

Dr. Senthilkumar Natesan, BVSc, MVSc, PhD

Associate Professor

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Education

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| Ph.D | Virology (09.01.2000 to 03.13.2004) Indian Veterinary Research Institute, Izatnagar, Bareilly, UP 243122 India |
| M.V.Sc | Masters in Veterinary Science (Virology) (09.01.1998 to 08.08.2000) Indian Veterinary Research Institute, Izatnagar, Bareilly, UP 243122 India |
| B.V.Sc | Bachelors in Veterinary Science (10.09.1992 to 07.29.1998) Madras Veterinary College, Tamil Nadu Veterinary and Animal Sciences University, Chennai, TN 600007, India |

Positions

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| Associate Professor | March 2019 – continuing; Indian Institute of Public Health Gandhinagar University, Near Air Force station, Lekawada, Gandhinagar, Gujarat |
| Adjunct Faculty | Sep 2017 - February 2019; Indian Institute of Public Health Gandhinagar University, Near Air Force station, Lekawada, Gandhinagar, Gujarat |
| Founding member | Jan 2017- Biomac life Sciences Pvt Ltd, Siddhi Vinayak Complex, Makarba, Ahmedabad, Gujarat, India. |
| Chief Scientific Officer | Jan, 2013- Dec 2016, Western Range Biopharmaceuticals, Cluster Innovation Center, MS University, Vadodara, Gujarat, India. |
| Technology Consultant | March 1, 2013- Feb 2015. IBIO Analysis Pvt Ltd, Campus corner building, Nr St Xavier's College, Ahmedabad, Gujarat, India |
| Visiting Professor | Dec 1, 2012- April 30, 2013, Institute of Science, Nirma University, Sarkhej-Gandhinagar Highway, Ahmedabad, Gujarat, India |
| Assistant Professor | Nov 2, 2009– Oct 31, 2012, Joint appointment, Division of Basic Sciences, Institute of Human Virology, and Division of Infectious diseases, Department of Medicine, University of Maryland School of Medicine Baltimore, MD 21201, USA |
| Postdoctoral Fellow | May 1, 2004 – Aug 31, 2009, Molecular Virology and Cell Biology, Johns Hopkins University School of Medicine, Baltimore, MD 21287, USA |
| Visiting International scholar | Oct 1, 2003 to Oct 30, 2003, Reverse Genetics in Avian Virology VA-MD regional college of Veterinary Medicine, University of Maryland, College Park, MD, USA |

Honors and Awards

Best paper published in the Journal *Advances in Animal and Veterinary Sciences* with highest citation- 2014

Best scientific poster presentation award in 4th Indian Veterinary Congress & 11th Annual Conference of Indian Association for Advancement of Veterinary Research (IAAVR) & Symposium, 2004.

Best oral presentation award in XXII Annual Convention of Indian Society for Veterinary Medicine (ISVM) 2004.

Recipient of International travel award from Houghton trust, United Kingdom to visit Dr.Siba K. Samal's virology laboratory at college park, MD, 2003.

Best scientific poster presentation award in XXI conference of Indian Poultry Science Association and national symposium-2003

Best scientific poster presentation award in the Science Conference organized by C.M. Singh Endowment Trust and HRD, Government of India, 23-24 February 2003, Indian Veterinary Research Institute, Izatnagar, India, 2003.

Dr. C.M. Singh Best Research Paper Award- for the best research paper published in the Indian Journal of Comparative Microbiology Immunology and specialists in Infectious Diseases, 2002.

Agricultural Scientist Recruitment Board Certified Veterinary Microbiology

Gujarat Veterinary council certified Registered Veterinary Practitioner

Indian Veterinary Research Institute sponsored Senior Research Fellowship for Ph.D degree program, 2000-2004.

Indian Council for Agricultural Research sponsored Junior Research Fellowship for Masters in Veterinary Science degree program, 1998-2000.

Grant Supports

International Travel Grant: Received an International travel grant from the Houghton Trust, United Kingdom to visit Dr. Siba K. Samal's virology lab at University of Maryland, College Park, MD, USA.

Development and validation of Chimeric Antigen Receptor T cells for the treatment of patients with recurrent/ relapsed B-cell Acute Lymphoblastic Leukemia. Funding agency: BIRAC, Department of Biotechnology, GoI. (Completed)

Development of a novel cell therapeutic product for the treatment of Diabetic foot ulcers and other non-healing wounds to prevent amputations. Funding agency: Department of Science and technology, GoI (Completed)

Developing an e-course on laboratory testing for diagnosis of COVID-19 for healthcare professionals and frontline workers (Completed).

