

**Jayasri Das Sarma, PhD**

Professor, Department of Biological Sciences  
 Indian Institute of Science Education and Research Kolkata; Kolkata – 741246, India  
 Adjunct Associate Professor, Department of Ophthalmology; University of Pennsylvania; Philadelphia, USA  
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• **Academic Qualification (Undergraduate Onwards)**

Institute and Location	Specialization	Degree and Year
Calcutta University, India	Education	B.Ed.; 1990
Calcutta University	Zoology	M.Sc; 1991
Calcutta University	Environmental Science	M. Phil; 1991
Student of ISI, Kolkata; Registered under Jadavpur University, India	Chemistry/Immunology	PhD; 1995

• **Work experience (in chronological order)**

Position	Division/ Department	University/Institution	From (Month Year)	To (Month Year)
Research Associate	MRDG	IISC Bangalore	Jan,1996	Dec, 1997
Post-Doctoral researcher	Pathology	University of Pennsylvania	Feb,1997	Sept,2000
Senior Research Investigator	Microbiology	University of Pennsylvania	Oct,2002	Sept,2003
Assistant Professor	Neuroscience	Thomas Jefferson University	Oct,2004	Sept,2008
Associate Professor	Biological sciences	IISER Kolkata	Oct,2008	Feb, 2015
Professor	Biological sciences	IISER Kolkata	Mar,2015	Till Date
Adjunct Associate Professor	Ophthalmology	University of Pennsylvania	Mar,2013	Till date

• **Professional Recognition/ Award/ Prize/ Certificate, Fellowship**

**Honors, Special Recognitions and Awards**

2018 Host for **ASM-IUSSTF** Indo-US Professorship Award of Professor Sharon Gusky from North Western Connecticut Community College, CT, USA

## Biographical Sketch

2018	Elected Fellow of West Bengal Academy of Science and Technology (WAST)
2018	Institute appreciation for contribution to Science and Administration the occasion of Science Day
2017	<b>ASMCUE</b> Leadership Award for International Educators Sponsored by the American Society for Microbiology (ASM)
2016	<b>ASMCUE</b> Leadership Award for International Educators Sponsored by the American Society for Microbiology (ASM)
2013	<b>ASM-IUSSTF</b> Indo-US International Professorship Award to develop a bi-lateral research relationship between India and the US
2007	Science Horizon Research Internships-Mentor Award Bryn Mawr College, USA
2007	Lind back Distinguished Teaching Award/Junior Faculty Career, Enhancement Award, USA
2002	Dale McFarlin Award, National Multiple Sclerosis Society, USA
2001	Advanced Postdoctoral Fellowship Award, National Multiple Sclerosis Society, USA

## Publications

1. Maulik, M., Vasan, L., Bose, A., Dutta Chowdhury, S., Sengupta, N., Das Sarma, J., Amyloid- $\beta$  regulates gap junction protein Connexin 43 trafficking in cultured primary astrocytes doi: 10.1074/jbc.RA120.013705
2. Chakravarty, D., Saadi, F., Kundu, S., Bose, A., Khan, R.S., Dine, K., Kenyon, L.C., Shindler, K.S., Das Sarma, J. \*, "CD4 deficiency causes poliomyelitis and axonal blebbing in murine coronavirus induced neuroinflammation", Journal of Virology, May 2020; DOI: 10.1128/JVI.00548-20
3. Sarkar, L., Putchala, R.K., Safiriyu, A.A., Das Sarma, J.\*, "Azadirachta indica A. Juss ameliorates Mouse Hepatitis virus-induced neuroinflammatory demyelination by modulating cell-to-cell fusion in an experimental animal model of Multiple Sclerosis", Frontiers in Cellular Neuroscience, 2020; 14: 116, April 2020, doi: 10.3389/fncel.2020.00116
4. Rout, S.S., Singh, M., Shindler, K.S., Das Sarma, J.\*, "One proline deletion in the fusion peptide of neurotropic mouse hepatitis virus (MHV) restricts retrograde axonal transport and neurodegeneration", Journal of Biological Chemistry, April 2020, doi: 10.1074/jbc.RA119.011918
5. Singh, M.#, Kishore, A.#, Maity, D., Sunanda, P., Krishnarajuna, B., Vappala, S., Raghothama, S., Kenyon, L.C., Pal, D.\*, and Das Sarma, J. \*, "A proline insertion-deletion in the spike glycoprotein fusion peptide of mouse hepatitis virus strongly alters neuropathology", Journal of Biological Chemistry 294(20):8064-8087, 2019; doi: 10.1074/jbc.RA118.004418
6. Singh, M., Khan, R.S., Dine, K., Das Sarma, J.\* and Shindler, K.S.\*, "Intracranial Inoculation Is More Potent Than Intranasal Inoculation for Inducing Optic Neuritis in the Mouse Hepatitis Virus-Induced Model of Multiple Sclerosis", Frontiers in Cellular and Infection Microbiology 4;8:311, 2018; doi: 10.3389/fcimb.2018.00311
7. Hussain, A., Das Sarma, S., Babu, S., Pal, D., Das Sarma, J.\*, "Interaction of arsenic with gap junction protein connexin 43 alters gap junctional intercellular communication", Biochimica et Biophysica Acta - Molecular Cell Research 1865(10):1423-1436, 2018; doi: 10.1016/j.bbamcr.2018.07.014
8. Bose, A., Basu, R., Maulik, M., Das Sarma, J.\*, "Loss of Cx43-mediated functional Gap junction communication in meningeal fibroblasts following Mouse Hepatitis virus infection", Molecular Neurobiology 55(8):6558-6571, 2018; doi: 10.1007/s12035-017-0861-3
9. Bhattacharya, S., Mukherjee, S., Das Sarma, J., Shunmugam R. A. \*, "Metal assisted self-assembled rod like nanostructures for effective cellular internalization", Polymer Chemistry 9, 2157-2165, 2018; doi: 10.1039/C7PY01893B
10. Basu, R., Bose, A., Thomas, D., Das Sarma, J.\*, "Microtubule-assisted altered trafficking of astrocytic gap junction protein connexin 43 is associated with depletion of connexin 47 during mouse hepatitis virus infection", Journal of Biological Chemistry 292(36):14747-14763, 2017; doi: 10.1074/jbc.m117.786491

