Curriculum vitae

Name: Sumita Sengupta (nee Bandyopadhyay)
Designation: Assistant Professor
Department/: Department of Biophysics, Molecular Biology and Bioinformatics
Institute/ University: University of Calcutta

Education:

Sl No.	Institution Place	Degree Awarded	Year	Field of Study
1	Calcutta University	M.Sc.	1988	Biophysics and Molecular Biology
2	Calcutta University	Ph.D.	1996	Biophysics and Molecular Biology

Position and Honors:

Sl.No.	Institution Place	Position	From (Date)	To (Date)
1	Calcutta University Kolkata, India	Assistant Professor	October, 2006	Present
2	Medical University of South Carolina, USA	Postdoctoral Research Associate	October, 1998	Sept. 2006
3	University of Wisconsin, Madison, USA	Postdoctoral Research Associate	January, 1998	Sept. 1998
4	Bose Institute	Research Associate CSIR	1996	Dec. 1997

Honors and Awards:

2003: Awarded 2nd place in poster presentation in the annual Research Day at the Medical University of South Carolina.
1999 to 2000: Junior Scientist Career Development award, from Medical University of South Carolina, USA.
1996 to 1997: Post-doctoral Research Associate ship, CSIR, Govt. of India
1994: Young Scientists Travel Award for International Union of Biochemistry and Molecular Biology (IUBMB) meeting.
1991 to 1994: Senior Research Fellowship, CSIR, Govt. of India.
1989 to 1991: Junior Research Fellowship, CSIR, Govt. of India.
1989: Awarded among top five percentile in Joint UGC-CSIR (NET) Exam.

Professional Experience and Training Relevant to the Project:

Research Interest:

1. Regulation of gene expression at Transcriptional level and also at the level of mRNA stability of two cytokines that belongs to IL-6 family, *Oncostatin-M* and *Leukemia Inhibitory Factor*.
2. MicroRNA mediated regulation of gene expression both at the Transcriptional, post-transcriptional and translational levels.
3. Study of the molecular mechanism of Mesenchymal to Epithelial transition in breast cancer cells mediated by different microRNAs.
4. Study of the mechanism of cancer cell death by herbal compounds.
5. Synthesis of Nano-particles using herbal compounds and study of their role in cancer cell death.
6. Structure-function relationship of RNA-protein interactions in translational regulation.
7. Biophysical analysis of DNA-protein and protein-protein interactions at the level of transcriptional regulation.

B. Publications:

Books: One Book Chapter
Research Papers: 34 Reports: 14
Patents: None

Peer-reviewed Scientific Publications:

1. SUMO E3 ligase CBX4 regulates hTERT-mediated transcription of CDH1 and promotes breast cancer cell migration and invasion. Sanyal S, Mondal P, Sen S, Sengupta Bandyopadhyay S and Das C. (2020) *Biochem J.* **477(19):**3803-3818. doi: 10.1042/BCJ201200359.

2. DNA damage-independent interaction of CBX4 with SUMO1. Sulagna Sanyal, Chandrima Das* and Sumita Sengupta (Bandyopadhyay) *. (2020) *International Journal of Chemical and Environmental Sciences*, **1** (2)

3. Involvement of HuR in the serum starvation induced autophagy through regulation of Beclin1 in breast cancer cell-line MCF-7. De S, Das S, Mukherjee S, Das S, Sengupta Bandyopadhyay S. (2019) *Cellular Signalling* **61** DOI: 10.1016/j.cellsig.2019.05.008

4. Mechanism of prostaglandin E_2-induced transcriptional up-regulation of Oncostatin-M by CREB and Sp1. Mukherjee S, Sengupta Bandyopadhyay S. (2018) *Biochem J.* 475(2):477-494. doi: 10.1042/BCJ20170545.

