

PROF. TAPASYA SRIVASTAVA

Office: Room 313, Second floor, Bachhawat Block
Lab: Room 202, First floor, Biotechnology Centre
Department of Genetics, University of Delhi South Campus,
Benito Juarez Road, New Delhi - 110021
Email: tapasya@south.du.ac.in

Academic Qualification

Bsc (Hon) Zoology; 1993-96; Delhi University; 66.6%
MSc Biochemistry; 1996-98; Hamdard University; 72.4%
PhD ; Genomic instability in astrocytic tumors and cell-lines; Prof Subrata Sinha; All India Institute of Medical Sciences; 2004

Work experience

2005 - 2008 Young Scientist Fellow at All India Institute of Medical Sciences, New Delhi
2008 - 2009 Research Associate at All India Institute of Medical Sciences, New Delhi
2009(2 Deputy Assistant Director, National Centre for Disease Control (erstwhile months) NICD)
2009 - 2017 Assistant Professor at University of Delhi South Campus, New Delhi
2017 – 2020 Associate Professor at University of Delhi South Campus, New Delhi
2020- -- Professor at University of Delhi South Campus, New Delhi

Honors and Awards

2001 Junior Research Fellowship awarded by Lady Tata Memorial Trust
2004 Senior Research Fellowship, Govt. of India, Council of Science and Industrial Research
2005 Young Scientist Fellowship awarded by Department of Science and Technology, Govt of India
2007 Best Poster Award in International Symposium on Cancer Biology, 2007 organized by National Institute of Immunology, New Delhi
2007 Young Investigator Award in ACBICON2007 organized by Association of Clinical Biochemist of India
2010 Young Scientist Fellowship awarded by Department of Science and Technology, Govt of India
2011 The Indian National Science Academy, INSA medal for Young Scientists in the field of Medical Sciences for 2010
Indo-US Science and Technology Fellowship for conducting research work at University of Minnesota, Minneapolis.
2013 Women's Excellence in science research award, Science and Engineering Research Board, Department of Science & Technology, Government of India.
2016 Elected Member, National Academy of Medical Sciences

Professional Memberships

- 2013 - Life Member, Indian Association of Cancer Research
2012 - Life Member, Association of Clinical Biochemists of India

Research Interests and Laboratory goals

The lab works on cancer biology and genetics. My efforts have been to be involved in research pertaining to both basic as well as translational work in cancer. To achieve this, we collaborate with other labs in institutions of repute as much as possible. We work with basic molecular biology, cell biology, genetic and epigenetic studies to understand the onset and progression of cancer in our lab at UDSC. A large body of our work pertains to the hypoxic tumor microenvironment and its contribution to prognosis and chemoresistance of the disease. Early detection and risk assessment along with understanding disease biology are the driving force of our lab. We collaborate with physicians, oncologists and scientists from other disciplines. This is also reflected in our publications.

Research papers, reviews, editorial

1. Pandey N, Chongtham J, Pal S, Ali A, Lalwani S, Jain D, Mohan A and Srivastava T. When “No-Smoking” is not enough: Hypoxia and nicotine acetylcholine receptor signaling may drive lung adenocarcinoma progression in never-smokers. BBA- Molecular Cell Research (In print).
2. Chongtham J, Pandey N, Sharma LK, Mohan A and Srivastava T. rs9387478 at ROS1-DCBLD1 locus shows strong association with lung cancer risk, nicotine dependence and poor survival outcome in a North Indian population (in review)
3. Bhushan A, Kumari R, Srivastava T. Scouting for common genes in the heterogenous hypoxic tumor microenvironment and their validation in glioblastoma. 3 Biotech. 2021 Oct;11(10):451.
4. Shukla P, Deswal D, Pandit M, Latha N, Mahajan D, Srivastava T, Narula AK. Exploration of novel TOSMIC tethered imidazo[1,2-a]pyridine compounds for the development of potential antifungal drug candidate. Drug Dev Res. 2021 Sep 27. doi: 10.1002/ddr.21883. Epub ahead of print. PMID: 34569640.
5. Pandey N, Tyagi G, Kaur P, Pradhan S, Rajam, MV, Srivastava T*. Allicin overcomes hypoxia mediated cisplatin resistance in lung cancer cells through ROS mediated cell death pathway and by suppressing hypoxia inducible factors. Cell Physiol Biochem 2020;54:748-766 doi: 10.33594/000000253.
6. Gulati P. Kaur P, Rajam MV, Srivastava T, Mishra P, Islam SS. Vertically aligned multi-walled carbon nanotubes based flexible immunosensor for extreme low level detection of multidrug resistant leukemia cells. Sensors and Actuators B 2019 (Article 127047) <https://doi.org/10.1016/j.snb.2019.127047>