11. Das Sarma, S., Hussain, A., Das Sarma, J.\*, "Advances made in Understanding the Effects of Arsenic Exposure on Humans", *Current Science* 112(10):2008, 2017; doi: 10.18520/cs/v112/i10/2008-2015
12. Sadasivan, J., Singh, M., Das Sarma, J.\*, "Cytoplasmic tail of coronavirus spike protein has intracellular targeting signals", *Journal of Biosciences* 42(2):231-244, 2017; doi: 10.1007/s12038-017-9676-7 (Cover page illustration).
13. R.J., Shindler, K.S., Das Sarma, J.\*, "Demyelinating strain of mouse hepatitis virus infection bridging innate and adaptive immune response in the induction of demyelination", *Clinical Immunology* 170:9-19, 2016; doi: 10.1016/j.clim.2016.07.004
14. Basu, R., Banerjee, K., Bose, A., Das Sarma, J.\*, "Mouse Hepatitis virus infection remodels Connexin43-mediated Gap junction intercellular communication in vitro and in vivo", *Journal of Virology* 90(5):2586-2599, 2015; doi: 10.1128/jvi.02420-15
15. Kenyon, L.C., Biswas, K., Shindler, K.S., Nabar, M., Stout, M., Hingley, S.T., Grinspan, J.B. Das Sarma, J.\*, "Gliopathy of demyelinating and non-demyelinating strains of Mouse Hepatitis virus", *Frontiers in Cellular Neuroscience* 9:488, 2015; doi: 10.3389/fncel.2015.00488
16. Chatterjee, D., Addya, S., Khan, R.S., Kenyon, L.C., Choe, A., Cohrs, R.J., Shindler, K.S.\*, Das Sarma, J.\*, "Mouse Hepatitis virus Infection upregulates genes involved in innate immune responses", *PLoS One* 9(10):e111351, 2014; doi: 10.1371/journal.pone.0111351
17. Mane, S.R., Dina, H., Nathan, A., Das Sarma, J., Shunmugam, R.\*, "Increased bioavailability of Rifampicin from stimuli-responsive smart nano carrier", *ACS Applied Materials & Interfaces*, 6(19):16895-16902, 2014; doi: 10.1021/am504402b
18. N, V.R., Dina, H., Venue, P., Das Sarma, J.\*, Shunmugam, R.\*, "Smart nanocarrier from norbornene based triblock copolymers for the sustained release of multi-cancer drugs", *RSC Advances* 4(85):45625-45634, 2014; doi: 10.1039/c4ra07549h
19. N, V.R., Ganivada, M. N., Sarkar, S., Dinda, H., Chatterjee, K., Dalui, T., Das Sarma, J., Shunmugam, R.\*, "Magnetic Norbornene Polymer as Multiresponsive Nanocarrier for Site Specific Cancer Therapy", *Bioconjugate Chemistry* 25(2):276-285, 2014; doi: 10.1021/bc400409n
20. Khan, R.S., Dine, K., Das Sarma, J.\*, Shindler, K.S.\*, "SIRT1 Activating compounds reduce oxidative stress mediated neuronal loss in viral induced CNS demyelinating disease", *Acta Neuropathologica Communications* 2(3), 2014; doi: 10.1186/2051-5960-2-3
21. Mane, S.R., Chatterjee, K., Dinda, H., Das Sarma, J.\*, Shunmugam, R.\*, "Stimuli responsive nanocarrier for an effective delivery of multi-frontline tuberculosis drugs", *Polymer Chemistry*, 5(8):2725-2735, 2014; doi: 10.1039/c3py01589k
22. Kishore, A., Biswas, K., N, V.R., Shunmugam, R.\*, Das Sarma, J.\*, "Functionalized single walled carbon nanotubes facilitate efficient differentiation of neuroblastoma cells in vitro", *RSC Advances* 4(96):53777-53787, 2014; doi: 10.1039/c4ra09540e
23. N, V.R., Dinda, H., Ganivada, M.N., Das Sarma, J.\*, Shunmugam, R.\*, "Efficient approach to prepare multiple chemotherapeutic agent conjugated nanocarrier" *Chemical Communications* 50(88):13540-13543, 2014; doi: 10.1039/c4cc04445b
24. Biswas, K., Das Sarma, J.\*, "Effect of microtubule disruption on neuronal spread and replication of demyelinating and non-demyelinating strains of Mouse Hepatitis virus in vitro", *Journal of Virology* 88(5):3043-3047, 2013; doi: 10.1128/jvi.02545-13
25. Kishore, A., Kanaujia, A., Nag, S., Rostami, A.M., Kenyon, L.C., Shindler, K.S.\*, Das Sarma, J.\*, "Different mechanisms of inflammation induced in virus and autoimmune-mediated models of Multiple Sclerosis in C57BL6 mice", *BioMed Research International* 1-9, 2013; doi: 10.1155/2013/589048
26. Chatterjee, D., Biswas, K., Nag, S., Ramachandra, S.G., Das Sarma, J.\*, "Microglia play a major role in direct viral-induced demyelination", *Clinical and Developmental Immunology* 1-12, 2013; doi: 10.1155/2013/510396.
27. Mane, S.R., N, V.R., Chatterjee, K., Dinda, H., Nag, S., Kishore, A., Das Sarma, J.\*, Shunmugam, R.\*, "Amphiphilic Homopolymer vesicles as unique nano-Carriers for cancer therapy", *Macromolecules*, 45(19), 8037-8042, 2012; doi: 10.1021/ma301644m
28. N, V.R., Kishore, A., Sarkar, S., Das Sarma, J.\*, Shunmugam, R.\*, "Norbornene-derived Poly-d-lysine copolymers as quantum dot carriers for neuron growth", *Biomacromolecules* 13(9):2933-2944, 2012; doi: 10.1021/bm300968y  
(Listed in "Most Read Article" published by Biomacromolecules)