Publications

Natesan S, Bhatia R, Sundararajan A, Dhama K, Malik YS, Vora K. Ramping up of SARS CoV-2 testing for the diagnosis of COVID-19 to better manage the next phase of pandemic and reduce the mortality in India. *Virusdisease*. 2020 Aug 8:1-9. doi: 10.1007/s13337-020-00622-x. Epub ahead of print. PMID: 32837973; PMCID:PMC7413832.

Vora KS, Sundararajan A, Saiyed S, Dhama K, **Natesan S**. Impact of COVID-19 on women and children and the need for a gendered approach in vaccine development. *Hum Vaccin Immunother*. 2020 Nov 11:1-6. doi: 10.1080/21645515.2020.1826249. Epub ahead of print. PMID: 33175602.

- Kranti Suresh Vora, Shahin Saiyed & **Senthilkumar Natesan**. Impact of COVID-19 on family planning services in India. *Sexual and Reproductive Health Matters*, 2020. 28:1,1785378, DOI: 10.1080/26410397.2020.1785378
- Kranti Vora, Paridhi Gupta, Shahin Saiyed, Parth Tailor, Bhumika Prajapati, **Senthilkumar Natesan**. A community-based prospective cohort study of pregnant women in tribal Gujarat- A methodology. *Indian Journal of Obstetrics and Gynecology Research* 2020;7(2):168–172
- Kranti Suresh Vora., Paridhi Gupta, Shahin Saiyed, Bhumika Prajapati & **Senthilkumar Natesan** (2020) “Prevalence of TORCH Infections during Pregnancy: A Prospective Cohort Study in Tribal Region of Gujarat, India”. *Acta Scientific Women's Health* 2.11 (2020): 16-22.
- Vora Kranti, Saiyed S, Joshi R & **Natesan S.** (2020) Community level barriers for cervical cancer screening in marginalized population. *International Journal of Reproduction, Contraception, Obstetrics and Gynecology*. In Press.
- Tiwari R, Dhama K, Khan S, Rana R., Vora K, Malik YS & **Natesan S.** (2020) An overview on antiviral drugs, repurposed drugs, immunotherapeutic weaponry and immunomodulatory approaches to combat SARS-CoV-2/COVID-19. *Journal of Pure and Applied Microbiology* 14 (4). In Press.
- Prajapati B, Vora K, Sundararajan A, Saiyed S, Tiwari R, Dhama K & **Natesan S.** (2020) Methodology consideration for the molecular detection of TORCH organisms using PCR approaches. *Journal of Experimental Biology and Agricultural Sciences*. 8(6). In Press.
- Sharun K, Tiwari R, Iqbal Yattoo M, Patel SK, **Natesan S**, Dhama J, Malik YS, Harapan H, Singh RK, Dhama K. Antibody-based immunotherapeutics and use of convalescent plasma to counter COVID-19: advances and prospects. *Expert Opin Biol Ther.* 2020 Sep;20(9):1033-1046. doi: 10.1080/14712598.2020.1796963. Epub 2020 Aug 3. PMID: 32744917.
- Vora KS, Saiyed S, **Natesan S.** Impact of COVID-19 on family planning services in India. *Sex Reprod Health Matters*. 2020 Dec;28(1):1785378. doi: 10.1080/26410397.2020.1785378. PMID: 32552622.
- Patel SK, Singh R, Rana J, Tiwari R, **Natesan S**, Harapan H, Arteaga-Livias K, Bonilla-Aldana DK, Rodríguez-Morales AJ, Dhama K. The kidney and COVID-19 patients - Important considerations. *Travel Med Infect Dis.* 2020 Aug 1;37:101831. doi: 10.1016/j.tmaid.2020.101831. Epub ahead of print. PMID: 32750416; PMCID: PMC7395611.
- Ranjit Sah, Nayanum Pokhrel, Zareena Fathah, Akihiko Ozaki, Divya Bhandar, Yasuhiro Kotera, Niranjan Prasad Shah, Shailendra Sigdel, Kranti Suresh Vora, **SenthilKumar Natesan**, Shailesh Kumar Patel, Ruchi Tiwari, Yashpal Singh Malik, Mohd. Iqbal Yattoo, Alfonso J Rodriguez-Morales and Kuldeep Dhama. SARS-CoV-2 / COVID-19: Salient Facts and Strategies to Combat Ongoing Pandemic. *J Pure Appl Microbiol.* 14(3): September 2020.
- Ragini Bhatia, Rajesh Chaudhary, Sandip Kumar Khurana, Ruchi Tiwari, Kuldeep Dhama, Vivek Kumar Gupta, Raj Kumar Singh and **Senthilkumar Natesan**. Strengthening of Molecular Diagnosis of SARS-CoV-2 / COVID-19 with a Special Focus on India. , *J. Pure Appl. Microbiol.*, 14(Special Edition), May 2020.
- Patel SK, Pathak M, Rana J, Tiwari R, **Natesan S**, Dhama J, Malik YS, Rodriguez-Morales AJ, Dhama K, Pagliano P. Possibility of SARS-CoV-2 transmission from the breast milk of COVID-19 affected women patients to their infants: worries and strategies to counter it. *Infez Med.* 2020 Sep 1;28(3):291-294. PMID: 32920563.
- Bhumika Prajapati, Kranti Suresh, Vora, Zareena Fathah, Ranjit Sah, Ruchi Tiwari, Yashpal Singh Malik, Kuldeep Dhama, Isha Rajendiran, **Senthilkumar Natesan**. Emergence of second wave of sars-cov-2 infections during the ongoing covid-19 pandemic: a mini review. *Journal of Experimental Biology and Agricultural Sciences*, December - 2020; Volume – 8(Spl-1- SARS-CoV-2).

