Curriculum vitae

Dr. Gnanavel Venkatesan

Personal profile:

Designation : **Scientist (SS)**
Affiliation : **ICAR-Indian Veterinary Research Institute**
Date of birth : 3rd April, 1980
Place of birth : Kanchipuram [Taluk and Distt.], Tamil Nadu, India
Sex : Male
Nationality : Indian
Marital status : **Married**

Area of expertise and interest: Development of Molecular diagnostics and vaccines in animal virology

Educational career and qualifications

Level/Degree	School/University	Year of passing	Grade point Average/ Percentage	Grade
Doctor of Philosophy (PhD)	Indian Veterinary Research Institute, Deemed University, Izatnagar-243122, Bareilly, U.P., India.	2012	8.841/10.0	First (Highest OGPA)
Master of Veterinary Science (M.V.Sc)	Indian Veterinary Research Institute, Deemed University, Izatnagar-243122, Bareilly, U.P., India.	2006	8.575/10.0	First
Bachelor of Veterinary Science (B.V.Sc.)	Madras Veterinary College, TANUVAS, Chennai-600 007 Tamil Nadu, India.	2003	8.0/10.00	First
Higher Secondary School (HSC)	G.H.S.S., Nayakenpettai, Kanchipuram-631601 Tamil Nadu, India.	1997	91.3/100	First
Secondary School Leaving Certificate (SSLC)	G.H.S.S., Nayakenpettai, Kanchipuram-631601 Tamil Nadu, India.	1995	93.2/100	First

Professional experience

Post	Organization	Period	Nature of work
Scientist	National Academy of Agricultural Research & Management (NAARM), Hyderabad, A.P.	07.01.2008 to 04.05.2008	Foundation course training for four months including 21 days of Field experience training
Scientist	Pox Virus Disease Laboratory, Division of Virology, IVRI, Mukteshwar-263138, Nainital (Distt.), U.A	16.05.2008 to 11.8.2011	(a) Maintenance of PLT, MA109 cells & Vero cells (b) Development of vaccines (Sheep pox, Goat pox, Orf and Camel pox viruses) (c) Development of molecular diagnostics (PCR, Real time PCR, LAMP) (d) Expression of immunogenic genes of pox viruses in heterologous system and potential use of proteins for diagnostics/prophylactic purpose
Scientist In-Charge	Pox Virus Disease Laboratory, Division of Virology, IVRI, Mukteshwar-263138, Nainital (Distt.), U.A	Since 12.08.2011	(a) Molecular characterization of animal pox viruses (b) Development of pen side diagnostics for economically important pox diseases (c) New generation vaccines for pox viruses
Scientist (SS)	Pox Virus Disease Laboratory, Division of Virology, IVRI, Mukteshwar-263138, Nainital (Distt.), U.A	13.08.2012 To till date	(a) Molecular characterization of animal pox viruses (b) Development of pen side diagnostics for economically important pox diseases (c) New generation vaccines for pox viruses (d) Development of recombinant protein based ELISA for sero-monitoring/sero-surveillance of animal pox viruses

MEMBERSHIP OF THE PROFESSIONAL SOCIETIES/BODIES

- Life member of Tamil Nadu Veterinary Council (TNVC) since 2003
- Life member of Veterinary Council of India (VCI)
- Life member of the Indian Society for Veterinary Immunology and Biotechnology (ISVIB) since 2010
- Life member of Tamil Nadu Journal of Veterinary and Animal Sciences (TNJVAS) since 2009
- Life member of Indian Science Congress Association (ISCA)
- Life member of Indian Virological Society (IVS) since 2013
- Life member of Society for Veterinary Science and Biotechnology (SVSBT) since 2014

PUBLICATIONS

- Patents filed/Granted 04
- Products developed 06
- Technologies developed 18
- Technologies commercialized 02
- Research articles (**List attached)** 51
- Review/popular articles 09
- Abstracts in Seminars/ Symposia/conference 69
- News letter/Bulletins 04
- Compendium/Technical Manuals 10
- Invited papers 13
- GenBank Accessions 216

Patents filed/granted (04)

1. V Bhanuprakash, M Hosamani, R K Singh and **G Venkatesan** (2013) Cell culture attenuated live orf vaccine for protection of goat/sheep against orf (contagious pustular dermatitis). Patent No. **2235/DEL/2013 dated 29/07/2013**
2. R K Singh, M Hosamani, V Bhanuprakash, V Balamurugan and **G Venkatesan** (2013). Vero cell attenuated live buffalopox vaccine for protection of buffaloes against buffalopox. Patent No. 2236/DEL/2013 dated 25/07/2014
3. R K Singh, V Bhanuprakash, **G Venkatesan**, M Hosamani, V Balamurugan, K M L Pathak, G Nagarajan and B Mishra (2014). Vero cell culture attenuated live camelpox vaccine for protection of camels against camelpox. Patent No. 1859/DEL/2014 dated 07/07/2014
4. V Bhanuprakash, **G Venkatesan**, M Hosamani, V Balamurugan and R K Singh (2014). Vero cell attenuated live sheeppox vaccine for protection of sheep against sheeppox. Patent No. 3834/DEL/2014 dated 22/12/2014.

Products/Technologies developed

Products:

- A Live attenuated Vero cell based vaccine for goat pox
- Cell culture attenuated live orf vaccine for protection of goat/sheep against orf
- Vero cell attenuated live buffalopox vaccine for protection of buffaloes against Buffalopox
- Vero cell culture attenuated live camelpox vaccine for protection of camels against camelpox
- Vero cell attenuated live sheeppox vaccine for protection of sheep against sheeppox
- Thermo-adapted Vero cell attenuated PPR vaccines for sheep and goats

Technologies developed and used in routine laboratory diagnosis

1. A polymerase chain reaction strategy for the diagnosis of camelpox
2. PCR and real-time PCR strategy for capripox viruses
3. TaqMan real-time PCR assay rapid detection of Orf infection
4. A LAMP assay for rapid detection of Camel pox virus in clinical samples
5. Real time PCR for potency estimation of live attenuated camelpox and buffalopox vaccines
6. Real time PCR for potency estimation of live attenuated orf vaccine
7. Multiplex PCR for simultaneous detection and differentiation of sheeppox, goatpox and orf viruses from clinical samples of sheep and goats.
8. PCR-RFLP for differentiation of sheeppox and goatpox viruses
9. TaqMan based real-time duplex PCR for simultaneous detection and quantitation of capripox and orf virus genomes in clinical samples
10. Loop-Mediated Isothermal Amplification assay for rapid and sensitive detection of sheep pox and goat pox viruses in clinical samples
11. Loop mediated Isothermal amplification (LAMP) assay for simple visual detection of orf virus in sheep and goats.
12. Recombinant B2L protein based Indirect ELISA for detection of orf antibodies in sheep and goats
13. Recombinant ORF 117 and P32 proteins based ELISAs for detection of CaPV antibodies
14. SYBR green and TaqMan probe based real-time PCR for rapid detection of PPR virus in clinical samples
15. Recombinant DNA technology for production of N protein of PPR virus by expression in prokaryotic system for use as diagnostic antigen in ELISA
16. Loop-Mediated isothermal Amplification (LAMP) Assay for rapid detection of Peste des Petits ruminants virus (PPRV) genome from clinical samples
17. Reverse transcription loop mediated isothermal amplification assay for rapid detection of bluetongue viruses
18. Monoclonal antibody based sandwich ELISA for detection of bluetongue virus group-specific antigen

Technologies commercialized to private/public biological units

1. LIVE ATTENUATED GOATPOX VACCINE

- Hester Bio-Sciences, Ahmadabad, Gujarat during December 15-30, 2011
- Veterinary Biological and Research Institute, Hyderabad during March 12-17, 2012.
- Indian Immunologicals Limited (IIL), Hyderabad during 23-30 September, 2013
- Institute of Animal Health and Veterinary Biologicals, Bengaluru during 1-15 February, 2014
- Intervet, MSD Animal Health, Pune, Maharashtra during 5-14 February, 2015.

2. LIVE ATTENUATED NEW SHEEPPOX VACCINE

- Intervet, MSD Animal Health, Pune, Maharashtra during 8-18 May, 2015.