5. Establishment of twist-1 and TGFBR2 as direct targets of microRNA-20a in mesenchymal to epithelial transition of breast cancer cell-line MDA-MB-231. De S, Das S, Mukherjee S, Das S, Sengupta Bandyopadhyay S. Exp Cell Res. 2017 Dec 1;361(1):85-92. doi: 10.1016/j.yexcr.2017.10.005.
6. Withaferin A induced impaired autophagy and unfolded protein response in human breast cancer cell-lines MCF-7 and MDA-MB-231. (2017) Ghosh K, De S, Mukherjee S, Das S, Ghosh AN, Sengupta SB. *Toxicol In Vitro.* 44:330-338. doi: 10.1016/j.tiv.2017.07.025.
7. Phorbol-12-myristate-13-acetate mediated stabilization of Leukemia Inhibitory Factor (*lif*) mRNA: Involvement of Nucleolin and PCBP1. (2017) Alina Chakraborty, Srimoyee Mukherjee, Sucharita Saha, Soumasree De and Sumita Sengupta (Bandyopadhyay). *Biochemical J.* May 16, 2017, BCJ20170051; DOI: 10.1042/BCJ20170051. [IF: 4.396 ISSN: 0264-6021 (print); 1470-8728 (web)
8. Withaferin A Induces ROS-mediated Paraptosis in Human Breast Cancer Cell-Lines MCF-7 and MDA-MB-231. (2016) Ghosh K, De S, Das S, Mukherjee S, Sengupta Bandyopadhyay S. *PloS One.* 11(12):e0168488. doi: 10.1371/journal.pone.0168488. [IF: 4.411 ISSN: 1932-6203]

9. Phorbal -12-myristate-13 (PMA) mediated transcriptional regulation of Oncostatin-M. (2016) Srimoyee Mukherjee and Sumita Sengupta (Bandyopadhyay). *Cytokine*, 88, 209-213.
10. A novel rearrangement followed by ring contraction-based highly selective and sensitive turn-on chromogenic and fluorescent chemodosimeter for Cu2+. (2016) Das Paramita, Chaudhuri Tandrima, Karmakar Animesh, Saha Sucharita, Sengupta Bandyopadhyay Sumita, Mukhopadhyay Chhanda. *Asian Journal of Organic Chemistry.* 10.1002/ajoc.201600371
11. Stabilization of Oncostatin-M mRNA by Binding of Nucleolin to a GC-Rich Element in Its 3'UTR. (2016) Saha S, Chakraborty A, Bandyopadhyay SS. *J Cell Biochem.* 117(4):988-99.
12. Role of Diallyl Disulfide Mediated Cleavage of c-Myc and Sp-1 in the Regulation of Telomerase Activity in Human Lymphoma Cell-line U937. (2015) Pritha Dasgupta and Sumita Sengupta (Bandyopadhyay). *Nutrition*, Vol 31 (7-8), p 1031-1037. DOI:10.1016/j.nut.2015.02.016
13. Synthesis of diallyl disulfide (DADS) induced gold nanoparticles: characterization and study of its biological activity in human leukemic cell-lines. (2015) Pritha Dasgupta, Abhishek Bhattacharya, Rajat Pal, Anjan Dasgupta, Sumita Sengupta Bandyopadhyay. RSC Advances, 5(24):18429-18437. DOI: 10:1039.c4ra15388j

14. p-tert-Butylcalix[8]arene catalysed synthesis of 3,5-dinitrothiophene scaffolds: antiproliferative effect of some representative compounds on selective anticancer cell lines . (2012) Piyali Sarkar, Samares Maiti, Krishnendu Ghosh, Sumita Sengupta, Ray J. Butcher, Chhanda Mukhopadhyay. Tetrahedron Letters 55 (2014) 996–1001
15. Role of di-allyl disulfide, a garlic component in NF-κB mediated transient G2-M phase arrest and apoptosis in human leukemic cell-lines. (2013) Dasgupta P, Bandyopadhyay SS. *Nutr Cancer*. 65(4):611-22.
16. Synergistic effect of conjugated linolenic acid isomers against induced oxidative stress, inflammation and erythrocyte membrane disintegrity in rat model. (2012). Saha SS, Dasgupta P, Sengupta Bandyopadhyay S, Ghosh M. *Biochim Biophys Acta*. 1820(12):1951-70.
17. A genetic network that balances two outcomes utilizes asymmetric recognition of operator sites. (2012) Mazumder A, Bandyopadhyay S, Dhar A, Lewis DE, Deb S, Dey S, Chakrabarti P, Roy S. Biophys J. 102(7):1580-9.