29. Mane, S.R., N, V.R., Chatterjee, K., Dinda, H., Nag, S., Kishore, A., Das Sarma, J.\*, Shunmugam, R.\*, "A unique polymeric nano-carrier for anti-tuberculosis therapy", *Journal of Materials Chemistry* 22(37):19639-19642, 2012; doi: 10.1039/c2jm33860b
30. N, V.R., Mane, S., Kishore, A., Das Sarma, J.\*, Shunmugam, R.\*, "Norbornene derived doxorubicin copolymers as drug carriers with pH responsive hydrazone linker", *Biomacromolecules*, 13(1):221-230, 2012; doi: 10.1021/bm201478k
31. (Listed in "Most Read Article" published by *Biomacromolecules*).
32. Shindler, K.S., Chatterjee, D., Biswas, K., Goyal, A., Dutt, M., Nassrallah, M., Khan, R.S., & Das Sarma, J.\*, "Macrophage-Mediated Optic Neuritis induced by retrograde axonal transport of Spike gene recombinant Mouse Hepatitis virus", *Journal of Neuropathology & Experimental Neurology* 70(6):470-480, 2011; doi: 10.1097/nen.0b013e31821da499
33. Das Sarma, J.\*, Kenyon, L.C., Hingley, S.T., Shindler, K.S., "Mechanisms of primary axonal damage in a viral model of Multiple Sclerosis", *Journal of Neuroscience*, 29(33):10272-10280, 2009; doi: 10.1523/jneurosci.1975-09
34. Das S., Smith T.D., Das Sarma, J., Ritzenthaler J.D., Maza J., Kaplan B.E., Cunningham L.A., Suaud L., Hubbard M.J., Rubenstein R.C., and Koval M.\*, "ERp29 restricts Connexin43 oligomerization in the Endoplasmic Reticulum", *Molecular Biology of the Cell* 20(10):2593-2604, 2009; doi: 10.1091/mbc.E08-07-0790
35. Das Sarma, J., Ciric, B., Marek, R., Sadhukhan, S., Caruso, M. L., Shafagh, J., Fitzgerald D.C., Shindler K.S., Rostami, A.\*, "Functional interleukin-17 receptor A is expressed in central nervous system glia and upregulated in experimental autoimmune encephalomyelitis", *Journal of Neuroinflammation* 6(1):14, 2009; doi: 10.1186/1742-2094-6-14
36. Marek, R., Caruso, M., Rostami, A., Grinspan, J. B., Das Sarma, J.\*, "Magnetic cell sorting: A fast and effective method of concurrent isolation of high purity viable astrocytes and microglia from neonatal mouse brain tissue", *Journal of Neuroscience Methods* 175(1):108-118, 2008; doi: 10.1016/j.jneumeth.2008.08.016
37. Shindler, K.S., Kenyon, L.C., Dutt, M., Hingley, S.T., Das Sarma, J.\*, "Experimental Optic Neuritis induced by a demyelinating strain of Mouse Hepatitis virus", *Journal of Virology* 82(17):8882-8886, 2008; doi: 10.1128/jvi.00920-08
38. Das Sarma, J.\*, Iacono, K., Gard, L., Marek, R., Kenyon, L.C., Koval, M., Weiss, S. R., "Demyelinating and non-demyelinating strains of Mouse Hepatitis virus differ in their neural cell tropism", *Journal of Virology* 82(11):5519-5526, 2008; doi: 10.1128/jvi.01488-07
39. Das Sarma, J., Kaplan, B. E., Willemsen, D., Koval, M.\*, "Identification of rab20 as a potential regulator of Connexin43 trafficking", *Cell Communication & Adhesion*, 15(1-2):65-74, 2008; doi: 10.1080/15419060802014305
40. Fitzgerald, D.C., Ciric, B., Touil, T., Harle, H., Grammatikopolou, J., Das Sarma, J., Gran, B., Zhang, G.X., Rostami, A.\*, "Suppressive effect of IL-27 on encephalitogenic Th17 cells and the effector phase of Experimental Autoimmune Encephalomyelitis", *The Journal of Immunology* 179(5):3268-3275, 2007; doi: 10.4049/jimmunol.179.5.3268
41. Qiu, Z., Hingley, S. T., Simmons, G., Yu, C., Das Sarma, J., Bates, P., & Weiss, S. R.\*, "Endosomal proteolysis by Cathepsins Ls necessary for murine coronavirus Mouse Hepatitis virus type 2 Spike-mediated entry", *Journal of Virology* 80(12):5768-5776, 2006; doi: 10.1128/jvi.00442-06
42. Constantinescu, C. S.\*, Tani, M., Ransohoff, R.M., Wysocka, M., Hilliard, B., Fujioka, T., Murphy, S., Tighe, P.J., Das Sarma, J., Trinchieri, G., Rostami, A., "Astrocytes as antigen-presenting cells: expression of IL-12/IL-23", *Journal of neurochemistry* 95(2):331-340, 2005; doi: 10.1111/j.1471-4159.2005.03368.x
43. Maza, J., Das Sarma, J., Koval, M.\*, "Defining a minimal motif required to prevent Connexin oligomerization in the Endoplasmic Reticulum", *Journal of Biological Chemistry* 280(22):21115-21121, 2005; doi: 10.1074/jbc.m412612200
44. Fu, L., Gonzales, D. M., Das Sarma, J., Lavi, E.\*, "A combination of mutations in the S1 part of the spike glycoprotein gene of coronavirus MHV-A59 abolishes demyelination", *Journal of Neurovirology* 10(1):41-51, 2004; doi: 10.1080/13550280490262229
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46. Das Sarma, J., Das, S., Koval, M.\*, "Regulation of Connexin43 oligomerization is saturable", *Cell Communication & Adhesion* 12(5-6):237-247, 2005; doi: 10.1080/15419060500511875
47. Maza, J., Mateescu, M., Das Sarma, J., &Koval, M.\*, "Differential oligomerization of Endoplasmic Reticulum-retained Connexin43/Connexin32 chimeras", *Cell Communication & Adhesion*, 10(4):319-322, 2003; doi: 10.1080/714040446
48. Das Sarma, J., Wang, F., Koval, M.\*, "Targeted Gap junction protein constructs reveal Connexin-specific differences in oligomerization", *Journal of Biological Chemistry* 277(23):20911-20918, 2002; doi: 10.1074/jbc.m111498200
49. Das Sarma, J., Scheen, E., Seo, S., Koval, M., Weiss, S.R.\*, "Enhanced green fluorescent protein expression may be used to monitor murine coronavirus spread in vitro and in the mouse central nervous system", *Journal of Neurovirology* 8(5):381-391, 2002; doi: 10.1080/13550280260422686
50. Das Sarma, J., Meyer, R.A., Wang, F., Abraham, V., Lo, C.W., Koval, M.\* "Multimeric Connexin interactions prior to the trans-Golgi network", *Journal of cell science* 114(22): 4013-4024, 2001
51. Das Sarma, J., Fu, L., Hingley, S.T., Lavi, E.\*, "Mouse Hepatitis virus type-2 infection in mice: an experimental model system of acute meningitis and hepatitis", *Experimental and Molecular Pathology* 71(1):1-12, 2001; doi: 10.1006/exmp.2001.2378
52. Navas, S., Seo, S., Chua, M.M., Das Sarma, J., Lavi, E., Hingley, S.T., Weiss, S.R.\*, "Murine coronavirus Spike protein determines the ability of the virus to replicate in the liver and cause hepatitis", *Journal of Virology* 75(5):2452-2457, 2001; doi: 10.1128/jvi.75.5.2452-2457.2001
53. Das Sarma, J., Lo, C.W., Koval, M.\*, "Cx43/ $\beta$ -Gal inhibits Cx43 transport in the Golgi apparatus", *Cell Communication & Adhesion* 8(4-6):249-252, 2001; doi: 10.3109/15419060109080732
54. Das Sarma, J., Fu, L., Hingley, S.T., Lai, M.M.C., Lavi, E.\*, "Sequence analysis of the S gene of recombinant MHV-2/A59 coronaviruses reveals three candidate mutations associated with demyelination and hepatitis", *Journal of Neurovirology* 7(5):432-436, 2001; doi: 10.1080/135502801753170282
55. Navas, S., Seo, S., Chua, M.M., Das Sarma, J., Hingley, S.T., Lavi, E., Weiss, S.R.\*, "Role of the Spike protein in murine coronavirus induced hepatitis: an in vivo study using targeted RNA recombination", *Advances in Experimental Medicine and Biology TheNidoviruses* 494:139-144, 2001; doi: 10.1007/978-1-4615-1325-4\_22
56. Das Sarma, J., Fu, L., Weiss, S.R., Lavi, E., "Demyelination determinants in the S gene of MHV", *The Nidoviruses*, Springer: 494:133-137, 2001; doi: 10.1007/978-1-4615-1325-4\_21
57. Fu, L., Das Sarma, J., Lavi, E., "Differential expression of tumor necrosis factor in primary Glial cell cultures infected with demyelinating and non-demyelinating MHVs", *Advances in Experimental Medicine and Biology TheNidoviruses*, 494:663-668, 2001; doi: 10.1007/978-1-4615-1325-4\_98
58. Das Sarma, J., Fu, L., Tsai, J.C., Weiss, S.R., Lavi, E.\*, "Demyelination determinants map to the Spike glycoprotein gene of coronavirus Mouse Hepatitis virus", *Journal of Virology* 74(19):9206-9213, 2000; doi: 10.1128/jvi.74.19.9206-9213.2000
59. Lavi, E., Das Sarma, J., & Weiss, S.R.\*, "Cellular reservoirs for coronavirus infection of the brain in  $\beta$ 2-Microglobulin knockout mice", *Pathobiology*, 67(2):75-83, 1999; doi: 10.1159/000028054
60. Das Sarma, J., Duttagupta, C., Ali, E., Dhar, T.K.\*, "Improved microbiological assay for folic acid based on microtiter plating with *Streptococcus faecalis*", *J AOAC International* 78(5):1173-7, 1995
61. Das Sarma, J., Duttagupta, C., Ali, E., Dhar, T.K.\*, "Antibody to folic acid: increased specificity and sensitivity in ELISA by using  $\epsilon$ -aminocaproic acid modified BSA as the carrier protein", *Journal of Immunological Methods*, 184(1):1-6, 1995; doi: 10.1016/0022-1759(95)00069-m
62. Das Sarma, J., Duttagupta, C., Ali, E., Dhar, T.K.\*, "Direct microtitre plate enzyme immunoassay of folic acid without heat denaturation of serum", *Journal of Immunological Methods*, 184(1):7-14, 1995; doi: 10.1016/0022-1759(95)00068-l
63. Basu, R., and Das Sarma, J., "Connexin 43/47 channels are important for astrocyte/ oligodendrocyte cross-talk in myelination and demyelination", *Journal of Biosciences*, 43 (5):1055-1068, 2018
64. Hussain, A., Raveedran, V.A., Kundu, S., Samanta, T., Shunmugam, R., Pal, D., and Das Sarma J.\*, "Mechanisms of Arsenic induced toxicity with special emphasis on Arsenic binding proteins". *Arsenic: In Tech Open (Book Chapter)*, 2017; doi: 10.5772/intechopen.74758
65. Singh, M., and Das Sarma, J.\*, "Demyelinating Diseases and Neuroinflammation. Inflammation: The Common Link in Brain Pathologies", 139-170, 2016; doi:10.1007/978-981-10-1711- 7\_5 (Book Chapter), doi: 10.1007/978-981-10-1711-7\_5
66. Das Sarma, J., "A Mechanism of Virus-Induced Demyelination", *Interdisciplinary Perspectives on Infectious Diseases*, Volume 2010, Article ID 109239, doi:10.1155/2010/109239