Research grants

I. External funded projects:

Completed projects

1. ICAR Sponsored Niche Areas of Excellence Project-"Production and Quality control of Veterinary Immuno-diagnostics and immune-prophylactics" as Co-PI (2008-12) with a grant Grant > 250 lakhs
2. All India Coordinated Project on the Taxonomy of Viruses Component: Taxonomy capacity building on capripoxvirus as Co-PI with a Grant > 10 lakh **(2008-09)**
3. Sero-surveillance and Molecular epidemiology of Peste des petits ruminants (PPR), Sheeppox and Goatpox in sheep and goats of Tripura and Mizoram states as Co-PI with a grant of Rs. 24.00 Lakhs (2012-15)

Ongoing projects

1. DBT funded NER-Twinning programme titled "Molecular characterization and epidemiology of pox viral infections in animals from North Eastern region of India" as PI with a grant of Rs. 24.25 Lakhs **(**September, 2013-March, 2016)

I. Institute funded projects

Completed

1. Development and evaluation of live attenuated Camel pox vaccine as Co-PI (May, 2008 to March 2010)
2. Prevalence, characterization and development of indigenous diagnostics for animal rota viruses as Co-PI (October 2009- September, 2012)
3. Expression of major immunogenic protein, p32 of Capripox virus and evaluation of its diagnostic potential as PI (2012-14)
4. Isolation and characterization of swine pox virus as Co-PI **(**2013-16)

Service project (continuous)

Diagnostic service and Supply of soluble antigen and serum against capripox viruses: production and supply of goat pox vaccines Co-PI (Co –Investigator) (since May 2008 till the period of report)

Research articles (as chronological order)

Sl. No.	Citation	I.F (Global
1	Balamurugan, V., Kallesh, D. J., Hosamani, M., Bhanuprakash, V., **Venkatesan, G.,** Singh, R. K.(2009).Comparative efficacy of conventional and TaqMan polymerase chain reaction assays in the detection of capripoxviruses from clinical samples. *Journal of Veterinary Diagnostic Investigation* **21(2)**: 225-231.	**1.196**
2	Balamurugan, V., Bhanuprakash, V., Hosamani, M, Kallesh, D. J., Bina Chauhan, **Venkatesan, G.** and Singh, R. K. (2009). A polymerase chain reaction strategy for the diagnosis of camel pox. *Journal of Veterinary Diagnostic Investigation,* **21(2):** 231-237.	**1.196**
3	Bhanuprakash, V., **Venkatesan, G.,** Balamurugan, V., Hosamani, M., Yogisharadhya, R., Gandhale, P., Reddy, K.V., Damle, A. S., Kher, H. N., Chandel, B. S., Chauhan, H. C. and Singh, R. K. (2009). Zoonotic Infections of Buffalo pox in India. *Zoonoses and Public Health,* [Epub ahead of print], PMID: 20042058].	**2.574**
4	Bhanuprakash, V., Balamurugan, V., Hosamani, M., **Venkatesana,G.,** Bina Chauhan, Srinivasan, V. A., Chauhan, R. S., Pathak, K. M. L. and Singh, R. K. (2009). Isolation and characterization of Indian isolates of camel pox viruses. *Tropical Animal Health and Production,* 42(6):1271-1275.	**0.870**
5	Yadav, V., Balamurugan, V**.,** Bhanuprakash, V., Sen, A., Bhanot, V., **Venkatesan, G.,** Riyesh, T. and Singh, R. K. (2009). Expression of *Peste des petits ruminants' virus* nucleocapsid protein in prokaryotic system and its potential utility as diagnostic antigen/immunogen. *Journal of Virological Methods*, **162(2009)**:56-63.	**1.508**
6	Bhanot, V., Balamurugan, V., Bhanuprakash, V., **Venkatesan, G.,** Yadav, V., Yogisharadhya, R., Sen, A. and Singh, R. K. (2009). Expression of *P32 protein of goatpox virus* in *Pichia pastoris* and its potential use as a diagnostic antigen in ELISA. *Journal of Virological Methods,* **162,** 251-257.	1.508
7	Balamurugan, V., Sen, A., **Venkatesan, G.,** Yadav, V., Bhanot, V., Riyesh, T., Bhanuprakash, V. and Singh, R K. (2010). Isolation and identification of virulent peste des petits ruminants viruses from PPR outbreaks in India. *Tropical Animal Health and Production,* 42(6):1043-1046**.**	**0.870**
8	**Venkatesan, G.,** Balamurugan, V., Singh, R. K. and Bhanuprakash, V (2010). Goat pox virus isolated from an outbreak at Akola, Maharashtra (India) phylogenetically related to Chinese strain. *Tropical Animal Health and Production*, **42**(**6**):1053-**1056**	**0.870**
9	Bhanuprakash, V#., **Venkatesan, G#.,** Balamurugan, V., Hosamani, M., Yogisharadhya, R., Chauhan, R.S., Pande, A., Mondal, B., Singh, R.K. Pox outbreaks in Sheep and Goats at Makhdoom (Uttar Pradesh), India: Evidence of Sheeppox Virus Infection in Goats. *Transboundary and Emerging Diseases,* 57 (5), 375-382.	**2.714**
	Venkatesan, G., Balamurugan, V., Prabhu, M., Yogisharadhya, R., Bora, D.P., Gandhale, P.N., Sankar, M.S.S., Kulkarni, A.M., Singh, R.K., Bhanuprakash,	1.07

10	V (2010). Emerging and re-emerging zoonotic buffalopox infection: A severe outbreak in Kolhapur (Maharashtra),(2010) *Veterinaria Italiana*, 46 (4), 439-448.	
11	Balamurugan, V., Sen, A., **Venkatesan, G.,** Yadav, V., Bhanot, V., Bhanuprakash, V., Singh, R.K.Application of semi-quantitative M gene-based hydrolysis probe (TaqMan) real-time RT-PCR assay for the detection of peste des petitis ruminants virus in the clinical samples for investigation into clinical prevalence of disease(2010) Transboundary and Emerging Diseases, 57 (6), 383-395.	**2.714**
12	Balamurugan V, Sen A, **Venkatesan G,** Yadav V, Bhanot V, Riyesh T, Bhanuprakash V, Singh RK.(2010). Sequence and Phylogenetic Analyses of the Structural Genes of Virulent Isolates and Vaccine Strains of Peste Des Petits Ruminants Virus from India. *Transboundary and Emerging Diseases.* 57(5):352-64	**2.714**
13	Gandhale,P.N., Bhanuprakash, V., Balamurugan, V., Hosamani, M., **Venkatesan, G.,** Singh, R.K. 2010. Detection of bluetongue virus group-specific antigen using monoclonal antibody based sandwich ELISA. *Virologica Sinica,* 25 (6), 390-400.	**--**
14	**Venkatesan, G.,** Balamurugan, V., Bora, D.P., Yogisharadhya, R., Prabhu, M. and Bhanuprakash, V. (2011). Sequence and phylogenetic analyses of Indian isolate of Orf virus from sheep. *Veterinaria Italiana*. 47 (3), 323−332.	1.07
15	Bera BC, Shanmugasundaram K, Barua S, **Venkatesan G**, Virmani N, Riyesh T, Gulati BR, Bhanuprakash V, Vaid RK, Kakker NK, Malik P, Bansal M, Gadvi S, Singh RV, Yadav V, Sardarilal, Nagarajan G, Balamurugan V, Hosamani M, Pathak KM, Singh RK.(2011). Zoonotic cases of camelpox infection in India. *Veterinary Microbiology*, 152, 29-38.	**2.564**
16	D.P.Bora, **G. Venkatesan,** V. Bhanuprakash, V. Balamurugan, M. Prabhu, M.S. Sivasankar and R. Yogisharadhya (2011). TaqMan real-time PCR assay based on DNA polymerase gene for rapid detection of Orf infection. *Journal of Virological Methods,* 178(1-2):249-52	**1.508**
17	R. Yogisharadhya, V. Bhanuprakash, M. Hosamani, **G. Venkatesan,** V. Balamurugan, D P. Bora, V. Bhanot, M Prabhu and R K. Singh (2011). Comparative efficacy of live replicating sheeppox vaccine strains in Ovines. *Biologicals,* 39(6):417-23.	**1.690**
18	M. Prabhu, M.S. Siva Sankar, V. Bhanuprakash, G. Venkatesan, V. Balamurugan, D.P.Bora and R. Yogisharadhya (2012). Real time PCR: a rapid tool for potency estimation of live attenuated camelpox and buffalopox vaccines. *Biologicals*, 40(1):92-5	**1.690**
19	T. Riyesh, V. Balamurugan, A. Sen, V. Bhanuprakash, G. Venkatesan, V. Yadav and R. K. Singh (2011). Evaluation of efficacy of stabilizers on the thermostability of live attenuated thermo-adapted Peste des petits ruminants vaccines. *Virologica Sinica,* 26(5):324-37	--
20	V.Balamurugan, A. Sen, **G.Venkatesan**, V.Bhanot, V.Yadav, V.Bhanuprakash and R.K.Singh (2012). Peste des petits ruminants virus detected in the tissues of Asiatic Lion (**Panthera leo persica**) belongs to Asian lineage IV. *Journal of Veterinary Science*, 13(2):203-6.	**1.076**

