad, India
- **2016, 2013:** Taught “Molecular and genetic aspects of viral pathogenesis” (VMC-707) to Ph.D. students of Veterinary Microbiology and Biotechnology, College of Veterinary Science, Sri P.V.



Narasimha Rao Telangana State Veterinary University (formerly Sri Venkateswara Veterinary University), Hyderabad, India

- **2016:** Delivered a lecture on “Immunobiotechnology and its industrial applications,” Technical Association for Biotechnology, Sreenidhi Institute of Science and Technology, Hyderabad, India
- **2016, 2015, 2014, 2013, 2011, 2009:** Lectured and provided expert opinion on “Basics of immunology and vaccines,” to marketing personnel of Bharat Biotech International Limited, Hyderabad, India
- **2015:** Lectured on “Grantsmanship 101,” Workshop on Writing of Research Projects, Veterinary College, Karnataka Veterinary Animal and Fisheries Sciences University, Shivamogga, India
- **2013:** Lectured on “Vaccines, trends and innovation,” Continuing Medical Education Programme, Infectious Diseases Group, Indian Academy of Pediatricians, Karnataka Chapter, Bengaluru, India
- **2013:** Lectured on “Laboratory diagnosis of viral infections,” and “Innovative strategies in the development of viral vaccines,” and conducted demonstrations on laboratory diagnosis of viral infections, Zonal Continuing Medical Education Programme for Post-graduate Students, Gandhi Medical College, Hyderabad, India
- **2012:** Lectured on “Advances in Vaccinology and Parasitic Vaccines,” Advanced Faculty Training on Biotechnological Applications in Veterinary Parasitology, Karnataka Veterinary Animal and Fisheries Sciences University, Bengaluru, India
- **2012:** Lectured on “Biotechnological approaches in Virology,” in the Refresher Course on Current Research Trends in Biotechnology, Sreenidhi Institute of Science and Technology, Hyderabad, India
- **2010:** Molecular cloning techniques, MVSc-Microbiology, Sri Venkateswara Veterinary University, Hyderabad, India (team taught)
- **2009, 2006:** Taught “Herpesviral encephalitis, latency, reactivation and immune evasion” to MSc-Virology students, National Institute of Virology, Pune, India
- **2008:** Lectured on “Immune evasion by viruses” and “Emerging and Re-emerging viruses” to Post-graduate students, Veterinary College, Bengaluru, India
- **2008:** Taught “Animal Virology” to MSc-Microbiology students, Jawaharlal Nehru Technological University, Hyderabad, India
- **2000 – 2006:** Taught and facilitated discussion on ‘Principles of clinical immunology’ for first-year medical students, as part of “Biological basis of disease” (MSCI 614; team taught; Co-ordinator: Dr. Anthony C. Bakke), Oregon Health & Science University, Portland, USA
  - Taught “Antigen processing and presentation to CD4 and CD8 T cells”
  - Facilitated discussion of clinical cases based on immunological concepts
- **1997:** Taught ‘New concepts on CTL-based vaccines’ in the graduate course “Viral Immunology” (VBMS 949; Dr. S. Srikumaran), Department of Veterinary and Biomedical Sciences, University of Nebraska-Lincoln, Nebraska, USA
- **1994, 1995:** Organized and conducted laboratory demonstrations for the graduate course “Concepts in Experimental Immunology” (Vet. Sci. 948/Micro. 948; Dr. S. Srikumaran), Department of Veterinary and Biomedical Sciences, University of Nebraska-Lincoln, USA

### **Recognized as faculty/advisor**

1. Regional Centre for Biotechnology, Deemed University, New Delhi, India
2. Manipal University, Manipal, Karnataka, India (Virology, Microbiology, Immunology)
3. Jawaharlal Nehru Technological University, Hyderabad, India (Biotechnology)

### **Guidance / Advise**

	<b>Student</b>	<b>Degree</b>	<b>Years</b>	<b>Institution</b>	<b>Thesis/Dissertation Topic</b>
1.	Panduranga Rao P.	Ph.D.	2009 – 15	Jawaharlal Nehru	Genomic characterization and comparative topology of BTV
2.	Deepak Kumar	Ph.D.	2010 – 18	Technological	Development of vaccine for Ebola

