

# ABHINOY KISHORE

B6/603, Shanthi Park, Jayanagar 9<sup>th</sup> Block.  
Jayanagar  
Bangalore 560069

Email: [abhinoy@gmail.com](mailto:abhinoy@gmail.com)  
Google scholar <https://scholar.google.co.in/citations?user=cehC3v0AAAAJ&hl=en>  
ResearchGate [https://www.researchgate.net/profile/Abhinoy\\_Kishore](https://www.researchgate.net/profile/Abhinoy_Kishore)  
Contact No.: +91-7250610999

---

**Present Position:** Research Associate, Dept. of Biotechnology, Gov. of India at Molecular Biophysics Unit, Indian Institute of Science (since July 2017)

**Post doctorate:** Post doctorate fellow at Centre for Neurosciences, Indian Institute of Science (May 2016- July 2017)

**Ph.D. (Neuro-virology):** Indian Institute of Science Education and Research- Kolkata 2009 (Aug) to 2015 (Dec)

**M. Sc. (Biochemistry):** University of Pune (India) 2005

**B. Sc. (Chemistry):** University of Pune (India) 2003

## Research Interest

- Nanostructures and their potential role in cell morphological differentiation and neuronal regeneration.
- Virus-host interaction
- Translation-dependent Neuronal plasticity especially the role of polysomes in learning and memory.
- Mechanobiology: Mechanical stress-induced gene expression.

## Description of PhD work

Title: *Two consecutive central proline residues of internal fusion peptide of mouse hepatitis virus spike protein serves important role in neuronal cell fusion*

In my doctoral study, I worked on research comprises of comparison of animal models for Multiple Sclerosis- EAE (Experimental Autoimmune Encephalomyelitis) and MHV-A59 (Mouse Hepatitis Virus, a coronavirus). MHV-A59 is a viral model, that has host attachment protein, spike protein, which is responsible for causing demyelination and axonal loss in an animal model. My objective was to decipher the molecular basis of demyelination and find out the minimum motif responsible for demyelination and axonal loss. With the elaborate study, I established the presence of two consecutive cis-proline in fusion peptide of spike protein and its significant role in cell to cell fusion which further leads to viral spread and demyelination.

## Publications

### Articles:

1. Singh M\*, **Kishore A\***, Maity D, Sunanda P, Krishnarjuna B, Vappala S, Raghothama S, Kenyon LC, Pal D, Das Sarma J.. (2019). A proline insertion-deletion in the spike glycoprotein fusion peptide of mouse hepatitis virus strongly alters neuropathology. *J Biol Chem.* pii: jbc.RA118.004418. doi: 10.1074/jbc.RA118.004418.
2. **Kishore A**, Biswas K, Rao VN, Shunmugam R, Das Sarma J. (2014) Functionalized single walled carbon nanotubes facilitate efficient differentiation of neuroblastoma cells in vitro. *RSC Adv.*, 4, 53777–53787 DOI: 10.1039/c4ra09540e. ([PDF](#))
3. **Kishore A**, Kanaujia A, Nag S, Rostami AM, Kenyon LC, Shindler KS, Das Sarma J. (2013) Different mechanisms of inflammation induced in virus and autoimmune-mediated models of multiple sclerosis in C57BL6 mice. 589048. *Biomed Res Int.* DOI: 10.1155/2013/589048. Epub 2013 Aug 28. ([PDF](#))
4. Rao VN, Mane SR, **Kishore A**, Das Sarma J, Shunmugam R. (2012) Norbornene Derived Doxorubicin Copolymers as Drug Carriers with pH Responsive Hydrazone Linker. *Biomacromolecules*, 9;13(1):221-30. ([PDF](#))
5. Rao VN, **Kishore A**, Sarkar S, Das Sarma J, Shunmugam R. (2012) Norbornene-Derived Poly-D-lysine Copolymers as Quantum Dot Carriers for Neuron Growth. *Biomacromolecule*, 13, 2933-2944. ([PDF](#))
6. Mane SR, Rao VN, Chatterjee K, Dinda H, Nag S, **Kishore A**, Das Sarma J, Shunmugam R. (2012) Amphiphilic Homopolymer Vesicles as Unique Nano-Carriers for Cancer Therapy. *Macromolecules*, 45 (19), pp 8037–8042. ([PDF](#))
7. Mane SR, Rao VN, Chatterjee K, Dinda H, Nag S, **Kishore A**, Das Sarma J, Shunmugam R. (2012) A unique polymeric nano-carrier for anti-tuberculosis therapy. *Journal of Materials Chemistry*, 22, 19639-19642. ([PDF](#))

### Conference Papers:

1. Ghosh D, Mukherjee S., **Kishore A**, Chikanna A. (2017) Characterization of high exopolysaccharide produced by a halophilic thermotolerant bacteria *Halomonas nitroreducens* strain WB1. Goldschmidt Conference-2017, Paris.
2. **Kishore A**, Biswas K, Rao VN, Shunmugam R, Das Sarma J. (2014) Functionalized single walled carbon nanotube facilitates differentiation of neuroblastoma cells in vitro. Indo-US

Symposium on Viral Infections of the Nervous System, 23-25 February 2014 National Brain Research Centre, India.