- Sharun K, Tiwari R, **Natesan S**, Yattoo MI, Malik YS, Dhama K. International travel during the COVID-19 pandemic: Implications and risks associated with 'Travel Bubbles'. *J Travel Med.* 2020 Sep 30:taaa184. doi: 10.1093/jtm/taaa184. Epub ahead of print. PMID: 33009813.
- Comparative evaluation of the origin, evolution, transmission, diagnosis, and vaccine development of three highly pathogenic human coronaviruses (SARS-CoV, MERS-CoV and SARS-CoV-2). *Journal of Experimental Biology and Agricultural Sciences*, 2020. 8(Spl-1-SARS-CoV-2): In Press
- Ranjit Sah, Nayanum Pokhrel, Zareena Fathah, Akihiko Ozaki, Divya Bhandari, Yasuhiro Kotera, Niranjan Prasad Shah, Shailendra Sigdel, Kranti Suresh Vora, **Senthilkumar Natesan**, Shailesh Kumar Patel, Ruchi Tiwari, Yashpal Singh Malik, Mohd. Iqbal Yattoo, Alfonso J Rodriguez-Morales and Kuldeep Dhama. SARS-CoV-2 / COVID-19: Salient Facts and Strategies to Combat Ongoing Pandemic. *J Pure Appl Microbiol.* 2020;14(3):1663-1674. doi: 10.22207/JPAM.14.3.04
- Krishna Prasad Acharya, Ranjit Sah, Supram Hosuru Subramanya, Dinesh Neupane, Binay Kumar Panjiyar, Ali A. Rabaan, Kranti Suresh Vora, **Senthilkumar Natesan**, Kuldeep Dhama and Alfonso J. Rodriguez-Morales. COVID-19 Case Fatality Rate: Misapprehended Calculations. *J Pure Appl Microbiol.* 2020. 14(3):1675-1679.
- Dhama K, Patel SK, **Natesan S.**, Vora K et al. (2020) COVID-19 in elderly people and advances in vaccination approaches. *Human Vaccines and Immunotherapeutic.* In Press.
- Raj Kumar Singh, Kuldeep Dhama, Sandip Chakraborty, Ruchi Tiwari, **Senthilkumar Natesan**, Rekha Khandia, Ashok Munjal, Kranti Suresh Vora, Shyma K. Latheef, Kumaragurubaran Karthik, Yashpal Singh Malik, Rajendra Singh, Wanpen Chaicumpa & Devendra T. Mourya. Nipah virus: epidemiology, pathology, immunobiology and advances in diagnosis, vaccine designing and control strategies – a comprehensive review. *Veterinary Quarterly*, Volume 39, 2019 - Issue 1.
- Vala, A.K., P. V. Parikh, J. K. Mahla, D. N. Kelawala, **S. Natesan** (2018). Studies on management of canine mammary tumours with dendritic cell therapy. *Indian Journal of Applied Research*, 8 (4), 57-59.
- Acharya N, Gohel D, Kuberkar V, **Natesan S** (2015). Recent advances in immunotherapy for the treatment of cancer. *Adv. Anim. Vet. Sci.* 3(4s): 23-29.
- Alonso Heredia, **Senthilkumar Natesan**, Nhut M. Le, Sandra Medina-Moreno, Juan C. Zapata, Marvin Reitz, Joseph Bryant, Robert R. Redfield (2014). Indirubin 3'-Monoxime, from a Chinese Traditional Herbal Formula, Suppresses Viremia in Humanized Mice Infected with Multidrug-Resistant HIV No Access. *AIDS Research and Human Retroviruses.* 30(5): 403-406.
- Amarpal, Kuldeep Dhama, Sandip Chakraborty, Ruchi Tiwari and **Senthilkumar Natesan** (2013). Stem cells and their clinical / therapeutic applications in biomedical and veterinary science – The perspectives. *Research Opinions in Animal and Veterinary Sciences.* 3:9, 261-279.
- Kuldeep Dhama, Sandip Chakraborty, Sanjay Kapoor, Ruchi Tiwari, Amit Kumar, Rajib Deb, S. Rajagunalan, Rajendra Singh, Kranti Vora, **Senthilkumar Natesan** (2013) [One World, One Health - Veterinary Perspectives](#). *Advances in Animal and Veterinary Sciences.* 1 (1): 5 – 13.
- Kuldeep Dhama, Amit Kumar Verma, Ruchi Tiwari, Sandip Chakraborty, Kranti Vora, Sanjay Kapoor, Rajib Deb, Karthik K, Rajendra Singh, Muhammad Munir, **Senthilkumar Natesan** (2013). A Perspective on Applications of Geographical Information System (GIS); an Advanced Tracking Tool for Disease Surveillance and Monitoring in Veterinary Epidemiology. *Advances in Animal and Veterinary Sciences.* 1 (1): 14 – 24
- Suzanne Gartner, Yiling Liu, and **Senthilkumar Natesan** (2012). Generation of cells within human nurse macrophages and consequences following HIV infection. *PLoS ONE*, 7(7): e40139. doi:10.1371/journal.pone.0040139.

