




University Faculty Details Page on DU Web-site

Title	Dr.	First Name	Surajit	Last Name	Sarkar	Photograph
Designation		Assistant Professor				
Department		Genetics				
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Educational						
Degree	Institution	Year	Details			
Ph.D	Banaras Hindu University	2007	Thesis topic: Studies on the role of Hsp60C in development and fertility in <i>Drosophila melanogaster</i>.			
M.Sc.	Banaras Hindu University	2001	Subjects: Molecular and Human Genetics			
B.Sc.	Banaras Hindu University	1999	Subjects: Botany (Hons.), Chemistry, Industrial Microbiology			
Career Profile						
Organization / Institution		Designation	Duration	Role		
University of Delhi (South Campus)		Assistant Professor	2007-present	Teaching & Research		
California Institute of Technology (Caltech) California, USA		Visiting Associate	2010 - 2011	Research		
Research Interests / Specialization						
<p>My research interest is primarily focused on to explore the cellular and developmental basis of some fatal human neurodegenerative disorders such as Huntington’s disease, Alzheimer’s disease, Parkinson’s disease etc., and to identify novel drug targets to restrict the pathogenesis of these devastating human illnesses. In addition, my research team is also interested in deciphering the role(s) of some novel genes in development and aging process in <i>Drosophila</i> model system.</p>						
Teaching Experience (Subject / Courses Taught)						
<p>2007-present: Cytogenetics, Chromosomes Genes and Genome, Molecular Techniques, Cell biology, Recombinant DNA technology, Advances in <i>Drosophila</i> Genetics, Instrumentation.</p>						

Honors & Awards	
<ul style="list-style-type: none"> ❖ Junior/Senior Research Fellowship, (NET) Council of Scientific and Industrial Research (CSIR), New Delhi. ❖ Dr. Manashi Ram Prize for Best Paper Presentation in 28th All India Cell Biology Conference & Symposium on Genome Biology-2004. ❖ Young Scientist Award (2009), Department of Science and Technology (DST), Government of India, New Delhi. ❖ BOYSCAST Fellow (2009-10), Department of Science and Technology (DST) ❖ DBT-Innovative Young Biotechnologist Award (IYBA)-2017 	
RESEARCH GUIDANCE:	
Ph.D (awarded) :	3
Thesis Submitted:	1
Working for Ph.D:	4
M. Phil (awarded):	2
I. Research papers published in Refereed/Peer Reviewed Journals: (LAST FIVE YEARS)	
<ul style="list-style-type: none"> ❖ Sarkar. S., Singh M.D. Yadav R and Pittman G. W. (2011) Heat shock proteins: Molecules with assorted functions. <i>Frontiers in Biology</i>, 6: 312–327. ❖ Chanu SI, Singh MD, Yadav R, Raj K. Sarkar S (2013) Neurodegeneration and Ageing: A Fatal Encounter. <i>Cell Dev Biol S1:002</i>. doi: 10.4172/2168-9296.S1-002. ❖ Singh M.D., Raj K., Sarkar S. (2014) <i>Drosophila Myc</i>, a novel modifier suppresses the poly(Q) toxicity by modulating the level of CREB binding protein and histone acetylation, <i>Neurobiol. Dis.</i> 63:48-61 ❖ Gupta R., Sarkar S. and Srivastava S (2014) In vivo Toxicity Assessment of Antimicrobial Peptides (AMPs LR14) Derived from <i>Lactobacillus plantarum</i> Strain LR/14 in <i>Drosophila melanogaster</i>. <i>Probiotics & Antimicro. Prot.</i> DOI 10.1007/s12602-013-9154-y. ❖ Sarkar S (2014) Impairment of Cellular Transcriptional Machinery in Poly(Q) Disorders. <i>Cell Dev Biol</i> 3: 1000e127. ❖ Yadav R, Raj K, Sarkar S. (2014) Comprehending Human Disorders: Focus on Reactive Oxygen Species. <i>J Cell Sci Molecul Biol.</i> 1(3): 110. ❖ Yadav R, Kundu S, Sarkar S (2015) <i>Drosophila glob1</i> expresses dynamically and is required for development and oxidative stress response. <i>Genesis</i> 53:719-737. doi: 10.1002/dvg.22902. (Cover page article) ❖ Singh MD, Chanu SI, Sarkar S. (2016) Deciphering the Enigma of Human Poly(Q) Disorders: Contribution of <i>Drosophila melanogaster</i>. <i>Int. J Neurol. Res.</i> 2: 216-223. ❖ Yadav R., Sarkar S (2016) <i>Drosophila glob1</i> is required for the maintenance of cytoskeletal integrity during oogenesis. <i>Dev. Dyn.</i> 245:1048-1065. ❖ Raj K. and Sarkar S* (2017) Transactivation domain of human c-myc is essential to alleviate poly(Q) mediated neurotoxicity in <i>Drosophila</i> disease models. <i>J. Mol Neurosci</i> 62:55-66. ❖ Chanu SI, Sarkar S. (2017) Targeted Downregulation of dMyc Suppresses Pathogenesis of Human Neuronal Tauopathies in <i>Drosophila</i> by Limiting Heterochromatin Relaxation and Tau Hyperphosphorylation. <i>Mol Neurobiol.</i> 54:2706-2719. ❖ Chanu SI, Sarkar S. (2017) Targeted downregulation of dMyc restricts neurofibrillary tangles mediated pathogenesis of human neuronal tauopathies in <i>Drosophila</i>. <i>Biochim Biophys Acta.</i> 1863:2111-2119. ❖ Yadav R, Nisha, Sarkar S. (2018) <i>Drosophila globin1</i> is required for maintenance of the integrity of F-actin based cytoskeleton during development. <i>Exp Cell Res.</i> (Ahead of Print) doi: 10.1016/j.yexcr.2018.03.005. 	