7. Gulati P, Kaur P, Rajam MV, Srivastava T, Mishra P, Islam SS. Single-wall carbon nanotube based electrochemical immunoassay for leukemia detection, *Analytical Biochemistry* 2018, doi: 10.1016/j.ab.2018.07.020.
8. Gulati P, Kaur P, Rajam MV, Srivastava T, Ali MA, Mishra P, Islam SS. Leukemia biomarker detection by using photoconductive response of CNT electrode: Analysis of sensing mechanism based on charge transfer induced Fermi level fluctuation. *Sensors and Actuators B* 2018 Volume 270, Pages 45-55.
<https://doi.org/10.1016/j.snb.2018.05.019>.
9. Singh P, Jenkins LM, Horst B, Alers V, Pradhan S, Kaur P, Srivastava T, Hempel N, Gyórfy B, Broude EV, Lee NY, Mythreye K. Inhibin is a novel paracrine factor for tumor angiogenesis and metastasis. *Cancer Res.* 2018 Mar 13. pii: canres.2316.2017. doi: 10.1158/0008-5472.CAN-17-2316. PMID: 29535220.
10. Majumder S, Sharma N, Das S, Pandey N, Srivastava T, Ghosh D. Synthesis, Characterization of Novel PLGA Encapsulated Indole Nanoparticles and Study of its cytotoxic potential against A549 lung cancer cell line. *Journal of Applied Pharmaceutical Science.* 2018; 8(8): 144-150.
11. Pandey N, Pal S, Sharma LK, Guleria R, Mohan A, Srivastava T*. SNP rs16969968 as a Strong Predictor of Nicotine Dependence and Lung Cancer Risk in a North Indian Population. *Asian Pac J Cancer Prev.* 2017 Nov 26;18(11):3073-3079.
12. Prasad P, Arora Mittal S, Chongtham J, Mohanty S, Srivastava T*. Hypoxia-mediated epigenetic regulation of stemness in brain tumor cells. *Stem Cells.* 2017 Apr 4. doi: 10.1002/stem.2621. [Epub ahead of print] PubMed PMID: 28376560.
13. Pradhan S, Mahajan D, Kaur P, Pandey N, Sharma C, Srivastava T*. Combination treatment of low dose cisplatin and scriptaid overcomes hypoxia-induced chemoresistance in lung cancer cells. *Oncotarget* 2016 Nov 1;7(44):71841-71855.
14. Pandey N, Dhiman S, Srivastava T*, Majumder S*. Transition metal oxide nanoparticles are effective in inhibiting lung cancer cell survival in the hypoxic tumor microenvironment. *Chem Biol Interact* 2016 Jul 4;254:221-30.
15. Mittal S, Pradhan S and Srivastava T*, Recent advances in targeted therapy for glioblastoma, *Expert Rev Neurother.* 2015, Vol. 15, No. 8 , 935-946.
16. Tyagi G, Pradhan S, Srivastava T* and Mehrotra R*, Nucleic acid binding properties of allicin; spectroscopic analysis and estimation of anti-tumor potential, *Biochemica and Biophysica Acta*, 1840(1),350-356,2014.
17. Srivastava T, *Biol Med J* 2014, 6:1, Editorial. Now perceiving: The complete genome package.