- Yiling Liu, **Senthilkumar Natesan**, Mikulas Popovic and Suzanne Gartner (2011). Characterization of nurse macrophage-derived cells that express stem cell markers. *Journal of Acquired Immune Deficiency Syndromes*, 56, 94 (abstract).
- Mikulas Popovic, Yiling Liu, **Senthilkumar Natesan** and Suzanne Gartner (2011). Self-Renewing Monocytoid Cells (SRMC) derived from cultured blood monocytes as targets and hosts for viruses. *Journal of Acquired Immune Deficiency Syndromes*, 56, 93 (abstract).
- Senthilkumar Natesan**, Kataria, J. M., Dhama, K and Rahul, S (2008). Direct detection of chicken anemia virus in plasma and serum by polymerase chain reaction. *Indian Veterinary Journal*. 85(6): 581-584.
- Ashok Chauhan, Sven Hahn, Suzanne Gartner, Carlos A. Pardo-Villamizar, **Senthilkumar Natesan**, Justin McArthur and Avindra Nath. (2007). Molecular programming of Endothelin-1 in HIV-infected brain: role of tat in upregulation and its inhibition by Statins. *The FASEB Journal*. 21(3): 777-789
- Senthilkumar Natesan**, Kataria, J. M., Dhama, K, Bharadwaj, N. and Sylvester S. (2006). Anti-neoplastic effect of chicken anemia virus VP3 protein (Apoptin) in Rous sarcoma virus induced tumours in chicken. *Journal of General Virology*. 87. 2933-40.
- Senthilkumar Natesan**, Kataria, J. M., Dhama, K, Rahul, S. and Bhardwaj, N. (2006). Biological and molecular characterization of chicken anaemia virus isolates of Indian origin. *Virus research*. 118. 78-86.
- Senthilkumar Natesan**, Amanda Brown, Yiling liu and Suzanne Gartner (2005). Detection of shared protease and RT defective HIV in plasma and serum of patients. *Retrovirology*, 2005, 2(1), 69.
- Rahul, S. Kataria, J. M. Senthilkumar, N. Dhama, K. Sylvester, S. A. and Uma, R. (2005). Association of fowl adenovirus serotype 12 with hydropericardium syndrome of poultry in India. *Acta Virologica*, 49 (2), 139-143.
- Senthilkumar, N.**, Kataria, J. M., Madhuri Koti, Dhama, K. and B.B. Dash (2004). Restriction Enzyme Analysis of Indian isolates of Egg drop syndrome 1976 virus recovered from Chicken, Duck and Quail. *Veterinary Research Communications*. 28. 447- 453.
- Senthilkumar, N.**, D.Govindarajan, K.Dhama and J.M.Kataria (2003). Egg Drop Syndrome - 76 (EDS-76) virus – A review. *Indian J. Comp. Microbiol. Immunol. Infect. Dis.*, 24 (1): 1-15.
- Senthilkumar, N.**, Kataria, J. M., Dhama, K and Madhuri Koti (2004) Development of antigen capture ELISA for the detection of egg drop syndrome 1976 virus in chicken. *Ind. J. Poult. Sci.* 39 (1): 90-94.
- Dhama, K., Kataria, J.M., **Senthilkumar, N.** and Tomar, S. (2004). Differentiation of Indian isolates of Chicken infectious anaemia virus by polymerase chain reaction- restriction enzyme analysis. *Indian J. Comp. Microbiol. Infect. Dis.*, 25(2): 75-79.
- Senthilkumar, N.**, Kataria, J. M., Dhama, K and Madhuri Koti (2004) Development of antigen capture ELISA for the detection of egg drop syndrome 1976 virus in chicken. *Ind. J. Poult. Sci.* 39 (1): 90-94.
- Senthilkumar, N.**, Kataria, J. M., M. Koti, Dhama, K and Toroghi, R (2003). Detection of egg drop syndrome 1976 virus by polymerase chain reaction and its persistence study in experimentally infected layer birds. *Acta Virologica*, 47:179-184.
- Senthilkumar, N.**, J. M. Kataria, K. Dhama, S.A. Sylvester, S. Rahul and N. Bhardwaj (2003). Semi-nested PCR detection of chicken anaemia virus (CAV) in experimentally infected chickens. *Indian J. Comp. Microbiol. Immunol. Infect. Dis.* 24 (1): 25-28.
- Senthilkumar, N.**, R. Toroghi, J.M. Kataria and K. Dhama (2003). Sequence Analysis of the Cleavage Site-Encoding Region of the Fusion Protein Gene of Newcastle Disease Viruses Obtained from Pigeon, Guinea Fowl and Quail. *Indian J. Comp. Microbiol. Immunol. Infect. Dis.*, 24(2).