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• **Detail of patents.** None

• **Books/Reports/Chapters/General articles etc.**

1. Basu, R., and **Das Sarma, J.**, "Connexin 43/47 channels are important for astrocyte/ oligodendrocyte cross-talk in myelination and demyelination", *Journal of Biosciences*, 43 (5):1055-1068, 2018
2. Hussain, A., Raveedran, V.A., Kundu, S., Samanta, T., Shunmugam, R., Pal, D., and **Das Sarma J.\***, "Mechanisms of Arsenic induced toxicity with special emphasis on Arsenic binding proteins". *Arsenic: In Tech Open (Book Chapter)*, 2017; doi: 10.5772/intechopen.74758
3. Singh, M., and **Das Sarma, J.\***, "Demyelinating Diseases and Neuroinflammation. Inflammation: The Common Link in Brain Pathologies", 139-170, 2016; doi:10.1007/978-981-10-1711- 7\_5 (Book Chapter), doi: 10.1007/978-981-10-1711-7\_5
4. **Das Sarma, J.\***, "Microglia-mediated neuroinflammation is an amplifier of virus-induced neuropathology." *Journal of Neurovirology*, 20(2):122-136, 2013; doi: 10.1007/s13365-013-0188-4
5. **Das Sarma, J.**, "A Mechanism of Virus-Induced Demyelination", *Interdisciplinary Perspectives on Infectious Diseases*, Volume 2010, Article ID 109239, doi:10.1155/2010/109239