18. Srivastava T, Molecular targets for therapy in malignant gliomas. *Journal of Proteins and Proteomics* 2010 Vol 1, No 2, 65-69.
19. Jha P, Agarwal S, Pathak P, Srivastava A, Suri V, Sharma MC, Chosdol K, Srivastava T, Gupta D, Gupta A, Suri A, Sarkar C. Heterozygosity status of 1p and 19q and its correlation with p53 protein expression and EGFR amplification in patients with astrocytic tumors: novel series from India. *Cancer Genet Cytogenet.* 2010 Apr 15;198(2):126-34.
20. Pal A¹, Srivastava T¹, Sharma MK, Mehndiratta M, Das P, Sinha S, Chattopadhyay P. Aberrant methylation and transcriptional mobilization of Alu elements contributes to genomic instability in hypoxia. *J Cell Mol Med.* 2010 Nov; 14(11):2646-54.
21. Chosdol K, Misra A, Puri S, Srivastava T, Sarkar C, Mahapatra AK and Sinha S. Frequent LOH and altered expression of tumor suppressor FAT identified by RAPD in astrocytic tumors. *BMC Cancer* 9:5, 2009.
22. Srivastava T, Chosdol K, Chattopadhyay P, Mahapatra AK, Sarkar C, Sinha S. Frequent loss of heterozygosity encompassing the hMLH1 locus in low grade astrocytic tumors. *J Neuro-oncol.* 2007 Feb;81(3):249-55.
23. Srivastava T, Seth A, Datta K, Chosdol K, Chattopadhyay P, Sinha S. Inter-alu PCR detects high frequency of genetic alterations in glioma cells exposed to sub-lethal cisplatin. *Int J Cancer.* 2005, 117 (4), 683–689. (Cover Page Article)
24. Srivastava T, Chattopadhyay P, Mahapatra AK, Sarkar C and Sinha S. Increased hMSH2 Protein Expression in Glioblastoma Multiforme. *J Neuro-oncol* 2004 Jan 66 (1-2): 51-57.
25. Datta K, Shah P, Srivastava T, Mathur SG, Chattopadhyay P, Sinha S. Sensitizing glioma cells to cisplatin by abrogating the p53 response with antisense oligonucleotides. *Cancer Gene Therapy* 2004 Aug; 11(8): 525-531. (Highlighted by Nature, Nature Publishing Group)
26. Datta K, Mathur SG, Srivastava T, Shah P, Chattopadhyay P, Sinha S. Hydroxylamine potentiates the effect of low dose hydrogen peroxide in glioma cells independent of p53. *Int J Biochem Cell Biol.* 2003 Dec;35(12):1639-44.
27. Datta K, Babbar P, Srivastava T, Sinha S, Chattopadhyay P. p53 dependent apoptosis in glioma cell lines in response to hydrogen peroxide induced oxidative stress. *Int J Biochem Cell Biol.* 2002 Feb;34(2):148-57.
28. Misra A, Chosdol K, Srivastava T, Chattopadhyay P, Mahapatra AK, Sarkar C, Sinha S. Glial tumorigenesis: Molecular alterations and identification of targets. *Proc. Indian Natl Sci Acad.* 2003. B69 No.1, 49-72

Chapters in books/ e-books

In the Pipeline:

Hypoxia and Metastasis (Chapter contribution to Springer)