- Senthilkumar, N.**, Kataria, J. M., Dhama, K and S. Rahul (2002). Day-old specific pathogen free chicks infected with chicken anaemia virus become carrier during the growing period *Ind. J. of Comp. Microbiol. Immunol. & Infect. Dis.* 23 (2), 137- 140.
- Dhama, K., Kataria, J.M., **Senthilkumar, N.**, Tomar, S. and B.B. Dash (2002). Standardization and application of polymerase chain reaction and indirect immunofluorescent technique for detection of chicken infectious anaemia virus. *Indian J. Comp. Microbiol. Immunol. Infect. Dis.* 23 (2): 111-122. (Received Dr. C.M. Singh Best Research Paper Award 2002)
- Dhama, K., Kataria, J.M., Dash, B.B., **Senthilkumar, N.** and Tomar, S. (2002). Chicken infectious anaemia – A Review. *Indian J. Comp. Microbiol. Infect. Dis.*, 23(1): 1-15.
- Toroghi, R., Kataria, J.M., Verma, K.C., **Senthilkumar, N.** and Dhama, K. (2001). Susceptibility of chicken embryo fibroblast (CEF) and BGM –70 cells for isolation of the infectious bursal disease virus (IBDV). *Ind. J. of Comp. Microbiol. Immunol. & Infect. Dis.*, 22(1): 29-32.
- Koti, M., Verma, K.C., Kataria, J.M., Senthilkumar, N. and Toroghi, R. (2000). Antigenic and molecular characterization of Indian isolates of avian reovirus. *Ind. J. Comp. Microbiol. Immun. Infect. Dis.* 21: 98-101.
- Kataria, J.M., Padma Suresh R., Verma, K.C., Reza Toroghi, **Senthilkumar, N.**, Kataria, R.S. and Sah, R.L. (1999). Chicken infectious anaemia (CIA) in India: Detection of the agent by polymerase chain reaction and transmission study. *Indian J. Comp. Microbiol. Immunol. Infect. Dis.*, 20(2): 105-111.
- Nagarajan, B., **Senthilkumar, N.**, Pradhaban, S. and K. Vasu (1998). Esophageal obstruction in a cow due to Trichobezor. *Ind. J. Vet. Med.*, 18(2): 69-70.

