




Faculty Details proforma for DU Web-site

(PLEASE FILL THIS IN AND Email it to websiteDU@du.ac.in)

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|---|--------|--|--------|-----------|-------|---|
| Title | Dr | First Name | Aparna | Last Name | Dixit | Photograph |
| Designation | | UGC-Assistant Professor | | | |  |
| Address | | Dr. Aparna Dixit Room No. 104 Dr. B. R. Ambedkar Center for Biomedical Research University of Delhi, Delhi-110007 Mobile No: 9810189197 | | | | |
| Phone No | Office | 91 - 11 - 27666272 | | | | |
| Residence | | 91-11-26898315 | | | | |
| Mobile | | 91-9810189197 | | | | |
| Email | | aparnabanerjeedixit@gmail.com , adixit@acbr.du.ac.in | | | | |
| Web-Page | | | | | | |
| Educational Qualifications | | | | | | |
| Degree | | Institution | | | Year | |
| PhD | | Dept of Biotechnology D.R.D.E Gwalior, M.P. | | | 2006 | |
| M.Sc | | Jiwaji University Gwalior, M.P | | | 2001 | |
| B.Sc | | Jiwaji University Gwalior, M.P | | | 1999 | |
| Career Profile | | | | | | |
| <ul style="list-style-type: none"> ➤ Assistant Professor at Dr. B.R. Ambedkar Centre for Biomedical Research, University of Delhi, Delhi since September 01, 2017 ➤ Assistant Professor at National Brain Research Centre, Manesar, India (Centre of Excellence in Epilepsy, a collaborative project between NBRC & AIIMS) July 01, 2014 to August, 2017. ➤ Research Associate at National Institute of Immunology, New Delhi from May 06, 2013 to March 14, 2014. ➤ Postdoctoral Fellow at University of Maryland, Baltimore, US from January 2010 to November 2012. ➤ DBT-PDF/RA at National Institute of Immunology (NII), New Delhi from January 2006 to July 2009. ➤ JRF/SRF (PhD) at Dept of Biotechnology D.R.D.E Gwalior, M.P from November 2002 to October 2005 <p>She is a collaborator in NBRC/AIIMS collaborative DBT funded project "Centre of Excellence for epilepsy (CoE)" "Centre of Excellence for epilepsy (CoE)".</p> | | | | | | |
| Administrative Assignments | | | | | | |
| | | | | | | |
| Areas of Interest / Specialization | | | | | | |
| <p>Her group is trying to understand the molecular mechanisms underlying epileptogenesis and/or drug-resistance in patients with drug-resistant epilepsy (DRE). This study involves human tissue which is an important resource to unravel molecular mechanisms responsible for refractoriness in epilepsy as compared to the animal models and also bridges the gap between basic and clinical research. Despite increasing information about the abnormal synaptic transmission associated with epileptogenesis, the molecular mechanisms involved in the genesis of seizures in patients with epilepsy, especially with DRE, still remains unexplained. Her group is performing genomic, transcriptomic and epileptogenic network analysis of epileptic tissues resected from the brains of DRE patients undergoing surgery to identify the genes and gene networks associated with DRE.</p> | | | | | | |
| Subjects Taught | | | | | | |
| <ul style="list-style-type: none"> ➤ Human Physiology ➤ Molecular Oncology | | | | | | |
| Time table of the subjects taught during the current semester | | | | | | |
| | | | | | | |