				University, Hyderabad	virus disease
3.	Uma Madala	Ph.D.	2010 – 18		Cloning and mutagenesis of an infectious clone of picornavirus
4.	Vishnuvardhan Reddy Y.	Ph.D.	2010 – 18		Molecular epidemiology of bluetongue virus
5.	Gauthami S.	Ph.D.	2010 – 18		Structure-function analyses of HCMV US2-mediated immune evasion

### **Member of the Advisory Committee**

	<b>Student</b>	<b>Degree</b>	<b>Years</b>	<b>Department, Organization</b>	
1.	Shiva Jyothi J.	PhD	2016 –	Department of Microbiology, Sri P.V. Narasimha Rao Telangana Veterinary University, Hyderabad	
2.	Srinivas M.	PhD	2016 –		
3.	Yoganand B.	MVSc	2009 – 11	Department of Microbiology, Sri Venkateswara Veterinary University, Hyderabad	
4.	Sudheer K.	MVSc	2011 – 13		
5.	Sheela Sundareshan	PhD	2016 –	Department of Microbiology	Karnataka Veterinary Animal and Fisheries Sciences University, Bengaluru
6.	Santhoshkumar A.K.	PhD	2015 – 17		
7.	Chandrashekhar K.M.	PhD	2011 – 16		
8.	Pramina K.V.	MVSc	2013 – 15		
9.	Jouhar Sulthana	PhD	2006 – 15	Dept. of Medicine	

### **Recognized or invited for teaching or training**

1. Veterinary College, Shivamogga, Karnataka
2. Gandhi Medical College, Hyderabad
3. Veterinary College, Bengaluru
4. College of Veterinary Science, Hyderabad
5. Jawaharlal Nehru Technological University, Hyderabad
6. National Institute of Virology, Pune

### **MEMBERSHIP IN SCIENTIFIC AND PROFESSIONAL BODIES**

- Indian Virological Society Life Member
- Indian Immunological Society Life Member
- Association of Microbiologists of India Life Member
- Indian Science Congress Association Life Member
- Indian Society for Veterinary Immunology & Biotechnology Life Member
- Laboratory Animal Scientists Association of India Life Member
- American Society for Microbiology 2004 - present
- Karnataka Veterinary Council 1991-96, 2011-present
- American Society for Virology 2007 - 2017
- International Society of Infectious Diseases 2012
- The Edward Jenner Society 2010 - 11
- The Human Genome Organization 2009
- Indian Influenza Society 2007
- American Association for the Advancement of Science 1996-2000, 2009
- American Association of Immunologists 1998 – 2000
- Federation of the American Society of Experimental Biologists 1998-2000
- American Association of Veterinary Immunologists 1995 - 1998

### **SCIENCE SERVICE AND EDUCATION**

- **Associate Editor**, Journal of Laboratory Animal Science, 2011-present

- **Academic Editor**, PLoS ONE, 2014-present
- **Member, Editorial Board**, Clinical and Vaccine Immunology, 2010-2017
- **Reviewer**, Antimicrobial Agents and Chemotherapy, Applied and Environmental Microbiology Archives of Virology, Biologicals, Biologics: Targets and Therapy, BMC Microbiology, BMC Research Notes, BMC Veterinary Research, Clinical and Translational Immunology, Clinical and Vaccine Immunology, Future Microbiology, Human Vaccines and Immunotherapeutics, Infection, Genetics and Evolution, Indian Journal of Comparative Immunology Microbiology and Infectious Diseases, Indian Journal of Virology, Journal of Biosciences, Journal of Clinical Microbiology, Journal of Immunology, Journal of Laboratory Animal Science, Journal of Medical Microbiology, Journal of Medical Virology, Journal of Virological Methods, Journal of Virology, Pharmaceutical Biology, PLoS Neglected Tropical Diseases, PLoS ONE, Research Animal, Transboundary and Emerging Diseases, Vaccine, Veterinary Medicine International, Virologica Sinica, VirusDiseases
- **Member, Poster and Oral Presentation Evaluation Committee**, International Conference on Host-Pathogen Interactions, Hyderabad, India, **2014**
- **Subject Matter Expert (Biotechnology) for Counselling** Indian Institute of Technology and National Institute of Technology aspirants, Choice 2011 (The Hindu Education Plus and The TMI e2E Academy Initiative), Hyderabad, India, **2011**
- **Career counselling in biology and biotechnology** for post-secondary students, Chirec Public School, Hyderabad, India, **2007**
- **Head Judge in Microbiology, High School section**, 23<sup>rd</sup> Annual Intel Northwest Science Expo, Portland State University, Portland, Oregon, USA, **2006**
- **Member of the Scientific Review Committee**, 23<sup>rd</sup> Annual Intel Northwest Science Expo, Portland State University, Portland, Oregon, USA, **2006**
- **Judge**, Rieke Elementary School Science Fair, Portland, Oregon, USA, **2006**
- **Head Judge in Zoology, Middle School section**, 22<sup>nd</sup> Annual Intel Northwest Science Expo, Portland State University, Portland, Oregon, USA, **2005**
- **Member of the Scientific Review Committee**, 22<sup>nd</sup> Annual Intel Northwest Science Expo, Portland State University, Portland, Oregon, USA, **2005**
- **Judge**, Rieke Elementary School Science Fair, Portland, Oregon, USA, **2005**
- **Expert consultant on training high school teachers** to disseminate National Institutes of Health curriculum on emerging and re-emerging infectious diseases, 46<sup>th</sup> Annual Conference of the Oregon Science Teachers Association, Salem, Oregon, USA, **2004**
- **Category co-chair for judges in Microbiology**, 55<sup>th</sup> Annual Intel International Science and Engineering Fair, Portland, Oregon, USA, **2004**
- **Judge, Poster Evaluation**, Retreat of the Department of Molecular Microbiology and Immunology, Oregon Health & Science University, Portland, Oregon, USA, **2003**