Chapter contribution to IGNOU BSc Biochemistry coursework

1. T Srivastava and LM Srivastava; Complement System; Textbook of Biochemistry, Biotechnology, Allied and Molecular Medicine; ed: GP Talwar, SE Hasnain and SK Sarin; Prentice-Hall of India Pvt Ltd, New Delhi 4th edition, 2016: 1227-1237.
2. Srivastava T, Chosdol K, Misra A, Chattopadhyay P, Sarkar C, Mahapatra AK and Sinha S. Molecular Staging of Glial Tumors. Proceeding of 14th Annual symposium of Ranbaxy Science Foundation on 'Emerging Frontiers in Management of Advanced Stage Cancers 2008.
3. T Srivastava and K Chosdol. The Muscular System; in E-book on Biochemistry, National Institute of Science Communication and Information Resources (Council of Scientific and Industrial Research, Govt of India), <http://nsdl.niscair.res.in/> 2007.
4. T Srivastava and K Chosdol. Clinical Enzymology; in E-book on Biochemistry, National Institute of Science Communication and Information Resources (Council of Scientific and Industrial Research, Govt of India), <http://nsdl.niscair.res.in/> 2007.
5. T Srivastava and S Sinha. The Complement System; in E-book on Biochemistry, National Institute of Science Communication and Information Resources (Council of Scientific and Industrial Research, Govt of India), <http://nsdl.niscair.res.in/> 2007.
6. T Srivastava and S Sinha Antigens: in E-book on Biochemistry, National Institute of Science Communication and Information Resources (Council of Scientific and Industrial Research, Govt of India), <http://nsdl.niscair.res.in/> 2007.
7. T Srivastava and S Sinha An Overview of Immunity: Innate And Adaptive Immunity: in E-book on Biochemistry, National Institute of Science Communication and Information Resources (Council of Scientific and Industrial Research, Govt of India), <http://nsdl.niscair.res.in/> 2007.
8. T Srivastava and S Sinha; Elementary Knowledge of Major Histocompatibility Complex and HLA Typing, in E-book on Biochemistry, National Institute of Science Communication and Information Resources (Council of Scientific and Industrial Research, Govt of India), <http://nsdl.niscair.res.in/> 2007
9. A Makkar, T Srivastava and LM Srivastava ; Human Genome Project;. Biochemistry for Medical Students ed L.M. Srivastava. CBS publishers and Distributors, New Delhi, 1st edition, 2004: 598-604.
10. K.R. Raju and T Srivastava; Specialized Techniques: Immunodiffusion techniques, Radio Immunoassay (RIA) and ELISA; in Essentials of Practical Biochemistry. ed L.M. Srivastava, N. Das and S.Sinha. CBS publishers and Distributors, New Delhi, 1st edition, 2003: 225-230.

11. B. Naganna and T. Srivastava ; Plasma Proteins in Textbook of Biochemistry and Human Biology. ed G.P. Talwar and L.M. Srivastava. Prentice-Hall of India Pvt Ltd, New Delhi 3rd edition, 2003: 62-74.

12. LM Srivastava, V Anand and T. Srivastava; Complement system; in Textbook of Biochemistry and Human Biology. ed G.P. Talwar , L.M. Srivastava. Prentice-Hall of India Pvt Ltd, New Delhi 3rd edition, 2003: 1020-1029.

Academic role

Mentorship

PhD students: Completed : 6; Thesis submitted: 1 Ongoing: 4;

M.Phil students; Completed: 3 ; On-going: 0

Teaching

Course contribution in teaching Master's in Genetics, over the years

1. Epigenetic regulation of gene expression
2. Immunology
3. Molecular Biology
4. Advances in Replication, Recombination and Repair
5. Regulation of Biochemical pathways
6. Cancer Biology and Genetics

Course contribution in PhD teaching on campus, over the years:

1. Introductory course on Cancer Research (Genetics)
2. Scientific Writing (Genetics)
3. Research and Publication Ethics (FIAS)

Administrative role at DU, South Campus

Serving as the Warden of the Geetanjali Hostel for Post graduate women at University of Delhi South Campus since 2017

Serving as a Member Secretary of the Institutional Animal Ethics Committee since September 2020

Serving as a Member Secretary of the Institutional Ethics Committee since March 2021

Academic/administrative commitments

1. Member of the Institutional Ethics Committee of CCRH, Ministry of Ayush (Ongoing)
2. Member of Institutional Committee for Stem Cell Research of NII
3. Served as Nodal officer for MSC Genetics post graduate and PhD IN Genetics recruitment for five years (ending 2018)
4. Served as Member of the Institutional Ethics Committee of UDSC
5. Served as Expert member from India in Scientific meeting of BRICS nations in 2021
6. Project assessment committee and task force member of SERB-SUPRA

7. Evaluation of fellowship committee at ICMR
8. Project Assessment committee Empowerment and Equity Opportunity, EMEQ-SERB
9. Selection committee of SERB-SIRE (SERB International research experience)