| S.No. | Subject | Days | Time | Classroom |
|---|------------------------------|---------|--------|-------------|
| | Molecular Biology practicals | Tuesday | 4-5hrs | Semester II |
| Research Guidance | | | | |
| Co-Supervisor of 4 PhD students in AIIMS, 3 in Department of Neurosurgery, 1 in Department of Pathology | | | | |
| Publications Profile | | | | |
| <ol style="list-style-type: none"> 1. Arpna Srivasatava, Aparna Banerjee Dixit, Debasmita Paul, Manjari Tripathi, Chitra Sarkar, Jyotirmoy Banerjee & P Sarat Chandra. (2017). Comparative analysis of cytokine/chemokine regulatory networks in patients with hippocampal sclerosis (HS) and focal cortical dysplasia (FCD). Scientific Reports 2017 Nov 21;7(1):15904. doi: 10.1038/s41598-017-16041-w. 2. Aparna Banerjee Dixit, Devina Sharma, Arpna Srivasatava, Jyotirmoy Banerjee, Manjari Tripathi, Deepak Prakash & P Sarat Chandra. (2017). Upregulation of BCRP and MVP in Drugresistant epilepsy. Seizure-European Journal of Epilepsy, 47:9-12. 3. Aparna Banerjee Dixit, Jyotirmoy Banerjee, P Sarat Chandra & Manjari Tripathi. (2017). Advances in Epilepsy Research in India. Neurology India 65(Supplement):S83-S92. 4. Jyotirmoy Banerjee, Aparna Banerjee Dixit, Srivastava A, Ramanujam B, Kakkar A, , Sarkar C, Tripathi M & Chandra PS (2017). Altered glutamatergic tone reveals two distinct resting state networks at the cellular level in hippocampal sclerosis. Scientific Reports, 7:319 5. Aparna Banerjee Dixit, Jyotirmoy Banerjee, ManjariTripathi, Chitra Sarkar, Sarat Chandra. (2017). Synaptic roles of Cyclin dependent Kinase 5 and its implications in epilepsy. Indian J Med Res 145, 179-188. 6. Aparna Banerjee Dixit, Jyotirmoy Banerjee, Arpna Srivastava, ManjariTripathi, Chitra Sarkar, Aanchal Kakkar, Mukesh Jain and P Sarat Chandra. (2016). RNA-Seq analysis of hippocampal tissues reveals novel candidate genes for drug refractory epilepsy in patients with MTLE-HS. Genomics, Volume 107, Issue 5, May 2016, 178–188. 7. ManjariTripathi, Aparna Dixit A, PS Chandra. (2016). Galectin-3, an important yet unexplored molecule in drug resistant epilepsy. Neurol India 64:237-8. 8. Aparna Banerjee Dixit, ManjariTripathi, P Sarat Chandra, Jyotirmoy Banerjee. (2015). Molecular Biomarkers in Drug-Resistant Epilepsy: Facts & Possibilities. International Journal of Surgery. DOI: http://dx.doi.org/10.1016/j.ijisu.2015.08.029 9. Arpna Srivastava, Aparna Banerjee Dixit, Jyotirmoy Banerjee, ManjariTripathi, P. Sarat Chandra. (2015). Role of inflammation and its miRNA based regulation in epilepsy: Implications for therapy. Clinica Chimica Acta 452 (2016) 1–9. 10. Jyotirmoy Banerjee, Aparna Banerjee Dixit, Manjari Tripathi, P Sarat Chandra. (2015). Enhanced endogenous activation of NMDA receptors in pyramidal neurons of cortical samples obtained from patients with mesial temporal lobe epilepsy: a mechanism of hyper excitation. Epilepsy research. 117:11–16. 11. Aparna Banerjee Dixit, Jyotirmoy Banerjee, ManjariTripathi, Sarat Chandra. (2015). Presurgical epileptogenic network analysis: A way to enhance epilepsy surgery outcome. Neurol India 2015;63:743-50. 12. Aparna Banerjee Dixit, Abuzar Ansari, Jyotirmoy Banerjee, MnajariTripathi and P. Sarat Chandra. (2015) Mutations in GABRG2 receptor gene are not a major factor in the pathogenesis of mesial temporal Lobe Epilepsy in Indian population. Ann. Indian Acad. Neurol19, 236-241. 13. Jinny L. Liu, Aparna Banerjee Dixit, Kelly L. Robertson, Eric Qiao, and Lindsay W. Black. (2014). Viral nanoparticle-encapsidated enzyme and restructured DNA for cell delivery and gene expression. PNAS. doi:10.1073/pnas.1321940111 14. Aparna Banerjee Dixit, Krishanu Ray & Lindsay W. Black. (2013) The C-terminal domain of the bacteriophage T4 terminase docks on the prohead portal clip region during DNA packaging. Virology, November 2013, 446 (1-2), 293-302. 15. Aparna Banerjee Dixit, Krishanu Ray & Lindsay W. Black. (2012). Compression of the DNA substrate | | | | |

by a viral packaging motor is supported by removal of intercalating dye during translocation. **PNAS**, December 11,109(50), 20419-24.