21	V. Balamurugan, P. Saravanan, A. Sen, K. K. Rajak, **G. Venkatesan**, P. Krishnamoorthy, V. Bhanuprakash and R. K. Singh (2011). Prevalence of Peste des petits ruminants in sheep and goats in India. *Journal of Veterinary Science,* 13(3):279-85.	**1.076**
22	Bora DP, Barman NN, Das SK, Bhanuprakash V, Yogisharadhya R, **Venkatesan G,** Kumar A, Rajbongshi G, Khatoon E, Chakraborty A, Bujarbaruah KM (2012).Identification and phylogenetic analysis of orf viruses isolated from outbreaks in goats of Assam, a northeastern state of India. *Virus Genes,* 45(1):98-104.	**1.285**
23	**Venkatesan G,** Bhanuprakash V, Balamurugan V, Bora DP, Prabhu M, Yogisharadhya R, Pandey AB (2012). Rapid detection and quantification of Orf virus from infected scab materials of sheep and goats. *Acta Virologica,* 56(1):81-3.	**1.510**
24	**Venkatesan G,** Bhanuprakash V, Balamurugan V, Prabhu M, Pandey AB (2012). TaqMan hydrolysis probe based real time PCR for detection and quantitation of camelpox virus in skin scabs. *Journal of Virological Methods,* 181(2):192-6.	**1.508**
25	**Venkatesan G,** Bhanuprakash V, Balamurugan V, Singh RK, Pandey AB (2012). Development of loop-mediated isothermal amplification assay for specific and rapid detection of camelpox virus in clinical samples. *Journal of Virological Methods,*183(1):34-9.	**1.508**
26	Balamurugan V, Sen A, **Venkatesan G,** Yadav V, Bhanot V, Bhanuprakash V, Singh RK (2012).A rapid and sensitive one step-SYBR green based semi quantitative real time RT-PCR for the detection of peste des petits ruminants virus in the clinical samples. *Virologica Sinica,* 27(1):1-9.	**--**
27	Balamurugan V, Sen A, **Venkatesan G,** Rajak KK, Bhanuprakash V, Singh RK (2012). Study on passive immunity: Time of vaccination in kids born to goats vaccinated against Peste des petits ruminants. *Virologica Sinica,* 27(4):228-33.	**--**
28	Yogisharadhya R, Bhanuprakash V, **Venkatesan G,** Balamurugan V, Pandey AB, Shivachandra SB (2012). Comparative sequence analysis of poxvirus A32 gene encoded ATPase protein and carboxyl terminal heterogeneity of Indian orf viruses. *Veterinary Microbiology,* 156(1-2):72-80.	**2.564**
29	**Venkatesan G**, Balamurugan V, Yogisharadhya R, Kumar A, Bhanuprakash V (2012). Differentiation of sheeppox and goatpox viruses by polymerase Chain reaction-restriction fragment length polymorphism. *Virologica Sinica,* 27(6):353-9.	--
30	Bora DP, Bhanuprakash V, **Venkatesan G**, Balamurugan V, Prabhu M, Yogisharadhya R (2012).Quantitative polymerase chain reaction: another tool to evaluate viable virus content in live attenuated orf vaccine. *Veterinaria Italiana,* 48(4):425-30.	**1.07**
31	Raghavendra R, Mahadevan KM, Satyanarayan ND, Bhanuprakash V, **Venkatesan G,** Yogisharadhya R (2012). Analgesic, Antibacterial and Antiviral Activities of 2-(5-Alkyl-1,3,4-oxadiazol-2-yl)-3H-benzo[f]chromen-3-ones. *Indian Journal of Pharmaceutical Sciences,* ;74(4):367-71.	**0.626**
32	**Venkatesan G**, Balamurugan V and Bhanuprakash V (2013). Multiplex PCR for simultaneous detection and differentiation of sheeppox, goatpox and orf viruses from clinical samples of sheep and goats. **Journal of Virological Methods,** 195: 1-8	**1.508**
33	Rahul Chandrakant Dadas, Dhanavelu Muthuchelvan*, Awadh Bihari Pandey, Kaushal KumarRajak, Sashi Bushan Sudhakar, Sathish B. Shivchandra and **Gnanavel**	

	Venkatesan (2013). Development OF Loop-Mediated isothermal Amplification (LAMP) Assay for rapid detection of Peste des Petits ruminants virus (PPRV) genome from clinical samples. Indian Journal of Comparative Microbiology, Immunology and Infectious Diseases, 33: 7-13	
34	R Santhamani, R Yogisharadhya, G Venkatesan, S. B Shivachandra, A. B Pandey, M. A Ramakrishnan (2013). Detection and differentiation of sheeppox virus and goatpox virus from clinical samples using 30 kDa RNA polymerase subunit (RPO30) gene based PCR. Veterinary World, 6(11)	**0.897**
35	Venkatesan G, Balamurugan V and Bhanuprakash V (2014). TaqMan based real-time duplex PCR for simultaneous detection and quantitation of capripox and orf virus genomes in clinical samples. Journal of Virological Methods, 201, 44-50.	1.508
36	M. Prabhu, V. Bhanuprakash, G. Venkatesan, R. Yogisharadhya, D.P.Bora and V. Balamurugan (2014). Evaluation of stability of live attenuated camelpox vaccine stabilized with different stabilizers and reconstituted with various diluents. Biologicals, 42(3):169-75.	**1.690**
37	Ramasamy Santhamani, Revaniah Yogisharadhya, Gnanavel Venkatesan, Sathish Bhadravati Shivachandra, Awadh Bihari Pandey, Muthannan Andavar Ramakrishnan (2014). Molecular characterization of Indian sheeppox and goatpox viruses based on RPO30 and GPCR genes. Virus Genes, 49(2):286-291.	**1.576**
38	V. Balamurugan, A. Sen, **G. Venkatesan**, V. Bhanuprakash, R.K. Singh (2014). Protective immune response of live attenuated thermo-adapted peste des petits ruminants vaccine in goats. **Virus disease,** 25(3):350-357.	**0.364**
39	Dhanavelu Muthuchelvan, Ankan De, Bikas Debnath, Dheeraj Choudhary, **Gnanavel Venkatesan**, Kaushal Kishore Rajak, Shashi Bhusan Sudhakar, Divakar Himadri, Awadh Bihari Pandey, Satya Parida (2014). Molecular characterization of peste-des-petits ruminants virus (PPRV) isolated from an outbreak in the Indo-Bangladesh border of Tripura state of North-East India. **Veterinary Microbiology,** 174(3-4):591-595.	**2.564**
40	A. Sen, P. Saravanan, V. Balamurugan, V. Bhanuprakash, **G. Venkatesan**, J. Sarkar,, K.K. Rajak, A. Ahuja, V. Yadav, S.B. Sudhakar, S. Parida, R.K. Singh (2014). Detection of subclinical peste des petits ruminants virus infection in experimental cattle. **Virusdisease,** 25(3):408-411.	0.364
41	**Gnanavel Venkatesan,** Vinayagamurthy Balamurugan, Veerakyathappa Bhanuprakash (2015). Development and comparative evaluation of Loop mediated Isothermal amplification (LAMP) assay for simple visual detection of orf virus in sheep and goats. **Molecular and Cellular Probes**, 29 (3), 193-19	**1.565**
42	Sreekala S Mohandas, Dhanavelu Muthuchelvan, Awadh Bihari Pandey, Sanchay Kumar Biswas, Karam Chand, **Gnanavel Venkatesan**, Dheeraj Choudhary, Muthannan Andavar Ramakrishnan, Bimalendu Mondal (2015). Development of reverse transcription loop mediated isothermal amplification assay for rapid detection of bluetongue viruses. **Journal of virological**	**1.508**

	methods 222, 103-105.	
43	Ramasamy Santhamani, **Gnanavel Venkatesan,** Sanjeevna Kumari Minhas, Sathish Bhadravati Shivachandra, Dhanavelu Muthuchelvan, Awadh Bihari Pandey, Muthannan Andavar Ramakrishnan (2015). Detection and characterization of atypical capripoxviruses among small ruminants in India. **Virus genes** 51 (1), 33-38.	**1.265**
44	**G Venkatesan**, SK Biswas, V Bhanuprakash, RK Singh, B Mondal (2015). Evaluation of thermo-stability of bluetongue virus recombinant VP7 antigen in indirect ELISA. VirusDisease 26 (1-2), 19-26.	**0.364**
45	M Dashprakash, Gnanavel Venkatesan, Muthannan Andavar Ramakrishnan, Dhanavelu Muthuchelvan, Muthu Sankar, Awadh Bihari Pandey, Bimelendu Mondal (2015). Genetic diversity of fusion gene (ORF 117), an analogue of vaccinia virus A27L gene of capripox virus isolates. Virus genes 50 (2), 325-328.	**1.265**
46	Amit Kumar, Revanaiah Yogisharadhya, Veerakyathappa Bhanuprakash, Gnanavel Venkatesan, Sathish Bhadravati Shivachandra (2015). Structural analysis and immunogenicity of recombinant major envelope protein (rA27L) of buffalopox virus, a zoonotic Indian vaccinia-like virus. Vaccine 33 (41), 5396-5405.	**3.413**
47	Amit Kumar, Revanaiah Yogisharadhya, Gnanavel Venkatesan, Veerakyathappa Bhanuprakash, Sathish Bhadravati Shivachandra (2016). Immunogenicity and protective efficacy of recombinant major envelope protein (rH3L) of buffalopox virus in animal models. Antiviral research 126, 108-116.	**4.909**
48	Durlav Prasad Bora · Veerakyathappa Bhanuprakash· Gnanavel Venkatesan, Vinayagamurthy Balamurugan , ·Manimuthu Prabhu · Revanaiah Yogisharadhya (2015). Effect of Stabilization and Reconstitution on the Stability of a Novel Strain of Live Attenuated Orf Vaccine (ORFV MUK59/05). ASIAN JOURNAL OF ANIMAL AND VETERINARY ADVANCES 10(8):365-375.	**0.869**
49	G. Venkatesan · V. Balamurugan · V. Bhanuprakash · R.K. Singh ·A.B. Pandey (2016). Loop-Mediated Isothermal Amplification assay for rapid and sensitive detection of sheep pox and goat pox viruses in clinical samples. Molecular and Cellular Probes, 30(3):174-7.	**1.565**
50	Sharma AK, Venkatesan G, Mathesh K, Ram H, Ramakrishnan MA, Pandey AB (2016). Occurrence and identification of contagious ecthyma in blackbuck. Virusdisease 27(2):198-202.	**0.364**
51	G. Venkatesan, V. Bhanuprakash, V. Balamurugan, Amit Kumar, D P Bora, R, Yogisharadhya, Sargam Arya, Aparna Madhavan, D. Muthuchelvan and A B Pandey (2016). Simple and Rapid Visual Detection Methods of Orf Virus by B2L Gene based Loop-Mediated Isothermal Amplification Assay. Advances in Animal and Veterinary Sciences 4(3):153-160.	