II. Other than refereed /Peer Reviewed Journals

- ❖ Sarkar S. (2008). Stem Cell research in *Drosophila*. Cell Biology News Letter, 28:13-15.
- ❖ Raj K and Sarkar S. (2013) A fruitful approach in fruit fly: Modelling human neurodegenerative disorders in *Drosophila*. Cell Biology News Letter 32:11-16.

Books

- ❖ Sarkar S, Arya R, Lakhotia S. C. (2006). Chaperonins: in life and death. In: Sreedhar AS, Srinivas UK, editors. Stress Responses: A Molecular Biology Approach. Trivandrum, India: Signpost. pp 43-60. (ISBN 81-308-0109-4).
- ❖ Yadav R., Chanu SI. Raj K. Nisha, Sarkar S* (2016) *Drosophila melanogaster*: A prime experimental model system for aging studies. In: Topics in Biomedical Gerontology; Eds. P.C. Rath, R. Sharma, S. Prasad. Springer Nature Publication.

Conference Presentations

- ❖ Sarkar S. and S. C. Lakhotia (2004). Hsp60C, a new Hsp60 family member is required for *Drosophila* tracheal development and fertility (Abs. no. p.63). 28th All India Cell Biology Conference-2004.
- ❖ Sarkar S. and S. C Lakhotia (2005). *Drosophila* Hsp60C express dynamically during oogenesis and required for oocyte development. (Abs. no. 20). 29th All India Cell Biology Conference-2005.
- ❖ Sarkar S. and S. C Lakhotia (2006). Hsp60C is essential for oogenesis in *Drosophila melanogaster*. Annual Conference of Indian Society of Developmental Biologists & International Symposium on Cellular Signaling during Development- 2006.
- ❖ Sarkar S. and S. C Lakhotia (2007). Hsp60C is required for the maintenance of cellular architecture during oogenesis in *Drosophila melanogaster*. (Abs. no. D1- P12). 30th All India Cell Biology Conference-2005.
- ❖ M. Dhruva Singh and Sarkar S (2009). Studies on the role of Fork Head Transcription Factor (dFoxO) in neurogenesis in *Drosophila*. (Abs. no. P137) 32nd All India Cell Biology Conference-2009.
- ❖ Sarkar S., Pittman G.W. and Hay B (2011) Engineering the Medea element: A Synthetic Maternal-Effect Selfish Genetic Element that Drives Population Replacement (Abs. no. 91) XXXV All India Cell Biology Conference and Symposium on Membrane Dynamics & Disease-2011.
- ❖ Soram Idiyasan Chanu and Surajit Sarkar (2013) Decoding molecular pathogenesis of human Tauopathies in *Drosophila* model. (Abs. no. P13) 3rd National Science Day Symposium, Delhi University South Campus, New Delhi.
- ❖ Soram Idiyasan Chanu and Surajit Sarkar (2013) Identification of *Drosophila myc* (a human homolog of c-myc) as a novel genetic modifier of human Tauopathies. (Abs. no.P16) SYSCON-2013, AIIMS, New Delhi.
- ❖ Soram Idiyasan Chanu and Surajit Sarkar (2013) Identification of *Drosophila myc* (a human homolog of c-myc) as a novel genetic modifier of human Tauopathies. (Abs. no. P191) 7th Annual Convention of ABAP & International Conference on Plant Biotechnology, Molecular Medicine & Human Health, Delhi University South Campus, New Delhi.
- ❖ Soram Idiyasan Chanu and Surajit Sarkar (2013) *Drosophila myc* (a human homolog of c-myc): a novel genetic modifier of human Tauopathies. (Abs. no. P48) 37th All India Cell Biology Conference and Symposium on Cell dynamics and Cell fate, Indian Institute of Science, Bangalore.
- ❖ Renu Yadav, Suman Kundu and Surajit Sarkar (2014) Deciphering the role of multiple globin1 in *Drosophila*. (Abstract no. P24). XVIII International meeting "Oxygen-binding and sensing proteins". 6-10 July 2014, University of Sheffield, Sheffield, UK.
- ❖ Kritika Raj and Surajit Sarkar (2014) Modulation of insulin signalling alleviates poly(Q) mediated neurotoxicity in *Drosophila*. XXXVIII All India cell Biology Conference (December 10-12, 2014), CDRI, Lucknow. (Abstract no.