## **OTHER ROLES, SERVICES AND RESPONSIBILITIES**

- Responsibilities and services at the National Institute of Animal Biotechnology
  - Head, Academics and Research, 06/2017 – present
  - Faculty representative, Governing Body
  - Chairman and/or Member, various committees
- Services to the Institutional Animal Ethics Committees (IAEC) under the Committee for the Purpose of Control and Supervision of Experiments on Animals (CPCSEA), Animal Welfare Division, Ministry of Environment, Forest and Climate Change, Government of India
  - Chairman, IAEC, National Institute of Animal Biotechnology, 2018-present
  - Main Nominee, Link Nominee, or External Scientist Member at IAECs
  - Animal House Inspections
- Services to the Institutional Bio-safety Committee (IBSC)
  - DBT Nominee, Tata Institute of Fundamental Research, Hyderabad, 2018-present
  - Chairman, Ella Foundation, 2009-03/2017

- Member, various organizations
- Other Services
  - Member, Board of Studies in Biotechnology, Sreenidhi Institute of Science and Technology, Hyderabad, India, 2010-2013; 2013-2016; 2017-2020
  - Member, Board of Studies in Biotechnology, Jawaharlal Nehru Technological University, Hyderabad, India, 2009-2012; 2012-2015; 2015-2018
  - Member, Departmental Committee, Department of Biotechnology, School of Life Sciences, University of Hyderabad, India, 2012-2013; 2017-2018
  - Member, Scientific Committee, and Equipment Committee, Virology Research and Diagnostics Laboratory, Gandhi Medical College, Hyderabad, India, 2016-present
  - External Examiner, Department of Biotechnology, Shri P. V. Narasimha Rao Telangana Veterinary University, Hyderabad, India, 2017
  - Convenor, Advisory Team, Internal Global Action Plan III as part of Global Polio Eradication Initiative, Bharat Biotech International Limited, Hyderabad, India, 2016
  - Member, Research Review Committee, Department of Biotechnology, Jawaharlal Nehru Technological University, Hyderabad, India, 2012-2015
  - Member, Scientific Advisory Committee, and other ad-hoc committees, National Institute of Animal Biotechnology, Hyderabad, India, 2011-2014
  - Member, Institute Management Committee, National Research Council on Meat, Indian Council for Agricultural Research, Hyderabad, India, 2008-2010
  - Ad-hoc Member, Panel of Examiners, Department of Biotechnology, Jawaharlal Nehru Technological University, Hyderabad, India