Review article published in national/International journals

Sl. No.	Citation	I.F (Global
1	**Venkatesan, G.,** Balamurugan, V., Gandhale,P. N., Singh, R. K. and Bhanuprakash, V. (2010).Viral Zoonosis: A comprehensive review. *Asian Journal of Animal and Veterinary Advances,* 5(2): 77-92**.**	**0.869**
2	Balamurugan, V[#]., **Venkatesan, G[#].,** Sen, A., Annamalai, L., Bhanuprakash, V., Singh, R.K (2011). Recombinant protein-based viral disease diagnostics in veterinary medicine. *Expert Review of Molecular Diagnostics,* 10 (6), 731-753.	**3.333**
3	Bhanuprakash, V., Prabhu, M., **Venkatesan, G.,** Balamurugan, V., Hosamani, M., Pathak, K.M.L., Singh, R.K (2011). Camelpox: Epidemiology, diagnosis and control measures. *Expert Review of Anti-Infective Therapy,* 8 (10), 1187-1201.	**3.542**
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53	**Gnanavel Venkatesan**, V.Balamurugan and V.Bhanuprakash (2014). Loop mediated Isothermal amplification (LAMP) assay for rapid and sensitive detection of Orf virus by simple visual detection methods as an on-site diagnostic too. Presented in 2nd annual meeting of SVSBT and National seminar on "Biotechnological approaches to challenges in animal health and production" held during March 06-07, 2014 at College of Veterinary Science, Mathura.
54	**G. Venkatesan**, M Dashprakash, Nikunj Gupta, M. Sankar, M A Ramakrishnan and AB Pandey (2014). Cloning, expression and characterization of major immunogenic protein, P32 gene of goatpox virus in heterologous system. Presented in 2nd annual meeting of SVSBT and National seminar on "Biotechnological approaches to challenges in animal health and production" held during March 06-07, 2014 at College of Veterinary Science, Mathura.
55	**G. Venkatesan**, Dashprakash M, Nikunj Gupta, Mahesh Kumar Teli, Santhamani R, Sanjeevana Kumari, M A Ramakrishnan and A B Pandey (2014). A specific and sensitive diagnostic PCR for detection of goatpox virus genome in clinical samples. Presented in XXI Annual Convention of ISVIB & International Symposium on "Livestock diseases affecting livelihood options and global trade-Strategies and solutions" held during July 17 to 19, 2014 at Madras Veterinary College, TANUVAS, Chennai, Tamil Nadu.
56	Sharma A K, **Gnanavel Venkatesan**, Karikalan M, Ramakrishnan M.A, Divya Dahare, Pandey A.B (2014). A case of contagious ecthyma in blackbuck associated with sarcoptic mange. Presented in 31st Annual conference of Indian Association of Veterinary Pathologist (IAVP) organized and held during 13-15th November, 2014 at Dept. of Veterinary Pathology, Veterinary college, AAU, Anand, Gujarat. Pp.171.
57	**G. Venkatesan**, M. Dashprakash, Mashesh Kumar Teli, M.A.Ramakrishnan, M.Sankar, D. Muthuchelvan and A.B.Pandey (2014). Expression and evaluation of P32 protein of capripox virus as a diagnostic antigen in Indirect ELISA. Presented in VIROCON-2014, 23rd National conference on "Recent trends in Virology research in the Omics Era" held during December 18-20, 2014 at TNAU, Coimbatore, Tamil Nadu. PV-29, Pp. 238.
58	**Gnanavel Venkatesan** (2015). A Simple visual detection LAMP assay for rapid and sensitive diagnosis of Capripox and orf DNA in clinical samples of sheep and goats. Presented as young scientist award oral presentation in 9th Uttarakhand State Science and Technology Congress (USSTC) 2014-15 held at Uttarakhand State Council for Science and Technology, Dehradun during February 26-28, 2015
59	Santhamani R, Minhas S.K., Mageswary R, **Venkatesan G**, Sivachandra S.B., Pandey A.B and Ramakrishnan M.A (2014). Evidence of goatpox virus infection in sheep and goats: natural case of sheeppox and goatpox infection associated with goatpox virus in a communal herd in Jammu & Kashmir. Presented in XXI Annual Convention of ISVIB & International Symposium on "Livestock diseases affecting livelihood options and global trade-Strategies and solutions" held during July 17 to 19, 2014 at Madras Veterinary College, TANUVAS,

	Chennai, TamilNadu.
60	R. Mageswary, Nikunj Gupta, S. Chandra Sekar, **G. Venkatesan**, Sargam Arya, S.K. Minhas, A.B.Pandey, R. Singh and M.A. Ramakrishnan (2014). Genetic characterization of swinepox virus in clinical samples by H3L gene. Presented in VIROCON-2014, 23rd National conference on "Recent trends in Virology research in the Omics Era" held during December 18-20, 2014 at TNAU, Coimbatore, Tamil Nadu. OV-23, Pp. 209
61	S.K. Minhas, R. Mageswary, **G. Venkatesan,** S. Chandra Sekar, K.P.Singh, A.B.Pandey and M.A. Ramakrishnan (2014). Adaptation of atypical goatpox virus in Vero cells. Presented in VIROCON-2014, 23rd National conference on "Recent trends in Virology research in the Omics Era" held during December 18-20, 2014 at TNAU, Coimbatore, Tamil Nadu. PV-94, Pp. 219.
62	R. Santhamani, R. Yogishradhya, **Gnanavel V,** S.B.Shivachandra, A.B.Pandey and M.A. Ramakrishnan (2014). Molecular epidemiology of sheeppox and goatpox viruses. Presented in VIROCON-2014, 23rd National conference on "Recent trends in Virology research in the Omics Era" held during December 18-20, 2014 at TNAU, Coimbatore, Tamil Nadu. PV-108, Pp. 233.
63	Nikunj Gupta, R. Mageswary, S.Chandra Sekar, **G. Venkatesan,** Sargam Arya, S.K. Minhas, A.B.Pandey, R. Singh and M.A. Ramakrishnan (2014). Detection and characterization of swinepox virus based on ORF 114 gene. Presented in VIROCON-2014, 23rd National conference on "Recent trends in Virology research in the Omics Era" held during December 18-20, 2014 at TNAU, Coimbatore, Tamil Nadu. PV-109, Pp. 234.
64	S.K. Minhas, M.A. Ramakrishnan, **G. Venkatesan,** S. Chandra Sekar, R. Mageswary and A.B.Pandey (2014). Genetic analysis of sheeppox virus from clinical samples based on P32 and VLTF4 genes. Presented in International conference of IAVMI-2014 on "challenges and opportunities in animal health at the face of globalization and climate change" held at DUVASU, Mathura, UP during 30th October-1st November, 2014. S6-P20, Pp. 85
65	S.K. Minhas, M.A. Ramakrishnan, R. Santhamani, **G. Venkatesan,** S. Chandra Sekar, R. Mageswary and A.B.Pandey (2014). Isolation and genetic characterization of atyptical goatpox virus. Presented in International conference of IAVMI-2014 on "challenges and opportunities in animal health at the face of globalization and climate change" held at DUVASU, Mathura, UP during 30th October-1st November, 2014. S10-P23, Pp.165
66	**G Venkatesan**, M Dashprakash, Sargam Arya, Amit Kumar, Aparna Madhavan, Sanjeevna Kumari, M A Ramakrishnan and A B Pandey (2016). Development and Evaluation of diagnostic PCR specific for clinico-surveillance of goatpox. Presented as oral presentation in 10th Uttarakhand State Science and Technology Congress (USSTC) 2015-16 held at Uttarakhand State Council for Science and Technology, Dehradun during February 10-12, 2016, Page No.303.
67	Amit Kumar, R. Yogisharadhya, **G. Venkatesan**, V. Bhanuprakash, S.B.Shivachandra and A.B.Pandey (2016). Polyclonal anti-A27L and anti-H3L antibody cocktail provides complete pre-exposure protection in mice against buffalopox. Presented as oral presentation in 10th Uttarakhand State Science and Technology Congress (USSTC) 2015-16 held at Uttarakhand

	State Council for Science and Technology, Dehradun during February 10-12, 2016, Page No.299
68	Yogisharadhya R, Amit Kumar, **Venkatesan G**, Bhanuprakash V and Shivachandra SB (2016). Prokaryotic expression and characterization of immunomodulatory recombinant major envelope protein (rB2L) of Orf virus. Presented in Global symposium on "Animal health, newer technologies and their applications" and 29th annual convention of IAVMI organized by Dept. of Microbiology, CVS, Assam Agricultural University, Guwahati, Assam, India during 12th -14th February, 2016. TS-IV: OP-7, Pp.96.
69	Pundkar C.Y, Minhas S.K, Pandey A.B, **Gnanavel Venkatesan**, Chandra Sekar S, Rukhsana Bano, Ashok Kumar, Arfa Fayaz, and Ramakrishnan M.A (2015). Differentiation of capripoxviruses at species level by a newly developed PCR assay. Presented in XXII Annual Convention of Indian Society for Veterinary Immunology and Biotechnology and National Symposium on Immunomics and Proteogenomics in Livestock Health & Productivity, held at ICAR-National Research Centre on Equines, Hisar, Haryana, during 17-19 December 2015.