• **Details of Projects under implementation**

#### Department of Biotechnology, India

- Title of the project "**Multi- Dimensional Research to Enable Systems Medicine: Acceleration using a Cluster Approach**" at Kalyani, West Bengal(SyMeC); Tenure: 4 years; Role in the grant: Coordinator; Start Date- 04/04/17; Total Direct Cost: Rs. 10,45,000,00
- Title of the project "**Developing an in vitro neural cell culture model to understand the mechanism of neural cell death in Systemic Lupus erythematosus(SLE)**"; Tnure:3 years; Role in the grant: Principal Investigator; Start Date - 05/06/2018; Total Direct Cost Rs. 52, 53,000
- Title of the project: "**Neuroprotective function of CD40 in Mouse Hepatitis Virus induced central nervous system infection**" Tenure:3 years; Role in the grant: Principal Investigator; Start Date: 01/08/2017; Total Direct Cost: Rs. 58, 00,000

#### Council of Scientific And Industrial Research

- Title of the project:"**Impaired Quality control of Connexin43 and Decreased Astrocyte Gap junctional Communication in a Mouse Hepatitis Virus Induced Model of Human Neurological diseases: Multiple Sclerosis**" Tenure: 2 years; Start date -16/05/2019; 1st year cost: Rs. 8, 49,833

#### Indo-U.S. Virtual Networks for COVID-19 (Press release)

- Title of the project: "**Leveraging reverse genetics strategies to study structure-function interplay of virus host attachment spike protein to design therapies for COVID-19**", *Jayasri Das Sarma* (Indian Institute of Science Education and Research Kolkata) and *Maria Nagel* (University of Colorado School of Medicine, Aurora), IUSSTF-VN-COVID-107-2020

• **Details of Projects submitted to various funding agencies and status**

**Current available funding:** Department of Biotechnology, DBT is considering readjusting INR 50,00,000 for COVID Research form Jayasri Das Sarma's current ongoing System medicine Cluster project.

**Pending application: call for proposal against COVID-19**

- a) **cCAMP, India: (Submitted, March 28<sup>th</sup>, 2020): Title of the project** Neem Bark Extract as therapeutic agent against COVID 2019 (LOI).

- b) **Council of Scientific and Industrial Research (CSIR), India: Title of the project: COVID-19:** Identification and evaluation of SARS-CoV-2 anti-viral activity of compounds through indigenously developed virus free cell culture-based assay system. (Total requested fund amount:1,10,00,000 INR).
- c) **SERB, India** (Submitted April 30<sup>th</sup>, 2020); **Title of the project:**Development of reverse genetics-based virus free and infectious cDNA adapted assay system for facilitating translational research against COVID-19. (Total requested fund amount :**3,52,48,884 INR**).
- d) **DBT Bio-design, India**, Multi-omics based integrative analysis to understand the etiology of Multiple Sclerosis in India (Submitted April 30<sup>th</sup>, 2020) (Total requested fund amount: 2,56,00,000 INR).
- e) **BIRAC, India:** (Submitted May 15<sup>th</sup>, 2020):Title of the project:Cell-to-cell fusion mechanism offers a potential target for antiviral therapy in COVID-19 (Total requested fund amount: 50,00,000 INR)

- **Details of Projects completed during the last 3 years**

**Department of Biotechnology, India**

- Title of the project: **“Understanding the mechanism of viral induced axonal loss and demyelination in an experimental animal model** “Role in the grant: Principal Investigator; Start Date: 09/09/2011; Total Direct Cost : Rs. 63, 880, 00.
- Title of the project: **“Development of a unique animal model to understand the etiology of human central nervous system autoimmune disease multiple sclerosis (MS)**; Grant Number BT/PR4530/MED/30/715/2012; Role in the grant : Principal Investigator; Start Date 21/03/2012; Total Direct Cost: Rs. 29, 94,012.

**Workshops /Conferences Organized**

- August 16-19 2020: **“Bilateral INDO-US Webinar on COVID Biology”**, organized by IISER Kolkata, India, in collaboration with IISc India, University of Colorado and University of Pennsylvania, USA
- December 3-8, 2019: **Indo-US Symposium on New Insights into the Inflammation, Immunity, and Pathobiology of Diseases**, Sinclair Bayview, Port Blair, Andaman Islands, India, in collaboration with IISc India, University of Colorado and University of Pennsylvania, USA
- February 24-March 1, 2018: **Bioanalytical Workshop on Advanced Bioanalytical methods and applications**, Lemon Tree, Gangtok in collaboration with IISER-K and American Society for microbiology (ASM)
- November 13-17, 2016:**Indo-US Symposium on Central Nervous System Viral Infection and its Therapy**, Sinclair’s Retreat, Jalpaiguri, West Bengal, India in collaboration with IISER-Kolkata, Banaras Hindu University, India and University of Iowa, USA
- February 23-25, 2014:**Indo-US Symposium on Viral Infections of the Nervous System**, Hyatt, Gurgaon, New Delhi in collaboration with National Brain Research Centre, India and University of Colorado, USA and University of California, San Francisco, USA
- November 3, 2012:**WWN Symposium; “Opportunities and Challenges for Women Scientists in India”**, NIMHANS, Bangalore