## **DATABASE SUBMISSIONS**

### **Complete genomes**

Sl. No.	Database	Acc./ID No.	Organism
<b>Primary submissions – viral genomes</b>			
1	GenBank	JF443158 – 67	BTV-9 (BBF)
2	GenBank	JX003687 – 96	BTV-9 (Ind-R1-2007)
3	GenBank	JX399148 – 57	BTV-1 (K23/08)
4	GenBank	KC662612 – 21	BTV-12 (NMO1/11)
5	GenBank	Submitted	BTV-9 (M10/2003)
6	GenBank	Submitted	BTV-9 (M11/2003)
7	GenBank	Submitted	BTV-21 (KMN07/05)
8	GenBank	Submitted	BTV-1 (KRN7/2010)
9	GenBank	Submitted	BTV-1 (VC012/2010)
10	GenBank	Submitted	BTV-2 (KRN8/2010)
11	GenBank	Submitted	BTV-16 (VC07/2010)
12	GenBank	Submitted	BTV-16 (AP04/2010)
13	GenBank	Submitted	BTV-16 (AP06/2010)
14	GenBank	Submitted	BTV-16 (NR82/2011)
15	GenBank	KP696507 – 15	BTV-1/IND1985/01
16	GenBank	KP696552 – 61	BTV-1/IND2003/04
17	GenBank	KP696562 – 71	BTV-1/IND2003/05
18	GenBank	KP696572 – 81	BTV-1/IND2003/10

Sl. No.	Database	Acc./ID No.	Organism
19	GenBank	KP696582 – 91	BTV-2/IND1993/01
20	GenBank	KP696592 – 601	BTV-2/IND2003/01
21	GenBank	KP696602 – 11	BTV-2/IND2003/03
22	GenBank	KP696612 – 21	BTV-9/IND2004/02
23	GenBank	KP696622 – 31	BTV-9/IND2004/04
24	GenBank	KP696641 – 50	BTV-9/IND2005/02
25	GenBank	KP696651 – 60	BTV-9/IND2005/03
26	GenBank	KP696670 – 79	BTV-23/IND2004/07
27	GenBank	KP696680 – 89	BTV-23/IND2004/08
28	GenBank	KP696690 – 99	BTV-23/IND2004/09
<b>Secondary submissions (from collaborators) – bacterial genomes</b>			
1	GenBank	NZ_JMKL01000001 – 102	<i>Brucella melitensis</i> strain Bm IND1

### **Genes or fragments thereof**

Sl. No.	Database	Acc./ID No.	Organism	Gene(s)
<b>Primary submissions – viral genes / fragments</b>				
1	GenBank	JF443155	BTV-9 (K8)	<i>VP2</i>
2	GenBank	JF443156	BTV-9 (MBN)	<i>VP2</i>
3	GenBank	JF443157	BTV-9 (W20)	<i>VP2</i>
4, 5	GenBank	JF443168 & 9	BTV-9 (K8)	<i>NS1, VP7</i>
6	GenBank	JF727655	BTV-10 (N15)	<i>VP2</i>
7	GenBank	JF747592	BTV-21 (KMN07/05)	<i>NS1</i>
8, 9	GenBank	JF768738 & 9	BTV-21 (KMN07/05)	<i>VP2, VP7</i>
10	GenBank	JF776369	BTV-21 (KMN07/05)	<i>VP7</i>
11, 12	GenBank	JN108882 & 3	BTV-10 (N15)	<i>NS2, VP6</i>
<b>Secondary submissions (from collaborators) – viral genes / fragments</b>				
1-9	GenBank	KP696517 – 25	BTV-1/IND1988/01	<i>VP1, VP3, VP4, VP5, VP6/NS4, VP7, NS1, NS2, NS3</i>
10-17	GenBank	KP696526 – 34	BTV-1/IND1992/02	<i>VP1, VP4, VP5, VP6/NS4, VP7, NS1, NS2, NS3</i>
18-25	GenBank	KP696535 – 43	BTV-1/IND1999/01	
26-33	GenBank	KP696544 – 51	BTV-1/IND2001/01	
34-42	GenBank	KP696632 – 40	BTV-9/IND2005/01	<i>VP1, VP3, VP4, VP5, VP6/NS4, VP7, NS1, NS2, NS3</i>
43-51	GenBank	KP696661 – 69	BTV-23/IND1997/01	
<b>Secondary submissions (from collaborators) – bacterial genes / fragments</b>				
1	GenBank	JQ764624.1	<i>Staphylococcus arlettae</i>	<i>gap</i>
2	MLST	ST2453	<i>Staph. aureus</i> 4760	<i>arc, aroE, glpF, gmk, pta, tpi, yqiL</i>
3	GenBank	JX240320	<i>Staph. xylosus</i> (KVAFSU-28/09)	<i>rpoB</i>