3. **Kishore A**, Bhaumik P and Das Sarma J. (2013) Two consecutive proline residues in the fusion domain of the spike protein is the major determinant of the Fusogenic properties of mouse hepatitis virus. International Conference on Neuroscience, Ravenshaw University, Cuttack. November 9-12, 2013. *Oral presentation*.
4. **Kishore A**, Bhaumik P and Das Sarma J. (2012) Identification of Putative Domains of the Mouse Hepatitis Virus Spike Protein Involved in the Axonal Transport and Consecutive Demyelination. Frontiers of Modern biology (FIMB 2012), Department of Biological sciences, IISER Kolkata. *Oral presentation*
5. **Kishore A**, Bhaumik P and Das Sarma J. (2012) Proline rich fusion domain of the mouse hepatitis virus spike protein is involved in the neuronal cell fusion and induction of axonal loss concurrent with demyelination. 5<sup>th</sup> International Symposium on Neurovirology, New York , May 29-June 2, 2012.
6. **Kishore A**, Kanunjia A, Nag S, Rostami AM, Kenyo LC, Shindler KC, Das Sarma J. (2012) Different mechanisms of inflammation induced in viral- and autoimmune-mediated models of multiple sclerosis in C57BL6 mice. 5<sup>th</sup> Annual meeting of the Cytometry society, India. October 12<sup>th</sup>, 2012, CRNN, University of Calcutta.
7. **Kishore A**, Bhaumik P, Das Sarma J. (2012) Two consecutive proline residues in the fusion domain of the spike protein is the major determinant of the Fusogenic properties of mouse hepatitis virus. XXX Annual Meeting of Indian Academy of Neurosciences at Amritsar, October 27<sup>th</sup> - 30<sup>th</sup>, 2012. *Awarded: S.S. Parmar Research Foundation (USA) Prize*.
8. **Kishore A**, Kanunjia A, Nag A, Rostami AM, Shindler KS, Kenyon LC, Das Sarma J. (2011) Direct Viral Mediated Demyelination and Immune Mediated Experimental Autoimmune Encephalitis (EAE) Models of Multiple Sclerosis. Indian Academy of Neurosciences, DIPAS, Delhi.
9. **Kishore A**, Das Sarma J, Shunmugam R. (2011) Functionalized single-walled carbon nanotube enhances the growth of the dendritic processes and axon of Neuro-2A cells: an appropriate model to study viral spread and persistence. Symposium in polymer science (SPC-2011), IISER Kolkata. *Awarded: Best poster*.
10. **Kishore A**, Singh A, Kanunjia A, Rostami AM, Kenyon LC, Das Sarma J. (2010) Comparison of Direct Viral Mediated Demyelination and Immune Mediated Experimental Autoimmune Encephalitis (EAE) Models of Multiple Sclerosis. 79th SBCI (Society of Biological Chemist), December 13-15, IISc, Bangalore.

### **Honors and awards**

- Awarded the CSIR Ph.D. Fellowship 2005 from Gov. of India.
- Awarded UGC Lecturer-ship 2008, Gov. of India.

**Other research experiences:**

Worked as Research Student at Agharkar Research Institute, Pune (15th May 2008 - 2nd August 2009) on *Sorghum* research project. In the project hybrids of *Sorghum* (cross of different indigenous varieties) were analyzed for various biochemical components like polyphenols, phytate, total antioxidant capacity, fiber content and Fe content.

**Skills:**

1. Cell Culture: Basic Cell Culture Techniques, Infecting Cells with virus, Transfection, Drug loading, Dye Transfer assay, MTT assay, Trypan Blue Cell Viability test, Immunofluorescence.
2. Microscopy: Epi Fluorescence microscopy, Higher resolution microscopy-STORM, PALM, Two Photon microscopy.
3. Molecular Biology Techniques: Basic Molecular biology Techniques (cloning, PCR, qPCR, DNA-RNA isolation and other standard methods), Site directed Mutagenesis, invitro Transcription, Electroporation.
4. Virological Techniques: Viral Amplification, Estimation of Viral particle by Titre Assay, Generating recombinant virus by Targeted RNA Recombination, Plaque purification assay.
5. Animal Experiment: Animal Handling, Virus Inoculations, Immunization, Dissection, Perfusion, Tissue Harvesting.
6. Primary Tissue Culture: Microglia & Astrocyte Isolation, Oligo Culture- Precursor and Differentiated culture, Primary hippocampal neuronal culture derived from Wistar Rat P<sub>0</sub>-P<sub>2</sub>.
7. Lenti and AVV expression system.
8. Histopathology: Tissue Processing, Tissue Section and staining, Immunohistochemistry.
9. Protein Chemistry: Primer designing, cloning, Expression of Protein in bacterial system, Isolation and purification of Protein, Western Blot.
10. Dry Lab: Protein Structural analysis using Chimera and molecular dynamics stimulation in Gromac.

**Teaching Experience:**

- Conducted lab courses of under graduate student in – Molecular biology and immunology.
- Mentored MS student dissertation work.

## Referees:

### 1. Prof. Jayasri Das Sarma

Professor

Dept: Biological Sciences.

Indian Institute of Science Education and Research-Kolkata.

Research focus: Neural Cell Biology, Neuroscience

Contact No. :+91- 9748642423

E-mail: [dassarmaj@iiserkol.ac.in](mailto:dassarmaj@iiserkol.ac.in)

Web: <http://www.iiserkol.ac.in/~dassarmaj/>

### 2. Prof. S.K. Sikdar

Professor

Molecular Biophysics Unit

Indian Institute of Science, Bangalore.

Research focus: Electrophysiology

E-mail: [sks@iisc.ac.in](mailto:sks@iisc.ac.in)