16. **Aparna Dixit**, Krishanu Ray, Joseph R. Lackowicz & Lindsay W. Black. (2011). Dynamics of the T4 bacteriophage DNA a packasome motor: endo VII resolvase release of arrested Y-DNA substrates. **Journal of Biological Chemistry**, 286/21, 1887818879.
17. **Aparna Dixit**, Prashant K. Singh, Guru Prasad Sharma, Pawan Malhotra & Pushkar Sharma. (2010). PfSRPK1, a novel splicing-related kinase from *Plasmodium falciparum*.
 - a. **Journal of Biological Chemistry**, December 3, 285 (49), 38315–38323.
18. Syed Imteyaz Alam, **Aparna Dixit**, Arvind Tomar, & Lokendra Singh. (2010). Comparative genomic analysis of a neurotoxic Clostridium species using partial Genome sequence: Phylogenetic analysis of few conserved proteins involved in cellular processes and Metabolism. **Anaerobe**, (16), 147-154.
19. **Aparna Dixit**, Syed Imteyaz Alam, Ram Kumar Dhaked, & Lokendra Singh. (2006). Sequencing and phylogenetic analysis of neurotoxin gene from an environmental isolate of *Clostridium* sp.: comparison with other clostridial neurotoxins. **Archives of Toxicology**, (11), 1-6.
20. Syed Imteyaz Alam, **Aparna Dixit**, G. S. N. Reddy, Smita Dube, Meehir Palit, S. Shivaji, and Lokendra Singh. (2006). *Clostridium schirmacheri* sp. nov., an obligately anaerobic, proteolytic, psychrophilic bacterium isolated from lake sediments of Schirmacher Oasis, Antarctica. **International Journal of Systematics and Evolutionary Microbiology**, 2(56), 715-720.
21. **Aparna Dixit**, Syed Imteyaz Alam, Ram Kumar Dhaked, & Lokendra Singh. (2005). Production and stability studies of a neurotoxin produced by *Clostridium* sp. RKD. **Journal of Food Science**, (71), M121-M125.
22. **Aparna Dixit**, Syed Imteyaz Alam, Ram Kumar Dhaked, & Lokendra Singh. (2006). Purification of a botulinum like neurotoxin produced by *Clostridium* sp. RKD and development of an immunodetection test. **IJMR**, (124), 355-362.
23. **Aparna Dixit**, Ram Kumar Dhaked, Syed Imteyaz Alam, & Lokendra Singh. (2005). Military potentials of Biological neurotoxins. **Journal of Toxicology: Toxin Reviews**. 24: 1-33.
24. **Aparna Dixit**, Ram Kumar Dhaked, Syed Imteyaz Alam, & Lokendra Singh. Characterization of *Clostridium* sp. RKD producing botulinum like neurotoxin. **Systematic and Applied Microbiology**, 28, 405-414, 2005.
25. **Aparna Dixit**, Syed Imteyaz Alam, Ram Kumar Dhaked, & Lokendra Singh. (2005). Sporulation and heat resistance of spores from a *Clostridium* sp. RKD. **Journal of Food Science**, 70 (7), 367-373.
26. Ram Kumar Dhaked, Syed Imteyaz Alam, **Aparna Dixit**, & Lokendra Singh. (2005). Purification and characterization of thermo-labile alkaline phosphatase from an Antarctic psychrotolerant *Bacillus* sp. P9. **Enzyme and Microbial technology**. 36 (7): 855-861.

Publications in the Last one year

1. Arpna Srivasatava, Aparna Banerjee Dixit, Debasmita Paul, Manjari Tripathi, Chitra Sarkar, Jyotirmoy Banerjee & P Sarat Chandra. (2017). Comparative analysis of cytokine/chemokine regulatory networks in patients with hippocampal sclerosis (HS) and focal cortical dysplasia (FCD). **Scientific Reports** 2017 Nov 21;7(1):15904. doi: 10.1038/s41598-017-16041-w.
2. Aparna Banerjee Dixit, Devina Sharma, Arpna Srivasatava, Jyotirmoy Banerjee, Manjari Tripathi, Deepak Prakash & P Sarat Chandra. (2017). Upregulation of BCRP and MVP in Drug resistant epilepsy. **Seizure-European Journal of Epilepsy**, 47:9-12.
3. Aparna Banerjee Dixit, Jyotirmoy Banerjee, P Sarat Chandra & Manjari Tripathi. (2017). Advances in Epilepsy Research in India. **Neurology India** 65(Supplement):S83-S92.
4. Jyotirmoy Banerjee, Aparna Banerjee Dixit, Srivastava A, Ramanujam B, Kakkar A, Sarkar C, Tripathi M & Chandra PS (2017). Altered glutamatergic tone reveals two distinct resting state networks at the cellular level in hippocampal sclerosis. **Scientific Reports**, 7:319
5. Aparna Banerjee Dixit, Jyotirmoy Banerjee, Manjari Tripathi, Chitra Sarkar, Sarat Chandra. (2017). Synaptic roles of Cyclin dependent Kinase 5 and its implications in epilepsy. **Indian J Med Res** 145, 179-188.