Sl. No.	Database	Acc./ID No.	Organism	Gene(s)
4	GenBank	JX240321	<i>Staph. haemolyticus</i> (KVAFSU-29/09)	<i>sodA</i>
5	GenBank	JX240322	<i>Staph. chromogenes</i> (KVAFSU-118/11)	<i>sodA</i>
6	GenBank	JX240323	<i>Staph. epidermidis</i> (KVAFSU-CLM160311)	<i>mecA</i>
7	GenBank	JX240324	<i>Staph. epidermidis</i> (KVAFSU-111/11)	<i>aacA/aphD</i>
8	GenBank	JX240325	<i>Staph. epidermidis</i> (KVAFSU-47/09)	<i>aph3'</i>
9	GenBank	JX240326	<i>Staph. chromogenes</i> (KVAFSU-20/09)	<i>sodA</i>
10	GenBank	JX240327	<i>Staph. chromogenes</i> (KVAFSU-23/09)	<i>sodA</i>
11	GenBank	JX240328	<i>Staph. chromogenes</i> (KVAFSU-31/09)	<i>sodA</i>
12	GenBank	JX240329	<i>Staph. chromogenes</i> (KVAFSU-106A/11)	<i>sodA</i>
13	GenBank	JX240330	<i>Staph. epidermidis</i> (KVAFSU-17/09)	<i>rpoB</i>
14	GenBank	JX240331	<i>Staph. epidermidis</i> (KVAFSU-108/11)	<i>rpoB</i>
15	GenBank	JX240332	<i>Staph. epidermidis</i> (KVAFSU-121/11)	<i>rpoB</i>
16	GenBank	JX240333	<i>Staph. epidermidis</i> (KVAFSU-129/11)	<i>rpoB</i>
17	GenBank	JX240334	<i>Staph. epidermidis</i> (KVAFSU-147/11)	<i>rpoB</i>
18	GenBank	JX240335	<i>Staph. epidermidis</i> (KVAFSU-157/11)	<i>rpoB</i>
19	GenBank	JX240336	<i>Staph. haemolyticus</i> (KVAFSU-75/10)	<i>sodA</i>
20	GenBank	JX240337	<i>Staph. haemolyticus</i> (KVAFSU-102/11)	<i>sodA</i>
21	GenBank	JX240338	<i>Staph. haemolyticus</i> (KVAFSU-119/11)	<i>sodA</i>
22	GenBank	JX240339	<i>Staph. saprophyticus</i> (KVAFSU-15/09)	<i>gap</i>
23	GenBank	JX240340	<i>Staph. saprophyticus</i> (KVAFSU-85/10)	<i>gap</i>
24	GenBank	JX240341	<i>Staph. saprophyticus</i> (KVAFSU-87/10)	<i>gap</i>
25	GenBank	JX240342	<i>Staph. saprophyticus</i> (KVAFSU-90/10)	<i>gap</i>
26	GenBank	JX240343	<i>Staph. sciuri</i> (KVAFSU-02/09)	<i>gap</i>
27	GenBank	JX240344	<i>Staph. sciuri</i> (KVAFSU-52/09)	<i>gap</i>
28	GenBank	JX240345	<i>Staph. xylosus</i> (KVAFSU-57/09)	<i>rpoB</i>
29	GenBank	JX240346	<i>Staph. xylosus</i> (KVAFSU-66/09)	<i>rpoB</i>
30-32	GenBank	JX240347, 52, 55	<i>Staph. aureus</i> (KVAFSU-107/11)	<i>nuc, 16S rRNA, coa</i>
33-36	GenBank	JX240348, 50, 53, 56	<i>Staph. aureus</i> (KVAFSU-109/11)	<i>nuc, fib, 16S rRNA, coa</i>
37-39	GenBank	JX240349, 51, 54	<i>Staph. aureus</i> (KVAFSU-145/11)	<i>nuc, fib, 16S rRNA</i>
40	GenBank	JX298872	<i>Staph. aureus</i> (KVAFSU-133)	<i>icaA</i>
41	GenBank	JX298873	<i>Staph. aureus</i> (KVAFSU-15)	<i>icaA</i>
42, 43	GenBank	JX298874, 75	<i>Staph. aureus</i> (KVAFSU-90)	<i>icaA, isdA</i>
44	GenBank	JX403946	<i>Staph. aureus</i> (KVAFSU-50)	<i>bap</i>