GENBANK SUBMISSION

GENOMIC SEQUENCES SUBMITTED TO GENBANK, NCBI SEQUENCE DATABASE

Virus/Taxa	Total Nos	Accession Number
Sheeppox	35	EU344752.1;GQ442629.1;GQ396156.1;GQ396155.1;GQ396154.1 KF495232.1;KF495231.1;KF495225.1;KF495224.1;KF495223.1 KF495222.1;KF495251.1;KF495250.1;KF495241.1;KF495240.1 KF495239.1;KF495238.1;KF153677.1;KF153676.1;KF153675.1 KF153674.1;KF153673.1;KF153672.1;KF468761.1;KF468760.1 KF495221.1;KF495220.1;KF495219.1;KF495218.1;KF495237.1 KF495236.1;KF495235.1;KF495234.1;FJ882029.1;FJ748487.1
Goatpox	29	EU344751.1;GQ442632.1;GQ442631.1;GQ442630.1;KF495233.1 KF495230.1;KF495227.1;KF495253.1;KF495252.1;KF495246.1 KF153678.1;KF153671.1;KF153670.1;KF153669.1;KF153668.1 KF153667.1;KF468762.1;KF468759.1;KF468758.1;KF468757.1 KF495226.1;KF495217.1;KF495216.1;KF495215.1;KF495245.1 KF495244.1;KF495243.1;KF495242.1;FJ748488.1
Orf	27	GU460374.1;GU139360.1;GU139359.1;KT191487.1;JQ040300.1 JN846834.1;JN183076.1;JN183075.1;JN183074.1;JN183073.1 JN183072.1;JN183071.1;JN183070.1;JN183069.1;JN183068.1 JN183067.1;JN183066.1;JN183065.1;JN183064.1;GU460373.1 GU460372.1;GU460371.1;GU460370.1;HM466933.1;GU139358.1 GU139357.1;GU139356.1
Buffalopox	64	HM008914.1;HM008913.1;HM008912.1;HM008911.1;HM008910.1 HM008909.1;HM008908.1;HM008907.1;HM008906.1;HM008905.1 HM008904.1;HM008903.1;HM008902.1;GU584002.1;GU584001.1 GU584000.1;GU583999.1;GU583998.1;GU583997.1;GU583996.1 GU583995.1;GU583994.1;GU583993.1;GU583992.1;GU583991.1 GU583990.1;HM466932.1;HM466931.1;GQ423435.1;GQ423434.1 GQ423433.1;GQ423439.1;GQ423438.1;GQ423437.1;GQ423436.1 GQ464368.1;GQ464367.1;GQ464366.1;GQ464365.1;GQ443267.1 GQ443266.1;GQ443265.1;GQ443264.1;GQ443263.1;GQ443262.1 GQ443261.1;GQ443260.1;GQ443259.1;GQ443258.1;GQ443257.1 FJ748502.1;FJ748501.1;FJ748500.1;FJ748499.1;FJ748498.1 FJ748497.1;FJ748496.1;FJ748495.1;FJ748494.1;FJ748493.1 FJ748492.1;FJ748491.1;FJ748490.1;FJ748489.1
Camelpox	16	GQ465934.1;GQ465933.1;GQ465932.1;GQ465931.1;GQ465930.1 GQ465929.1;GQ465928.1;GQ465927.1;GQ465926.1;GQ465925.1 GQ465924.1;GQ465923.1;GQ465922.1;GQ465921.1;GQ422449.1 GQ422448.1
Swinepox	12	KP399781.1;KP399780.1;KP399779.1;KP399778.1;KP399777.1 KP399776.1;KP399775.1;KP399774.1;KP399773.1;KP399772.1 KP399771.1;KP399770.1
PPR	30	JN632531.1;JN632530.1;KJ668671.1;KJ668670.1;KJ668669.1 KJ668668.1;KJ668667.1;KJ668666.1;KJ668665.1;GU014576.1 GU014575.1;GU014574.1;GU014573.1;GU014572.1;GU014571.1 GQ452016.1;GQ452015.1;GQ452014.1;GQ452013.1;GQ410435.1 GQ410434.1;FJ750563.1;FJ750562.1;FJ750561.1;FJ750560.1 FJ750559.1;JN632535.1;JN632534.1;JN632533.1;JN632532.1
Others	03	KJ956931.1;KJ956930.1;GU592182.1
TOTAL		216 GENE SEQUENCES SUBMITTED IN GENBANK

BOOKS/ BOOK CHAPTERS IN BOOKS AND COMPENDIUM

BOOK: AS AN EDITOR:

A book titled "Advances in diagnosis of Livestock and poultry diseases" has been published by IVRI during Valedictory function of NAE-ICAR funded short course training program, March, 02, 2012. Pp. 1-210. Editors: A B Pandey, S B Sudhakar, M Sankar and **Gnanavel V**

BOOK CHAPTERS (INTERNATIONAL)

1. **Book Chapter:** No.54: Camelpox virus in a a book titled "Manual of Security Sensitive Microbes and Toxins" authored by V. Balamurugan, **G. Venkatesan**, V.Bhanuprakash and R.K.Singh Page No. 625-636.Published by **Francis and Taylor**
2. **Book chapter:** No. 23, Zoonotic pox infections in a book titled "Zoonoses: Viral, Rickettsial and Prion Diseases" authored by V.Bhanuprakash, R.K.Indrani, R. Yogisharadhya, **G. Venkatesan**, V.Balamurugan and R.K.Singh, Page No. 281-304 published by Daya Publishing house, New Delhi
3. **Book chapter:** No. 96, "Orthopox virus" in book titled "Molecular Detection of Animal Viral Pathogens - Editor (K24517)" authored by V. Balamurugan, G.Venkatesan, V.Bhanuprakash. Edited by Dr. Liu Dongyou.. Yet to be published by International academic publisher-Taylor & Francis.

NATIONAL

1. Bhanuprakash, V. and **Venkatesan, G. (**2009). Serological and PCR based Diagnosis of Economically important Infectious Diseases of domestic animals for DBT sponsored Short Term Training Course on held at CADRAD, IVRI, Izatnagar, Bareilly from 10-30, Nov, 2009. pp 10-13.
2. V.Bhanuprakash and G.Venkatesan (2009). Current status of sheep and goat pox diseases and their control in India for a DBT sponsored short term training course on 'Serological and PCR based diagnosis of economically important infectious diseases of domestic animals' organized at Centre for Animal Disease Research and Diagnosis (CADRAD), Indian Veterinary Research Institute, Izatnagar, 10th to 30th November, 2009.
3. Balamurugan, V., Sen, A., **Venkatesan, G.** and Bhanuprakash, V. (2009). Diagnosis of important Viral and Bacterial diseases of Sheep and Goats and their Management for short training held at Joint Directorate of Extension Education, IVRI, Izatnagar.
4. Bhanuprakash V, Sen A, **Venkatesan G** and Rajak K K (2010). Strategies for control and management of viral and other emerging diseases of livestock. "Livestock Production, Management and Entrepreunership Development" held at Joint Directorate of Extension Education, IVRI, Izatnagar from 3-10th March, 2010.
5. Sen A, Chakravarti S, Malik YPS, Rajak KK, **Venkatesan G** and Bhanuprakash V (2010). Cell culture and Viral Vaccines for "Hands on training on animal cell culture techniques" organized at Institute of Biotechnology, Patwadangar (Nalnital) from 27-31, January 2010.
6. Malik, Y. P. S., Chakravarti, S., **Venkatesan, G.** and Bhanuprakash, V.(2010). New Generation Vaccines: An Overview in a "short term training program on Immunomodulation" organized at Institute of Biotechnology, Patwadangar (Nalnital) from 17, February 2010.