18. Direct amide bond formation from carboxylic acids and amines using activated alumina balls as a new, convenient, clean, reusable and low cost heterogeneous catalyst. (2012) Sabari Ghosh, Asim Bhaumik, John Mondal, Amit Mallik, Sumita Sengupta (Bandyopadhyay) and Chhanda Mukhopadhyay. Green Chem., 14, 3220.

19. Mukhopadhyay C, Ghosh S, **Sengupta (Bandyopadhyay) S,** De S. (2011) Solvent-free microwave synthesis of 2-alkyl substituted benzimidazoles: Anti-proliferative effect of some representative compounds on human histiocytic lymphoma cell U937. *RSC Advances*, **1**, 1033–1037.

20. Mechanism of regulation of bcl-2 mRNA by nucleolin and A+U-rich element-binding factor 1 (AUF1). (2010) Ishimaru D, Zuraw L, Ramalingam S, Sengupta TK, Bandyopadhyay S, Reuben A, Fernandes DJ, Spicer EK. J Biol Chem. 285(35):27182-91.

21. Regulation of Bcl-2 expression by HuR in HL60 leukemia cells and A431 carcinoma cells. (2009) Ishimaru D, Ramalingam S, Sengupta TK, Bandyopadhyay S, Dellis S, Tholanikunnel BG, Fernandes DJ, Spicer EK. Mol Cancer Res. 7(8):1354-66.

22. PMA induces stabilization of oncostatin M mRNA in human lymphoma U937 cells. (2008) Bandyopadhyay S, Sengupta TK, Spicer EK. Biochem J. 410(1):177-86.

23. Identification of Ebp1 as a component of cytoplasmic bcl-2 mRNP (messenger ribonucleoprotein particle) complexes. (2006) Bose SK, Sengupta TK, Bandyopadhyay S, Spicer EK. Biochem J. 396(1):99-107.

24. Retinoid-induced apoptosis in HL-60 cells is associated with nucleolin down-regulation and destabilization of Bcl-2 mRNA. (2005) Otake Y, Sengupta TK, Bandyopadhyay S, Spicer EK, Fernandes DJ. Mol Pharmacol 67(1):319-26. Epub 2004 Oct 18.

25. Drug-induced destabilization of bcl-2 mRNA: a new approach for inducing apoptosis in tumor cells. (2004) Otake Y, Sengupta TK, Bandyopadhyay S, Spicer EK, Fernandes DJ. Curr Opin Investig Drugs. 5(6):616-22. Review.

26. Identification of nucleolin as an AU-rich element binding protein involved in bcl-2 mRNA stabilization. (2004) Sengupta TK, Bandyopadhyay S, Fernandes DJ, Spicer EK. J Biol Chem. 279(12):10855-63.

27. Taxol- and okadaic acid-induced destabilization of bcl-2 mRNA is associated with decreased binding of proteins to a bcl-2 instability element. (2003) Bandyopadhyay S, Sengupta TK, Fernandes DJ, Spicer EK. Biochem Pharmacol. 66(7):1151-62.

28. LDL immune complexes stimulate LDL receptor expression in U937 histiocytes via extracellular signal-regulated kinase and AP-1. (2003) Fu Y, Huang Y, Bandyopadhyay S, Virella G, Lopes-Virella MF. J Lipid Res. 44(7):1315-21.

29. Half-of-the-sites reactivity of F235C lambda-repressor: implications for the structure of the whole repressor. (2002) Bandyopadhyay S, Deb S, Bose S, Roy S. Protein Eng. 15(5):393-401.