Conference Organization/ Presentations (in the last three years)

1. Invited lecture at FBR conference, ACBR, University of Delhi, February, 2018.
2. Invited lecture at XXXIV Annual Conference of Indian Academy of Neurosciences, National Brain Research Centre, Manesar on 19th to 21st October, 2016.
3. Facilitated “DBT-NBRC-AIIMS Epilepsy Surgery & Epilepsy Neurobiology Workshop” held at All India Institute of Medical Sciences, New Delhi on 1st to 3rd September, 2016.
4. Executive committee member of 9th Asian Epilepsy Surgery Congress held at the historic and beautiful City Palace Complex (Shiv Niwas and Fateh Prakash hotel), Udaipur in India on October 24rd - 25th, 2014. Posters presented 1. Differential modulation of various inflammatory mediators in mesial temporal lobe epilepsy and focal cortical dysplasia patients.” Aparna Banerjee Dixit, Debasmita Paul, Arpna Srivastava, Jyotirmoy Banerjee, Manjari Tripathi, and P Sarat Chandra. 2. Gene Expression Analysis of Drug Transporters & Biotransformation Enzyme in patients with MTLE & FCD: A Comparative Study Devina Sharma¹, Arpana Srivastava, Aparna Banerjee Dixit, Jyotirmoy Banerjee, Manjari Tripathi, P Sarat Chandra. 3. Endogenous kynurenic acid, a tryptophan metabolite, synthesis is altered in resected brain specimens obtained from patients with mesial temporal lobe epilepsy Soumil Dey, Aparna Banerjee Dixit, Manjari Tripathi, P. Sarat Chandra, Jyotirmoy Banerjee.
5. Two Posters presented at 31st International Epilepsy Congress (IEC), Istanbul, 5th – 9th September, 2015. (i). “RNA-Seq analysis of hippocampal tissues reveals novel candidate genes for drug refractory epilepsy in patients with MTLE-HS”. (ii). “Endogenous activity of NMDA receptors contributes to the enhanced glutamatergic tone and hyperexcitability in resected brain samples obtained for patients with mesial temporal lobe epilepsy”.
 - a. *Epilepsia* 56 (Suppl. 1): 3-263, 2015.
<http://onlinelibrary.wiley.com/doi/10.1111/epi.13241/epdf>.
6. Facilitated workshop on “Advanced Epilepsy Live Surgery, Neurobiology and functional Neurosurgery” (as part of Center for Epilepsy, funded by DBT) held at All India Institute of Medical Sciences, New Delhi on 9-10th April 2015.

Research Projects (Major Grants/Research Collaboration)

Principal investigator: “Bio-CARE” Women Scientist Scheme (RGO) BT/AB/08/01/2008 (III) Grant entitled “Deciphering the role of the multifaceted kinase CDK5 in intractable epilepsy.” Since October 2014, funded by Department of Biotechnology, India.

Co-investigator: “Centre of Excellence in Epilepsy” a collaborative project between NBRC & AIIMS, funded by Department of Biotechnology, India, since July 2014.

Co-investigator: Deciphering the role of Histone Deacetylases (HDACs) in Mesial Temporal lobe Epilepsy, Intramural Research Grant, AIIMS since July 2016.

Co-PI: “To investigate and evaluate the functional impacts of genome wide copy number variations in drug resistant Epilepsy” DBT Task Force on Neuroscience Disease Biology (July 2016- July 2019)

Co-PI: “Elucidating region specific alterations of glutamatergic excitatory neurotransmission in a rodent pilocarpine model of temporal lobe epilepsy” DBT Task Force on Neuroscience Disease Biology (Approved November, 2016)”

Awards and Distinctions

- Young Investigator's Award, Best poster & Travel Award in 31st International Epilepsy Congress (IEC), Istanbul, 5th – 9th September, 2015.
- Qualified UGC-FRP - 2015
- DBT-Bio-Care Grant (with honorarium) Oct 2014 (3 years)
- Paper selected to receive an Alan Berman Research Publication Award at the Naval Research Laboratory, Maryland USA (2015).
- NIH Post-doctoral Fellowship (2010-2012)
- DBT-RA (2007-2009)
- DRDO JRF/SRF (2002-2005)
- LS-NET in July 2001

Association With Professional Bodies

- Member of Indian Academy of Neurosciences
- Indian Epilepsy Society member
- Member of Neurological society of India
- American Society for Microbiology (ASM) Member

Other Activities

Signature of Faculty Member