7. **Gnanavel Venkatesan**, Balamurugan, V., Gandhale P.N., A.B. Pandey and Bhanuprakash V (2010). Vaccinia virus: A tool for gene therapy and vaccine development in compendium "Applied aspects of biotechnology" published by Division of Biotechnology, Indian Veterinary Research Institure, Izatnagar, Bareilly Pp 256-266.
8. P.N.Gandhale, V.Bhanuprakash, A.B.Pandey, **Gnanavel Venkatesan** and R.K.Singh (2010). Synthetic Attenuated Virus Engineering (SAVE): An approach for designing novel vaccines in compendium "Applied aspects of biotechnology" published by Division of Biotechnology, Indian Veterinary Research Institure, Izatnagar, Bareilly Pp 245-250.
9. V.Bhanuprakash and **Gnanavel Venkatesan** (2010). "Economically important animal pox viral diseases: Diagnostics and prophylactics". Published in compendium of ICAR sponsored winter school on "Newer concepts and techniques in molecular and path-anatomical diagnosis of farm animals, poultry, wild life and laboratory animal diseases" held at Division of Pathology, Indian Veterinary Research Institure, Izatnagar, 1st to 21st October, 2010.
10. **Gnanavel Venkatesan**, V. Balamurugan, V. Bhanuprakash, R.K. Singh and A.B.Pandey (2012). "Molecular diagnostic approaches for improved detection of buffalopox" published as chapter in book titled "Advances in diagnosis of livestock and poultry diseases" sponsored by ICAR-Niche Area of Excellence programme, 2012, Pp.47-51
11. **Gnanavel Venkatesan**, V. Bhanuprakash, V. Balamurugan, R.K. Singh and A.B.Pandey (2012). "Nucleic acid based diagnostic techniques for detection of camelpox" published as chapter in book titled "Advances in diagnosis of livestock and poultry diseases" sponsored by ICAR-Niche Area of Excellence programme, 2012, Pp.71-77
12. **Gnanavel Venkatesan**, V.Balamurugan, V.Bhanuprakash, Yogisharadhya and Amit Kumar Sharma (2012). Recent advances in molecular diagnosis of pox diseases of small ruminants. Published as chapter in book titled "Advances in diagnosis of livestock and poultry diseases" sponsored by ICAR-Niche Area of Excellence programme, 2012, Pp.52-57.
13. D. Muthuchelvan, K.K.Rajak, S.B.Sudhakar, M.Sankar, **V. Gnanavel**, D.R.Chandrakant and A B Pandey (2012). Reverse genetics: A powerful tool for the development of marker vaccine published as chapter in book titled "Advances in diagnosis of livestock and poultry diseases" sponsored by ICAR-Niche Area of Excellence programme, 2012, Pp.193-200
14. **Gnanavel Venkatesan** (2012). Application of recombinant proteins in viral diseases of animals published in ICAR sponsored short course training on "Recombinant proteins: applications in veterinary research and diagnostics" organized at Division of Virology, Indian Veterinary Research Institute, Mukteshwar, 14 to 23rd March, 2013.

TRAINING IMPARTED/PARTICIPATED AS HRD ACTIVITY

PARTICIPATED

1. Participated and successfully completed the Training of 82nd Foundation Course for Agricultural Research Scientists from **07/01/2008 to 05/05/2008**, Organized by NAARM, ICAR, Hyderabad
2. Participated and actively involved in National Workshop on Integrated Livestock Farming Systems in the Foot-Hills of Himalayas (HILF-2008) held at Indian Veterinary Research Institute Campus Mukteswar, 17-18th May, 2008.
3. Participated in an ICAR Summer school of 21 days training programme on *"Bioinformatics & Its Application in Animal Health and Veterinary Research"* under ICAR funded from 02-09-2009 to 22-09-2009 Organized by Department of Bioinformatics and ARIS Cell centre, Madras Veterinary College, Chennai-7 (TANUVAS).
4. Participated in ICAR sponsored 21 days winter school program on "Application of one health concepts for control of emerging zoonosis and health threats" held from 26.11.2015 to 16.12.2015 organized by Division of Veterinary Public Health at Kerala Veterinary and Animal Sciences University (KVASU) Pookode, Wayanad, Kerala.
5. Participated in ICAR sponsored 10 days short course program on "Advances in Livestock Disease Surveillance: Integration of Molecular Biology and Statistical Methods in Veterinary Epidemiology" held from 01.09.2016-10.09.2016 at ICAR, NIVEDI, Yelahanka, Bengaluru, Karnataka.

IMPARTED

1. *As a core faculty:* DBT sponsored Short-term Training Course On "Modern Methods and their Applications in the Diagnosis of Animal Viral Diseases" from 10, June to 1, July, 2008 at the Division of Virology, IVRI, Mukteswar 263 138, Nainital(District), Uttarakhand.
2. *As a core faculty:* State Biotechnology Program, Government of Uttarakhand sponsored "Summer School on Biotechnological Tools and Techniques in Bio-molecular Research from 4-13, Sept, 2008 at the Division of Virology, IVRI, Mukteswar 263 138, Nainital (District), Uttarakhand.
3. *As a lab scientist:* Imparted training to Ph.D scholar of SAU (Dr. Selvaraj, VCRI, Namakkal, TN) for hands-on experience on GTPV antigen and recombinant P32 protein based indirect ELISA and analysis of 120 field serum samples.

4. *As a core faculty:* imparted hands on training on "Serological and molecular tests for diagnosis of sheep pox and goat pox" at Pox virus disease lab, IVRI, Mukteswar to the participants of DBT sponsored short term training course on 'Serological and PCR based diagnosis of economically important infectious diseases of domestic animals' organized at Centre for Animal Disease Research and Diagnosis (CADRAD), Indian Veterinary Research Institure, Izatnagar, 10th to 30th November, 2009.
5. *As a core faculty:* ICAR funded short training course under 'Niche area of excellance' project on "Immuno and molecular diagnostic techniques for diseases of small ruminants" for veterinary officers, assistant professors and scientists during March 3–12, 2010 was organized at the Division of Virology, IVRI, Mukteswar 263 138, Nainital(District), Uttarakhand.
6. *As a core faculty:* Short term training course on "Application of molecular techniques in modern biotechnology research" is being imparted at Division of virology, IVRI, Mukteswar to the participants of UG/PG students of Uttarakhand funded by State Biotechnology program, Govt. of Uttarakhand organized by IVRI, Campus Mukteswar, Nainital, Uttarakhand, India held during November, 22 and December, 2, 2010. 14 participants.
7. *As a core faculty:* Short term training course on "Advances in Immunobiotechnological techniques in animal disease diagnosis" is being imparted at Division of virology, IVRI, Mukteswar to the participants of UG/PG students of Uttarakhand funded by State Biotechnology program, Govt. of Uttarakhand organized by IVRI, Campus Mukteswar, Nainital, Uttarakhand, India held during November 1-15, 2011. 14 participants.\
8. *As a Course coordinator:* Short term training course on "Recent Advances in disease diagnosis of livestock" is being imparted at Division of virology, IVRI, Mukteswar to the participants of Field veterinarians of State veterinary diagnostic laboratories organized by IVRI, Campus Mukteswar, Nainital, Uttarakhand, India held during February, 22 and March, 2, 2012.
9. *As a core faculty:* Short term training course on "Application of modern biotechnological techniques in molecular biological research" is being imparted at Division of virology, IVRI, Mukteswar to the participants of UG/PG students of Uttarakhand funded by State Biotechnology Board, Govt. of Uttarakhand organized by IVRI, Campus Mukteswar, Nainital, Uttarakhand, India held during December, 03-17, 2012.
10. *As a core faculty:* ICAR sponsored short course training on "Recombinant proteins: Applications in Veterinary Research and Diagnostics" is being imparted at Division of virology, IVRI, Mukteswar

to the participants of Assistant professors/scientists/research scholars of SAU/ICAR institutes held during March, 14-23, 2013.

11. *As a course coordinator:* Farmer's training on "Management of Poultry and livestock farming at high altitude" is being imparted at IVRI, Mukteswar to the Uttarakhand farmers held during March, 10-12, 2013.
12. *As Co-inventor and faculty:* Training on process demonstration and technical know-how of goatpox vaccine imparted to scientists of following vaccine producing biological sectors in India
    1. Hester Biosciences Pvt. Ltd., Gujarat during December, 2011
    2. VBRI, Hyderabad during March, 2012
    3. Indian Immunologicals Limited (IIL), Gachibowli, Hyderabad during 23-30 September, 2013
    4. Institute of Animal Health and Veterinary Biologicals, Bengaluru during 1-15 February, 2014
    5. Intervet, MSD Animal Health, Pune, Maharashtra during 5-14 February, 2015.
13. *As Co-inventor and faculty:* Training on process demonstration and technical know-how of sheeppox vaccine imparted to scientists of following vaccine producing biological sectors in India MSD Animal Health, Pune, Maharashtra during 8-18 May, 2015
14. *As a core faculty*: Conducted orientation training programme for NAARM scientists on probation (Dr. Amit Kumar, Dr. Chandramohan, Dr.Asok Kumar, Dr. Anju Kala and Dr. S.S. Dangi) from 13.04.2015 to 12.05.2015 at IVRI, Mukteswar
15. *As a core faculty*: Imparted professional three months attachment training to Dr. Amit Kumar, Scientist on probation in Pox lab from 08.05.2015 to 07.08.2015 at IVRI, Mukteswar campus