P024).

- ❖ Renu Yadav and Surajit Sarkar (2014) Decoding the functional significance of Hemoglobin1 (glob1) in *Drosophila*. XXXVIII All India cell Biology Conference (December 10-12, 2014), CDRI, Lucknow. (Abstract no. P025).
- ❖ Soram Idiyasan Chanu and Surajit Sarkar (2014) A Novel approach to suppress human Tauopathies in *Drosophila* disease model. XXXVIII All India cell Biology Conference (December 10-12, 2014), CDRI, Lucknow. (Abstract no. P026).
- ❖ M. Dhruva Singh and Surajit Sarkar (2014) Myc proto-oncogene: A Novel suppressor of Human poly(Q) disorders. XXXVIII All India cell Biology Conference (December 10-12, 2014), CDRI, Lucknow. (Abstract no. P041).
- ❖ Soram Idiyasan Chanu and Surajit Sarkar (2015) Targeted downregulation of dMyc (a homologue of human c-myc proto-oncogene) suppresses human tauopathies in *Drosophila* disease models. 5th National Science Day Symposium (27-28 February, 2015), Delhi University South Campus, New Delhi. Abstract no. P12 (won 2nd prize).
- ❖ Renu Yadav and Surajit Sarkar (2014) Deciphering the biological implications of Hemoglobin 1 (glob1) in *Drosophila*. (Abstract no. P22). 5th National Science Day Symposium (27-28 February, 2015), Delhi University South Campus, New Delhi.
- ❖ Kritika Raj and Surajit Sarkar (2014) Alleviation of poly(Q) mediated neurotoxicity by modulating insulin signalling in *Drosophila* disease models. 5th National Science Day Symposium (27-28 February, 2015), Delhi University South Campus, New Delhi. Abstract no. P24.
- ❖ M. Dhruva Singh, Kritika Raj and Surajit Sarkar (2015) Myc proto-oncogene, a novel genetic modifier suppresses human poly(Q) induced neurotoxicity by modulating the level of global histone acetylation in *Drosophila*. DBT-Young Investigator meeting (from 27.03.2015 to 01.04.2015), Srinagar, Jammu & Kashmir, India. Abs no. 108.
- ❖ Soram Idiyasan Chanu and Surajit Sarkar (2015) Targeted downregulation of dMyc (a homologue of human c-myc proto-oncogene) suppresses human tauopathies in *Drosophila* disease models. 5th National Science Day Symposium (27-28 February, 2015), Delhi University South Campus, New Delhi. Abstract no. P12 (won 2nd prize).
- ❖ Nisha and Surajit Sarkar (2015) *Drosophila* globin: a novel suppressor of human Tau mediated neurodegeneration and cellular toxicity. The XXXIX All India Cell Biology Conference on cellular organization and dynamics. (6-8 December, 2015, IISR-Trivandrum, India) Abstract No. -056.
- ❖ Kritika Raj and Surajit Sarkar (2015) Targeted upregulation of human c-Myc alleviates poly(Q) mediated neurotoxicity in *Drosophila* disease model (21-23 December 2015, IIT-Kanpur, India) Abstract no. P-45.
- ❖ Soram Idiyasan Chanu and Surajit Sarkar (2015) Human Tau-mediated neurodegeneration in *Drosophila* in caused neurofibrillary tangles which could be alleviated by downregulation of dMyc. (21-23 December 2015, IIT-Kanpur, India) Abstract no. P-45
- ❖ Kritika Raj, Surajit Sarkar (2016) Tissue specific overexpression of c-myc mitigates human poly(Q) induced neurodegeneration in *Drosophila* disease model. (July 13-17, 2016), The Allied Genetics Conference (Genetics Society of America), Orlando World Center Marriott, Florida, USA. (Abstract no. D1380B)
- ❖ XIXth International meeting on Oxygen binding and sensing proteins (XIXth O2BIP) during 11.09.2016 to 14.09.2016 at University of Hamburg, Hamburg, Germany. (Session 6 - 17:05-17:20 PM) (Title of the invited talk-*Drosophila* glob1 is required for development and oxidative stress response)
- ❖ Brain storming session on Glial Cells in Health and disease (2-3 February, 2017) at School of Studies in Neuroscience, Jiwaji University, Gwalior-474011) Title of the talk- "Studies on the role of glial cells in