**Talks delivered**

- **Conference Talks (National and International)**

October 4-7, 2020	Virtual oral presentation on “Neurological manifestations and neuropathogenic mechanism of Murine-Coronaviruses (M-CoVs): implications for the potential neuropathogenic mechanism of SARS-CoV-2” at IAN International E-Conference; XXXVIII Annual Meeting of Indian Academy of Neurosciences ‘Basic and Clinical Neurosciences: Bridging the Gaps’, Hyderabad, Telangana, India
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August 19, 2020	Virtual oral presentation on “m-CoV: A neurological perspective”, “Bilateral “Bilateral INDO-US Webinar on COVID Biology”, organized by IISER Kolkata, India, in collaboration with IISc India, University of Colorado and University of Pennsylvania, USA
August 8-9, 2020	Virtual talk on "COVID-19 Viral Pathogenicity Epidemiology and Therapeutic Approach", a two-day webinar, conducted by Derozio Memorial College, Kolkata
July 5, 2020	An online faculty development programme on “Teaching, research and innovation in India: A biologists’ view” organized by Amity Institute of Biotechnology, Amity University, Kolkata
June 14, 2020	A panel discussion forum on "Changed role of women in science Education and society" organized by Professors of PGIMER, Chandigarh and NIMHANS, Bangalore
June 13-17, 2020	Virtual presentation on "CD4+ T cells crosstalk with microglia/macrophage provides protection against mouse Hepatitis virus induced neuroinflammatory demyelination”, <b>American Society for Virology 39th Annual Meeting</b> , Colorado State University in Fort Collins, Colorado
June 12, 2020	An online webinar series on "Role of biotechnology in COVID-19 Pandemic: Issues and Challenges" on June 12th, 2020, organized by Brahmananda Keshab Chandra College, Kolkata
May 08 -12, 2020	“Nexus between CNS resident microglia and migrating peripheral T cells pave the way for host immunity against neurotropic virus infection”, international conference “ <b>IMMUNOLOGY 2020</b> ”, Honolulu Hawaii, USA
March 31- April 6, 2020	“Functional regulation of gap junction intercellular communication in viral induced neuroinflammation, 26 <sup>th</sup> <b>Society of Neuroimmune Pharmacology (SNIP)</b> , Delhi, India
March 6-7, 2020	“Need of the hour to train minds and not the hands of women in science and education”- “ <b>Women in Science Education</b> ”, <b>NIMHANS</b> , Bangalore, India
December 3-8, 2019	“Crosstalk between CNS resident microglia and migrating peripheral T cells pave the way for host immunity against neurotropic virus infection”, " <b>New insights into the inflammation, immunity and pathobiology of diseases</b> ", INDO-US 2019, Andaman Islands, India
November 30, 2019	“Molecular and cellular pathogenesis of mouse hepatitis virus induced neuro-inflammatory demyelination”, <b>Neuroupdate 2019, CSIR-IICB</b> , Kolkata, India
October 24-26, 2019	“International conference on Neurological disorders and Therapeutics (ICNDT) – 2019”, <b>NIPER</b> , Ahmadabad, India
October 2 to 4, 2019	“Ifit2, an interferon-induced protein, attenuates neuropathy in coronavirus-infected mice by promoting microglial activation and leukocyte migration to the central nervous system”, The 20th Annual Rocky Mountain Virology Meeting, Pingree Park, Colorado, USA
July 20-24, 2019	“A proline insertion-deletion in mouse hepatitis virus spike glycoprotein fusion peptide strongly alters neuropathogenesis”, 38th Annual Meeting <b>University of Minnesota, Minneapolis</b>
May 9-13, 2019	“Regulatory role of Ifit2 in mouse hepatitis virus-induced neuroinflammation”, <b>IMMUNOLOGY 2019, San Diego, California, USA</b>
October 29-31, 2017	“A novel role of gap junction intracellular communication in Gliosis in a model of viral-induced neuro-inflammatory demyelination”, <b>Indian Academy of Neuroscience (IAN) 2017 and International Conference on</b>

November 22, 2020



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- December 18-20, 2016 “Neuroglial gap junctional intercellular communication in Neuroinflammation”, **3rd International Meet on Advanced Studies in Cell Signaling Network (CeSiN 2016)**, Indian Institute of Chemical Biology (IICB), Jadavpur, India
- December 9-11, 2016 “Bridging innate and adaptive immune response in the induction of neuroinflammatory Demyelination”, **National Conference on Recent Trends in Neurological and Psychiatric Research, Society for Neurochemistry India (SNCI)**, Centre for Cellular and Molecular Biology (CCMB), Hyderabad, India
- November 14-17, 2016 “Viral-neural cell interphase and neuroimmune modulation in demyelination”, **Indo-US Symposium on central Nervous System Viral Infection and its Therapy**, Sinclair’s Retreat Dooars, Chalsa Hilltop, Jalpaiguri, West Bengal, India
- October 19-21, 2016 “Neuro-immune crosstalk in virus induced central nervous system demyelination and axonal loss”, **Indian Academy of Neuroscience 34th Annual Meeting, Molecules to Mind**, National Brain Research Centre, Maneswar, Haryana
- September 20, 2014 “Immunopathogenesis of viral induced chronic inflammatory demyelination in an experimental animal model”, **Research Workshop on Diagnostic and Therapeutic Immunology**, College of medicine and JNM Hospital, WBUHS, Kalyani, Nadia
- February 23-25, 2014 “Mechanism of direct viral induced demyelination”, **Indo-US Symposium on Viral Infections of the Nervous System**, Hyatt Regency, Gurgaon, New Delhi, India
- November 9-11, 2013 “Innate neuroimmune system upon which adaptive immunity is built”, **Brain Plasticity and Neurological disorder**, Ravenshaw University, Cuttack, India
- November 3, 2012 “Current trends: Challenges and opportunities for women scientists in India”, **2012 WVN Symposium “Opportunities and Challenges for Women Scientists in India”**, NIMHANS, Bangalore, India
- November 1-2, 2012 “Mechanisms Underlying Inflammation in Neurodegeneration” **Satellite Symposium-Indian Academy of Neurosciences, Bangalore Chapter “Neurobiology of cognition”**, Convention Centre, NIMHANS, Bangalore, India
- October 12-13, 2012 “Delineation of adaptive and non-adaptive immune of mechanisms demyelination in experimental animal models of Multiple Sclerosis”, **5th Annual Meeting of the Cytometry Society**, Centre for Research in Nanoscience & Nanotechnology, University of Calcutta, Kolkata, India
- December 16-18, 2011 “Neural Cell Biology of Viral Induced Concomitant Axonal and Loss and Demyelination”, **XXXV ALL India Cell Biology Conference**, NISER, Bhubaneswar, India
- December 16-19, 2009 “Immunosuppression or Neuroprotection: Multiple approaches to Autoimmune Disease Multiple Sclerosis”, **36th Annual Conference of Indian Immunology Society/ IMMUNOCON- 2009, NIMHANS**, Bangalore, India