INVITED LECTURES PRESENTED IN TRAININGS/SYMPOSIUM/SEMINARS

1. Bhanuprakash, V. and **Venkatesan, G (**2009). Serological and PCR based Diagnosis of Economically important Infectious Diseases of domestic animals in a DBT sponsored Short Term Training Course held at CADRAD, IVRI, Izatnagar, Bareilly from 10-30, Nov, 2009. pp 10-13.
2. Balamurugan, V., Sen, A., **Venkatesan, G**. and Bhanuprakash, V (2009). Diagnosis of important Viral and Bacterial diseases of Sheep and Goats and their Management. Delivered lecture to participants of Directorate of Extension sponsored Model training course on "Recent Advances in the Model Training Course on 'Recent Advances in livestock health and management for optimum production' for veterinary officer/SMS organized at Joint directorate of Extension Education, IVRI, Izatnager Bareilly, 2nd to 9th March, 2009.
3. V.Bhanuprakash and **G. Venkatesan** (2010). Economically important animal pox viral diseases: Diagnostics and prophylactics. Delivered lecture in an ICAR sponsored winter school on "Newer concepts and techniques in molecular and path-anatomical diagnosis of farm animals, poultry, wild life and laboratory animal diseases" held at Division of Pathology, Indian Veterinary Research Institute, Izatnagar, 1st to 21st October, 2010.
4. **G. Venkatesan** (2011). Delivered a topic titled "In vitro cytotoxicity assay in cell culture" as lecture cum demonstration to participants of short course training on 'in vitro toxicodyamics' held at Division of Pharmacology and Toxicology, Indian Veterinary Research Institute, Izatnagar during 5-14th September, 2011.
5. **G. Venkatesan (2012).** Buffalopox and its diagnosis/ treatment. Delivered a lecture in Hindi to Farmers of Uttatakhand region during farmers training program conducted during February-March, 2012 at IVRI, Mukteswar
6. **Gnanavel Venkatesan**, V. Balamurugan, V. Bhanuprakash, R.K. Singh and A.B.Pandey (2012). Molecular diagnostic approaches for improved detection of buffalopox. delivered in a short training course sponsored by ICAR-Niche Area of Excellence programme, IVRI, Mukteswar
7. **Gnanavel Venkatesan**, V. Bhanuprakash, V. Balamurugan, R.K. Singh and A.B.Pandey (2012). "Nucleic acid based diagnostic techniques for detection of camelpox" in a short training course sponsored by ICAR-Niche Area of Excellence programme, IVRI, Mukteswar.
8. **Gnanavel Venkatesan**, V.Balamurugan, V.Bhanuprakash, Yogisharadhya and Amit Kumar Sharma (2012). "Recent advances in molecular diagnosis of pox diseases of small ruminants" in a

short training course sponsored by ICAR-Niche Area of Excellence programme, IVRI, Mukteswar.

9. **Gnanavel Venkatesan** (2013). Application of recombinant proteins in viral diseases of animals. Delivered as invited lecture to the participants of ICAR sponsored short course training on "Recombinant proteins: applications in veterinary research and diagnostics" for Assistant professors/scientists organized at Division of Virology, Indian Veterinary Research Institute, Mukteswar, 14 to 23rd March, 2013.
10. **Gnanavel Venkatesan** (2013). Pox diseases of livestock and poultry delivered as invited lecture in Hindi to Uttarakhand farmers during Farmers training sponsored by BAIF, Logaghat held at IVRI, Mukteswar during 10-12th March, 2013
11. **G. Venkatesan** (2013). Molecular diagnostic approaches for detection and differentiation of Capripox- and Parapox-viruses of sheep and goats. Invited key note address was presented in Asia Pacific Congress of Virology (VIROCON-2013) scheduled on 17-20th December 2013 at Amity University Uttar Pradesh, Noida, India.
12. **Gnanavel Venkatesan** (2016). "Molecular diagnostics and vaccines for animal pox viruses" for Dr. (Mrs.) Gouri Ganguly Memorial Award for young scientist in Animal sciences by Indian Science congress Association (ISCA) for the year 2014-15 in a national Conference on Science & Technology for Indigenous Development in India during 28-30, September, 2015 organized by Faculty of Engineering and Technology, Gurukul Kangri Vishwavidyalaya, Haridwar-249404 (Uttarakhand) in Haridwar chapter, ISCA, India.
13. Invited for guest lecture on "sheep pox and goat pox diseases in India and control measures" in a national seminar on "Control of diseases in large and small ruminants" being organized by Indian Immunologicals Limited, Hyderabad (IIL) held on 9th and 10th January, 2015

NEWSLETTERS/BULLETINS/FOLDERS

1. **Venkatesan, G.,** Balamurugan, V., Hosamani, M., Singh, R. K. and Bhanuprakash, V (2009). Multiplex PCR for detection and differentiation of pox viruses. IVRI News Letter, July-Dec, 2008 & Jan-June, 2009, 30(2) & 31(1): 1.
2. Bora, D. P., **Venkatesan, G.,** Balamurugan, V., Siva Shankar, M.S., Prabhu, M. and Bhanuprakash, V. (2009). Real time PCR assay for rapid detection of Ort virus. IVRI News Letter, July-December, 2009, 31(2): 4.

3. Amit Kumar, R. Yogisharadhya, **G. Venkatesan,** V. Bhanuprakash, A.B. Pandey and S.B. Shivachandra (2015). Passive protective efficacy of polyclonal anti-A27L and anti-H3L antibody cocktail in mice model against buffalopox virus. Virus Research News (December issue) published by Indian Virological Society, Vol.4 (2): 1-4
4. K.K. Rajak, S.B. Sudhakar, **Gnanavel V** and A.B.Pandey (2012). A folder on Bovine viral diarrhea in Hindi has been published by IVRI, Mukteshwar for farmers

TECHNICAL/LABORATORY MANUALS/SOP as Co-author

1. Training manual on "Modern methods and their applications in diagnosis of animal viral diseases" for DBT Sponsored Training Program from 10th June - 1st July 2008 held at IVRI, Mukteswar
2. Training manual on "Biotechnological tools and techniques in biomolecule research" for Uttarakhand Livestock Development Board Sponsored Training Program from 4th -13th September, 2008 held at IVRI, Mukteshwar.
3. Training manual on "Modern methods and their applications in diagnosis of animal viral diseases" for ICAR funded short term training program under the project 'Niche area of excellence' from 3-12, March, 2010 held at IVRI, Mukteshwar.
4. Training manual on "Application of molecular techniques in modern biotechnology research" for the Short term training course under State Biotechnology program, Govt. of Uttarakhand held during November, 22 and December, 2, 2010 held at IVRI, Mukteswar.
5. Training manual for short term training course on "Advances in Immunobiotechnological techniques in animal disease diagnosis" is being organized at the Division of virology, IVRI, Mukteswar during November 01-11, 2011.
6. Training manual for short term training course on "Recent Advances in disease diagnosis of Livestock" is being organized at the Division of virology, IVRI, Mukteswar to the participants of field veterinarians funded by ICAR-NAE during February 22 and March 2, 2012.
7. Training manual on "Application of modern biotechnological techniques in molecular biological research" for short course training being organized at the Division of virology, IVRI, Mukteswar to the participants of PG/PhD scholars of Uttarakhand funded by USBD, Uttarakhand held during during December, 03-17, 2012.
8. Consolidated NAE final report (2012) of the project "ICAR funded Niche Area of Excellence: Veterinary Biologicals-Production and quality control of veterinary immunodiagnostics and

immunoprophylactics" compiled and edited by A B Pandey, D Muthuchelvan, M Sankar and Gnanavel Venkatesan Pp 1-40

9. Training manual on "Recombinant proteins: Applications in Veterinary Research and Diagnostics" for short course training being organized at the Division of virology, IVRI, Mukteswar sponsored by ICAR held during March, 14-23, 2013.
10. Standard operating procedures (SOP) for production and quality control of live Vero cell attenuated new sheep pox vaccine (2015)

AWARDS/RECOGNITIONS

Awards by the Institute, Universities/ Deemed to be Universities

1. **Chief Minister Merit Scholarship for first graduates** of family to pursue B.V.Sc for the period 1997-2003 at Madras Veterinary College, TANUVAS, Chennai by Tamil Nadu Government
2. **IVRI Senior Research Fellowship** during PhD program (2006-2012)
3. **Dr. CM Singh award for outstanding doctoral research** for the year 2012 by Indian Veterinary Research Institute (IVRI, Deemed University) awarded in VIII convocation of IVRI, Izatnagar
4. Felicitated at Indian Veterinary Research Institute, Izatnagar during 68th Independence day Celebration on 15th August, 2014 on receiving ICAR-Jawaharlal Nehru award for outstanding doctoral research for the year 2012

Awards by State governments/Govt. of India

1. **Young Scientist award in Veterinary Science & Animal Husbandry** awarded by Uttrakhand State Council of Science and Technology (UCOST), Government of Uttarakhand, India in Uttrakhand State Science and Technology congress (USSTC-2-15) held at Dehradun during February 26-28, 2015.
2. **Dr. (Mrs.) Gouri Ganguly Memorial Award for young scientist in Animal science**s by Indian Science congress Association (ISCA), a professional body under Department of Science & Technology, Ministry of Science & Technology, Government of India awarded in Haridwar chapter of ISCA in September, 2015.