Other publications

- Dash, B.B, K. Dhama, J.M. Kataria and **N. Senthilkumar** (2004). Lymphoid leukosis subgroup - J virus infection in poultry. *Poultry Times of India*, Jan-2004 issue, No. 6, pp-9-11.
- Dhama, K., **N. Senthilkumar**, J.M. Kataria and B. B. Dash (2003). Biosecurity- an effective tool to prevent many threats to poultry health: Part I. *Indian Poultry Review*. Vol. 35, No. 3, Oct. 2003 issue, pp: 35-41.
- Dhama, K, **N. Senthilkumar**, J.M. Kataria and B. B. Dash (2003). Biosecurity- an effective tool to prevent many threats to poultry health: Part II. *Indian Poultry Review*. Vol. 35, No. 4, Nov. 2003 issue, pp: 39-44.
- Kataria, J.M., **N. Senthilkumar**, K. Dhama and S. Rahul (2003). Emerging viral diseases of poultry in India. *Poultry Guide*, June issue, Vol. 1 (2): 14-17.
- Kataria, J.M., **N. Senthilkumar**, K. Dhama and B. B. Dash (2003). Avian reovirus infections: Indian scenario. *Poultry Guide*, Oct-2003 issue, pp-32- 34.
- Dash, B.B, K. Dhama, J.M. Kataria and **N. Senthilkumar** (2003). Disease status and their management in diversified poultry flocks of India. *Poultry Punch*, 19 (12), 25-33.
- Kataria, J.M, B. B. Dash, K. Dhama and **N. Senthilkumar** (2003). Common diseases of indigenous poultry flocks and their control. *Poultry Punch*, 19(12), 48-56.
- Senthilkumar, N.**, Govindarajan, D., Dhama, K. and Kataria, J.M. (2002). Chicken anaemia virus – An emerging threat to Indian Poultry industry. *Pashudhan* Vol. 17 No. 5&6 p. 3.

Book chapters

- Dhama, K and **Natesan, S.** Novel therapeutics for cancer. In: Animal cancer diagnosis, management and therapeutics. Edited by R.Somwanshi and K. Dhama. Published by Narender publishers, New Delhi, India.2011.
- Dhama, K, Sawant, PM, Tiwari R, and **Natesan S.** Chapter: Lyme Disease. In: Zoonoses Control

in Developing Countries. Editor: Garg, SR, Hissar, Haryana, 2012.

Dhama, K, Sawant, PM, Tiwari R, and **Natesan S**. Chapter: Campylobacteriosis. In: Zoonoses Control in Developing Countries. Editor: Garg, SR, Hissar, Haryana, 2012.

Dhama, K, Sawant, PM, Tiwari R, and **Natesan S**. Chapter: Biosecurity against poultry zoonoses. In: Zoonoses Control in Developing Countries. Editor: Garg, SR, Hissar, Haryana, 2012.

Dhama, K, Wani, MY, Tiwari R, and **Natesan S**. Chapter: Erysipeloid. In: Zoonoses Control in Developing Countries. Editor: Garg, SR, Hissar, Haryana, 2012.

Dhama, K and **Natesan, S**. Tumor immunology and immune mechanisms to fight cancer. In: Animal cancer diagnosis, management and therapeutics. Edited by R.Somwanshi and K. Dhama. Published by Narender publishers, New Delhi, India.2011

Natesan, S. Molecular diagnosis of poultry diseases. In: Laboratory Manual on Poultry disease diagnosis. Edited by. J.M. Kataria, S.D. Singh, K. Dhama and K.C. Verma. Published by I.V.R.I, Izatnagar, Bareilly, UP, India. 2001.