- **Invited talks (National and International Institutes/Universities)**

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- February 3<sup>rd</sup>, 2020 “Interaction between CNS resident microglia and migrating peripheral T cells pave the way for host immunity against neurotropic virus infection”, **IISER-Mohali**, Mohali, India
- November 30, 2019 “Molecular and cellular pathogenesis of mouse hepatitis virus induced neuro-inflammatory demyelination”, Neuroupdate 2019, **CSIR-IICB**, Kolkata, India
- October 24-26, 2019 “International conference on Neurological disorders and Therapeutics (ICNDT) – 2019”, **NIPER**, Ahmadabad, India
- 3<sup>rd</sup> October, 2019 “Regulatory role of Interferon-induced protein Ifit2 in developing host immunity against CNS viral infection”, ID Research in Progress Seminar, **School of Medicine, Division of Infectious Diseases, University of Colorado Anschutz Medical Campus**
- April 17, 2019 “Gap junction protein Connexin 43/47 axis in the perspective of mouse hepatitis virus induced demyelination”  
Wednesday, **Emory University School of Medicine**
- 2019 “Ifit2, an interferon-induced protein, attenuates neuropathy in coronavirus-infected mice by promoting microglial activation and leukocyte migration to the central nervous system”, **Lecture series on Infection and Immunity**, Department of inflammation and immunity, **Cleveland Clinic**, OH 44195, USA
- February, 2019 “Neuroinflammation: An amplifier of virus induced Demyelination pathology”, at Department day, **IISER Kolkata**
- December 4, 2018, “Innate and adaptive immune regulation during chronic Mouse Hepatitis Virus infection”, RC2-5th floor, **Colorado**
- October 26, 2018 “Immunoregulatory function of CD40 in mouse hepatitis virus-induced neuropathogenesis”, **University of Pennsylvania, Philadelphia, USA**
- March 11, 2018 “A novel role of gap junction intercellular communication in Gliosis: Studies in a viral model of demyelination”, **National Institute of Pharmaceutical Education and Research (NIPER)**, Ahmadabad, India
- July 25, 2017 “Remodeling of Central Nervous System Gap Junction Intercellular Communication in viral induced Gliopathy”, Department of Neurology, **University of Colorado, Denver, Colorado, USA**
- July 13, 2017 “A novel role of Gap Junction Intercellular Communication in Gliosis: Study in a model of virus-induced demyelination”, Department of Immunology, **Lerner Research Institute, Cleveland, Ohio, USA**
- March 16, 2017 “Gliopathy are the early events in mouse hepatitis virus induced demyelination and axonal loss”, **National Institute of Health/National Institute of Allergy and Infectious Diseases (NIH/NIAID)**, Rocky Mountain Laboratories, Hamilton, Montana, USA
- February 15, 2017 “Gliopathy in viral induced demyelination”, **Centre for Cellular and Molecular Biology (CCMB)**, Hyderabad, India
- June 3, 2013 “Neural cell biology of a viral induced demyelination and Axonal loss in an experimental animal Model”, **Focused Multiple Sclerosis Group Colloquium Series, University of Pennsylvania, Philadelphia, USA**
- March 23, 2010 “Understanding complex mechanisms of

- neuro-inflammatory demyelinating disease Multiple Sclerosis”, **Seminar Series of the Centre for Infection and Immunity in the School of Medicine, Dentistry and Biomedical Science, Queen’s University Belfast, North Ireland**
- November 2009 “Complexity in human neuroinflammatory demyelinating disease multiple sclerosis: The advent of System Biology”, **Indian Institute of Mathematical Science, Chennai, India**
- November 2009 “Deciphering complex mechanisms of neuroinflammatory demyelinating disease multiple sclerosis in an experimental mouse model”, **Shankar Netralaya, Ophthalmology Research and development, Chennai, India**
- September 2, 2009 “Mechanisms of demyelination in a viral model of multiple sclerosis”, **Neurology Grand Round, University of Colorado, Denver School of Medicine, Aurora, CO, USA**
- May 7, 2009 “Mouse hepatitis virus infection in mice—an experimental model to understand the molecular and cellular of demyelination and axonal loss in multiple sclerosis”, **Society for Neuroscience-Bangalore chapter seminar, NIMHANS, Bangalore, India**

• **Research Collaborations:**

1. Dr. Kenneth S. Shindler, University of Pennsylvania, USA
2. Dr. Debnath Pal, India Institute of Science, India
3. Dr. Ashima Mukhopadhyay, Tata Medical Centre Cancer Hospital, Kolkata
4. Dr. Randall Cohrs, University of Colorado, Denver, USA
5. Dr. Michael Koval, Emory University, USA
6. Dr. Ujjwal Neogi, Karolinska Institute, Sweden
7. Dr. Raja Shunguman, IISER-Kolkata
8. Dr. Sharmila Sengupta, NIGMB, Kolkata

• **Students’ Achievement (2009-2020):**

- **Ms. Mithila Ashok Kamble** was awarded the **S.S. Parmar Research Foundation award for the best poster presentation** at the XXXVIII Annual Conference of Indian Academy of Neurosciences, November 2020.
- **Ms. Lucky Sarkar** received International ‘**American Society for Virology (ASV)**’ travel award to present her work in the Pathogenesis session at 39<sup>th</sup> Annual Meeting of the ‘American Society for Virology ASV, June 2020’, Colorado State University, Fort Collins, CO, USA (cancelled due to COVID-19 pandemic).
- **Ms. Lucky Sarkar’s** work ‘**Azadirachta indica A. Juss ameliorates Mouse Hepatitis virus-induced neuroinflammatory demyelination**’ was **highlighted and selected to present for a 5’ flash talk plus a poster** in the Pathogenesis session at 39<sup>th</sup> Annual Meeting of the ‘American Society for Virology ASV, June 2020’, Colorado State University, Fort Collins, CO, USA (cancelled due to COVID-19 pandemic).
- **Mr. Soumya Kundu** received the **ASBMB travel award** to attend the Annual meeting of American Society for Biochemistry and Molecular Biology, 2020 at San Diego, California, USA (cancelled due to COVID-19 pandemic).
- **Mr. Abhishek Bose** got selected to deliver an **oral presentation** in the Society for Neuroimmune Pharmacology (SNIP 2020) international conference, April 2020 (cancelled due to COVID-19 pandemic).
- **Mr. Abhishek Bose achieved Best poster award** at ‘New Insights into the Inflammation, Immunity, and Pathobiology of Diseases, INDO-US Symposium’ organized by IUSSTF/IISER Kolkata, December 2019.
- **Ms. Debanjana Chakravarty and Mr. Soumya Kundu** got selected for the oral presentation at the ‘Indo-US Symposium on New Insights into the Inflammation, Immunity, and Pathobiology of Diseases’, 2019.