Young Scientist Awards/Associateship by the National Science Academies

1. **National Academy of Agricultural Sciences (NAAS) Young Scientist award** (citation, gold plated silver medal and cash prize) for the biennium (2013-14) in **Animal Sciences** category

awarded at the **12th Agricultural Science Congress** at the **National Dairy Research Institute, Karnal,** during **3-6 February 2015**.

2. **NASI-SCOPUS Young scientist award (2015) in Agriculture category** by National Academy of Sciences, India and ELSEVIER awarded in ceremony held at New Delhi in 22, September 2015
3. **National Academy of Agricultural Sciences (NAAS) Associateship** for the year 2015-16 awarded during Annual General Meeting (AGM) and foundation day programme of the academy during 4-5, June, 2016

Honors/Awards by ICAR, CSIR, DST, DBT and NRDC.

1. **ICAR-Jawaharlal Nehru award** for outstanding doctoral thesis research in Agricultural and Allied Sciences (Animal Sciences) for the year 2012 by Indian Council of Agricultural Research awarded in 86th ICAR foundation day and award ceremony held at NARS complex, New Delhi during 28-29 July, 2014.

2. ICAR-JRF awarded for pursuing M.V.Sc during 2004-05

3. ICAR-NET in Veterinary Microbiology during 2007-08

4. Awarded DBT Associateship worth of INR 24.25 lakhs for North Eastern Twinning programme project for 3 years on "Sero-surveillance, molecular characterization and epidemiology of pox viral infections in animals from North Eastern region of India"

5. Reviewer/member of Science and Engineering Research Board (SERB), Department of Science and Technology (DST), Ministry of Science and Technology, GOI.

Best poster/oral presentation awards/best paper awards/other awards by society

1. **Best poster award** for the poster titled "Development and evaluation of Loop mediated isothermal amplification (LAMP) assay for rapid detection of orf virus by simple visual detection methods" by G. Venkatesan et al., 2012 presented in XXVI annual convention of IAVMI and international seminar on "Future of Livestock Health: A Paradigm Change to Maximize Productivity for Economic Gains" held at Madras Veterinary College, Chennai from 6th to 8th September 2012.
2. **Best poster award** for the poster titled" Loop-Mediated Isothermal Amplification (LAMP) assay for rapid and sensitive detection of Capripox virus" by G. Venkatesan et al., 2012 presented in the XXI National Conference of Indian Virological Society (IVS) on "Immunobiology and Management of Viral Diseases in 21st Century" held at Indian Veterinary Research Institute, Mukteswar Campus, Nainital from 8-10 November, 2012

3. **Best Poster award** for poster titled "Development of loop mediated isothermal amplification (LAMP) assay for rapid detection of zoonotic buffalopox and camelpox viruses as a field diagnostic tool" by G. Venkatesan et al., 2012 presented in International Symposium of IAVPH-2012 on "One Health: Way Forward to Challenges in Food Safety and Zoonoses in 21st Century" in the theme of "Animal Health and Management Issues" held on December 13-14, 2012 at GADVASU, Ludhiana.
4. **Dr CM Singh award for best research paper** titled "Development of loop-mediated isothermal amplification (LAMP) assay for rapid detection of peste des petits ruminant virus (PPRV) genome from clinical samples" authored by Dadas R.C., Muthuchelvan, D., Pandey, A.B., Rajak, K.K. Sudhakar, S.B., Shivachandra, S.B. and **Venkatesan, G**., published in Indian Journal of Comparative Microbiology, Immunology and Infectious Diseases Vol. 33 (1&2): 7-13 awarded by IAVMI-2013 held at Lucknow during 13-15th December, 2013
5. **Best poster presentation award** to a research paper titled "Isolation and genetic characterization of atyptical goatpox virus" authored by S.K. Minhas, M.A. Ramakrishnan, R. Santhamani, **G. Venkatesan,** S. Chandra Sekar, R. Mageswary and A.B.Pandey in International conference of IAVMI-2014 on "challenges and opportunities in animal health at the face of globalization and climate change" held at DUVASU, Mathura, UP during 30th October-1st November, 2014. S10-P23, Pp.165
6. **Awarded best research paper by Oral presentation** on "Cloning, expression and characterization of P32 gene of goatpox virus in heterologous system" by **G. Venkatesan** et al., 2014 by SVSBT in national seminar organized at Mathura Veterinary College during 6-7 March, 2014.
7. **Awarded best research paper by Poster presentation** on "LAMP assay for rapid and sensitive detection of orf virus by simple visual detection methods as on-site diagnostic tool" by **G. Venkatesan** et al., 2014 by SVSBT in national seminar organized at Mathura Veterinary College during 6-7 March, 2014.

International awards/recognitions:

1. Scopus 'h'index=13 for 56 documents based on citations (Author ID: 26654497000)
2. Google scholar h-index of 16 and i10-index of 28 based on citations of published articles (2009-2016)
3. Research Gate (RG) score of 29.33
4. Awarded one of the top 20 best articles by BioMedLib article monitoring and evaluation service in the Domain of Article 22575686 for the article "Development of loop-mediated isothermal amplification assay for specific and rapid detection of camelpox virus in clinical samples. J Virol Methods; 2012 Jul;183(1):34-9 PMID: 22575686
5. Associate Editor for the following International Journals of high repute

- ❖ Journal of Virology research (Bioinfo Publications)
- ❖ Research Journal of Veterinary Sciences (Science Alert, USA)
- ❖ Research Journal of Microbiology (Science Alert, USA)
- ❖ International Journal of Virology (Science Alert, USA)
- ❖ Asian Journal of Animal and Veterinary Advances (AJAVA) by Science Alert, USA
- ❖ Asian Journal of Biotechnology (Science Alert, USA)

6. Lead Guest Editor for the special issue 2, 2016 (Nov. 1, 2015 to March 15, 2016) on "Emerging Challenges and Opportunities in Veterinary Research for Improvement of Animal Health" in Advances in Animal and Veterinary Sciences (AAVS) published by Nexus Academic Publishers, Pakistan. (Editors: **Gnanavel V**, Balamurugan V., M. Nagalingam, M.Saminathan and P. Perumal)

7. Guest Editor for the special issue-2016 on Advances in Diagnosis, Prevention, Control and Impact of Animal Diseases (ADPCIAD) to be published by November, 2016 in Journal of Experimental Biology and Agricultural Sciences (JEBAS), Horizon Publisher, India.
(Editors: Balamurugan V, **Gnanavel V**., M. Nagalingam, M. Saminathan and P. Perumal)

8. Peer reviewer for the following international journals of high repute

- ❖ Journal of Virological Methods (JVM)
- ❖ Pharmaceutical Biology
- ❖ Journal of Advanced Veterinary Research (JAVR)
- ❖ VirusDisease
- ❖ Applied Biochemistry and Biotechnology
- ❖ Advances in Virology
- ❖ Veterinary World
- ❖ Advances in Animal and Veterinary Sciences (AAVS)
- ❖ Journal of Environmental Biology (JEB)
- ❖ Small Ruminants Research
- ❖ Saudi Journal of Biological Sciences (SJBS)
- ❖ SciTechnol
- ❖ BMC Microbiology
- ❖ Journal of Experimental Biology and Agricultural Sciences (JEBAS)

Chair of prestigious committees/taskforce; President/Secretary of professional societies; Leadership position in research programmes or research organizations

1. Chairman of selection committee for the selection of JRF/SRF to work under DBT-Twinning with North-Eastern region project entitled "**Sero-surveillance, molecular characterization and**

epidemiology of pox viral infections in animals from North Eastern region of India" at IVRI, Mukteswar in 4th December, 2013

2. Chairman of selection committee for the selection of JRF/SRF to work under DBT-Twinning with North-Eastern region project entitled "**Sero-surveillance, molecular characterization and epidemiology of pox viral infections in animals from North Eastern region of India" at IVRI, Mukteswar in 20th January, 2014**
3. Co-chair of Scientific technical session on "**Diagnosis and Control of Animal Viral Diseases-I & II**" in the Veterinary Virology stream of VIROCON-2013 on 19th December, 2013 held at Amity University, Noida, UP
4. Invited to act as session speaker for session "Frontier of Viral diagnosis development" for BITs 5th world Annual world congress of Virus and infections (WCVI) to be held during June 26-29, 2014 at Dalian, China.
5. Principal investigator for **North Eastern Region twinning Research program** in collaboration with College of Veterinary Sciences, Assam (Parent institute) and NIVEDI, Bangalore (Collaborating institute) funded by DBT, GOI.
6. Member of expert committee for developing SOP for quality control testing of sheeppox and goatpox vaccines approved by Director, CCS NIAH, DAHDF, GOI, Baghpat, UP.
7. Appointed as Liaison officer for Transfer of Technology and business incubation activities in respect of IVRI, Mukteswar campus
8. Expert reviewer/member of Science and Engineering Research Board (SERB), a statutory body of DST, Government of India for evaluation of research projects since 2016
9. Member, Board of Studies (BoS), Division of Virology, IVRI, Mukteshwar campus since 2015
10. Acted as Rapporteur for Annual Institute Research council meeting (IRC) held at IVRI, Izatnagar for the year 2012-13
11. Appointed as Follow-up officer for technologies transfer and execution of PPR and Goat pox vaccine by ITMU, IVRI in 2013

Place: IVRI, Mukteswar

V Gnanavel)