progression of human neurodegenerative disorders and aging mediated neuronal impairments in *Drosophila*".

- ❖ Symposium on Gene-Environment Interaction in disease, development and evolution (March, 5-6, 2017) at Banaras Hindu University. (Title of the talk- Excavating amicable molecular targets to curb Neurofibrillary Tangles (NFT) mediated pathogenesis of human neuronal tauopathies in *Drosophila*).
- ❖ 3rd Indian *Drosophila* research Conference (6 to 9 December 2017; Indian Institute of Science Education & Research (IISER), Bhopal. (Invited talk).
- ❖ Soram Idiyasan Chanu and Surajit Sarkar (2018) Tau, tangles, and tauopathies in *Drosophila* disease models (Invited platform presentation; 27-31 January, 2018; International Congress of Cell Biology 2018 – CCMB).
- ❖ Pragati, Soram Idiyasan Chanu and Surajit Sarkar (2018) Neurofibrillary Tangles (NFTs) mediated pathogenesis of human neuronal tauopathies in *Drosophila* could be restricted by tissue specific downregulation of dMyc. (P285 – 20180566 -S; 27-31 January, 2018; International Congress of Cell Biology 2018 – CCMB).
- ❖ Nisha and Surajit Sarkar (2018) *Drosophila* glob1 is required for the development of nervous system. (Abstract No. P526– 20180565-S; 27-31 January, 2018; International Congress of Cell Biology 2018 – CCMB)
- ❖ Surajit Sarkar (2018) Neurofibrillary tangles (NFTs) mediated conserved mechanism of the pathogenesis of neuronal tauopathies in human and *Drosophila*. [10th Young Investigators' Meetin-2018 (YIM-2018), 5th to 8th March 2018; Thiruvannanthpuram,.

Professional Societies Memberships

- ❖ Life member: Indian Society of Cell Biology
- ❖ Life member: Indian Society of Translational Research
- ❖ Member: Indian Society of Developmental Biologists
- ❖ Treasurer: Indian Society of Cell Biology

Project (Major/Grants/Collaborations)

ONGOING RESEARCH PROJECTS:

1. Studies on the role of Insulin Signalling in mitigation of human poly(Q) induced neurodegeneration in *Drosophila* disease models. (DBT)
2. Functional Elucidation of Multiple Globin Genes in *Drosophila melanogaster*. (DST)
3. Studies on the role of globin gene in suppression of human tauopathy mediated neurodegeneration in *Drosophila* disease models. (CSIR)

COMPLETED RESEARCH PROJECTS:

In the last five years:

1. Characterizing Novel Globins Across Species and Deciphering their Stress Response and Interacting Partners: An Integrated, Holistic Approach for Function Elucidation. (DU/DST-PURSE)
2. Studies on the role of Forkhead Transcription Factor (FOXO) in neurogenesis and aging in *Drosophila*. (DBT)
3. Studies on the modifier capacity of proto- oncogene(s) during progression of Poly(Q) induced neurodegeneration. (DBT)

Signature of Faculty Member

(Signature & Stamp of Head of the Department)