- **Ms. Fareeha Saadi** received the Young scientist best oral presentation award at Neuroupdate 2019, organized by CSIR-IICB, Kolkata, India.
- **Mr. Manmeet Singh** received the **DuPre fellowship** 2015 by Multiple Sclerosis international federation society UK.
- **Mr. Rahul Basu** received the **Best poster award** at the Indo-US symposium on Neurovirology, organized by IISER Kolkata and NBRC, 2014.
- **Mr. Jibin Sadasivin** received the **DuPre fellowship** 2014 by Multiple Sclerosis international federation society, UK.
- **Ms. Kaushiki Biswas** was selected for **Oral presentation** at Indo-US symposium on Viral Infections of the Nervous System at National Brain Research Centre (NBRC), India, 2014.
- **Ms. Kaushiki Biswas** was awarded **3<sup>rd</sup> prize in poster presentation** competition at 1<sup>st</sup> departmental day of IISER-K, 2013.
- **Mr. Rahul Basu** received the **DuPre Grant**, Multiple Sclerosis International Federation (MSIF), in the year 2012.
- **Mrs. Dhriti Chatterjee** received **best poster presentation** award at Immunocon 2009 (Indian immunological conference 2009).
- **Ms. Lucky Sarkar** got selected under '**Dr. DM Kar**' **Prize** category and presented her paper at 'XXXVII Annual Meet of Indian Academy of Neurosciences (IAN 2019)-Neuron to Behavior', AIIMS New Delhi, India, November 2019.
- **Mr. Sourodip Sengupta** received **Best poster presentation** on "Role of matrix metalloproteinases (MMPs) and tissue inhibitor of MMPs (TIMPs) in Mouse Hepatitis Virus (MHV) induced neuroinflammation" at IBRO-APRC School on Blood-Brain-Barrier, November 4-9, 2019.
- **Mr. Abhishek Bose** received International **SERB travel award** from Science and Engineering Research Board, India to present his work at 'Society for Neuroscience SFN meeting (Neuroscience 2019)' at Chicago, Illinois, USA.
- **Ms. Debanjana Chakravarty** received the **American Association of Immunologist Laboratory grant** 2019 to attend international conference "IMMUNOLOGY 2019" at San Diego, California, USA.
- **Mrs. Fareeha Saadi (SRF)** received **Department of Biotechnology, India travel grant** to attend international conference "IMMUNOLOGY 2019" at San Diego, California, USA.
- **Mr. Soumya Kundu** received **best poster award** at 43rd Indian Biophysical Society Meeting 2019, from 15-17th March, 2019, at IISER Kolkata.
- **Ms. Debanjana Chakravarty** received **3rd best poster award** at DBS Departmental Day, 2019 at IISER Kolkata.
- **Dr. Mahua Maulik** received **Wellcome Trust-DBT India Alliance Early Career fellowship** (2018).
- **Mr. Abhishek Bose** got selected for **Poster** presentation at 2018 **ASCB/EMBO Meeting**, San Diego, California, USA from 8th-12th December and he received the **prestigious CSIR travel award** for this conference.
- **Mr. Sourodip Sengupta** received **Best Poster award (Stutee Nag Prize)** at XXXVI Annual Conference of Indian Academy of Neurosciences (29th-31st October, 2018) at Banaras Hindu University, Varanasi, India.
- **Mr. Abhishek Bose** got selected for the **oral presentation (Dr. D. M. Kar Prize)** at XXXVI Annual Conference of Indian Academy of Neurosciences (29th-31st October, 2018) at Banaras Hindu University 2018, Varanasi, India.
- **Mr. Manmeet Singh** received **Travel award** to attend 34th congress of ECTRIMS (European committee for Treatment and Research in Multiple Sclerosis) in Berlin from 10th-12th October 2018.
- **Ms. Lucky Sarkar** received **third best oral presentation award** in the **young scientist category** at "International Conference on Nutraceuticals and Chronic Diseases (INCD 2018)", 14th-16th September 2018, held at Dehradun, India.
- **Mr. Afaq Hussain** received the **travel award** to attend the International congress of Cell Biology 2018, Hyderabad.
- **Mr. Sourodip Sengupta** was selected to give **oral presentation** at Frontiers in Molecular biology conference (FIMB-2018) at IISER Kolkata, India.
- **Ms. Debanjana Chakravarty** and **Ms. Fareeha Saadi** were awarded the **Stutee Nag prize for the best presentation** in the poster session at the XXXV Annual Conference of Indian Academy of Neurosciences and International Conference on Translational Neurosciences and its application in protection of Mental health, Cuttack, Odisha, 2017.

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- **Mr. Soumya Kundu** was awarded the **S.S. Parmar Research Foundation award for the best poster presentation** the XXXV Annual Conference of Indian Academy of Neurosciences and International Conference on Translational Neurosciences and its application in protection of Mental health, Cuttack, Odisha, October 2017.
- **Mr. Manmeet Singh** was awarded the **Travel award** to attend the XXXV Annual Conference of Indian Academy of Neurosciences and International Conference on Translational Neurosciences and its application in protection of Mental health, Cuttack, Odisha, October 2017.
- **Mr. Abhishek Bose** was selected for the **Oral presentation** in the category of **TulsabaiSomani Education Trust** at the XXXV Annual Conference of Indian Academy of Neurosciences and International Conference on Translational Neurosciences and its application in protection of Mental health, Cuttack, Odisha, October 2017.
- **Mr. Manmeet Singh** received **Prof. Don Gilden Memorial Award** in an International Indo US Symposium on Central Nervous System viral infection and its Therapy 2016, India.
- **Mr. Soumya Kundu** received **Best Poster Award** at “3rd International Meet on Advanced Studies in Cell Signaling Network (CeSiN 2016), Indian Institute of Chemical Biology (IICB), Jadavpur, Kolkata
- **Mr. Manmeet Singh** received the **best poster award** in Frontiers in Modern Biology, organized by Dept of Biological Sciences IISER Kolkata, 2015.