30. DNA sequence dependent and independent conformational changes in multipartite operator recognition by lambda-repressor. (2000). Deb, S. Bandyopadhyay S. and Roy S. *Biochemistry.* **39(12),** 3377-3383.

31. Spectroscopic study of Y210C □-repressor: implications for cooperative interaction. (1998) Sunanda Deb, Sumita Bandyopadhyay and Siddhartha Roy. *Protein Engineering*, 11, 481–487.

32. Dimer-dimer interfaces of the lambda-repressor are different in liganded and free states. (1996) Bandyopadhyay S., Mukhopadhyay C. and Roy S. *Biochemistry.* **35,** 5033-5040.

33. Role of the C-terminal tail region in the self-assembly of lambda-repressor. (1995) Bandyopadhyay S., Banik U., Bhattacharyya B., Mandal N.C. and Roy S. *Biochemistry*. **34,** 5090-97.

34. Saha, R. ; Banik, U. ; Bandopadhyay, S. ; Mandal, N. C. ; Bhattacharyya, B. ; Roy, S. (1992) An operator-induced conformational change in the C-terminal domain of the λ repressor *Journal of Biological Chemistry*, 267 (9). pp. 5862-5867.

Research projects:

Sl No.	Title of Project	Amount	Funding Agency
1.	Study of the Mechanism of Regulation of Oncostatin-M Expression in Human Leukemia Cell-lines	Rs. 28,62,900/-	DST Govt. of India SR/SO/BB-58/2007 dated 24.12.2008
2.	Synthesis of Anthracenes with Piperidinyl and N-Methyl Piperizinyl Side-chains: Detailed Studies of Their Anti-cancer Activities	Rs. 11, 98,000	UGC Govt. of India F 37-398/2009 dated 11.01.2009
3.	Functional characterization of Leukemia inhibitory factor *(lif)* 3'UTR: elucidation of its role in the regulation of LIF gene expression.	Rs. 16,00,000	CSIR Govt. of India Nov. 2013 - 2016
4.	Synthesis of gold nanoparticles using diallyl disulfide: Characterization and study of its biological activity	Rs. 2,00,000 + SRF	CNNR Calcutta University
5.	Green synthesis of metal nano-particles and its application in cell imaging	Rs. 3,00,000/annum	UPE-II, Calcutta University

Sl No.	Name of the Research Scholars	Title Thesis	Year of Submission	Year of award
1.	Dr. Pritha Dasgupta	Study of Antiproliferative Effects and Mechanism of Action of Di-allyl Disulfides on Human Leukemic Cell lines.	July 2013	April 2014
2.	Dr. Kamalini Ghosh	Therapeutic Relevance of Withaferin-A Induced Apoptotic and Autophagic Regulation in Human Cancer Cell-lines	April 2015	October 2015
3.	Dr. Alina Chakraborty	Functional characterization of Leukemia Inhibitory Factor (LIF) 3'UTR: Elucidation of its role in the Post-transcriptional Regulation of LIF gene Expression.	December, 2015	May, 2016
4.	Dr. Sucharita Saha	Post-transcriptional Regulation of Oncostatin-M mRNA.	November 2015	May, 2016
5.	Dr. Soumasree De	Study of microRNA mediated regulation of Cancer and Autophagy related genes in	April, 2016	May, 2017

		Breast Cancer Cell-lines.		
6.	Dr. Srimoyee Mukherjee	Transcriptional Regulation of Oncostatin-M Expression in Human Leukemia cell-line, U937.	April, 2017	March, 2018

Present Research Scholars:

1. Ms. Sulagna Sanyal (submitted)
2. Ms. Sayantani Das (CSIR-JRF, Registered)
3. Ms. Deepmala Karmakar (ICMR-SRF, Registered)
4. Ms. Sainy Das (SVMCM)
5. Ms. Somdutta Ghosh (UGC-JRF, Registered)
6. Ms. Arpita Das (CSIR-JRF, Unregistered)

Present Research Scholars:

1. Dr. Paromita Banerjee (CSIR-RA)