

Dr. Snober S. Mir



Dr. Snober S. Mir is working as an Associate Professor in the Department of Biotechnology, Integral University, Lucknow. Her area of specialization is Molecular and Cell Biology, Cancer Biology and Yeast Biology. She obtained her Master's degree in Biotechnology from IBU, Aligarh Muslim University and her Ph.D in Biotechnology from Post Graduate Institute of Medical Education and Research (PGIMER), Chandigarh. She has been a recipient of the Young Scientist Award by AACR-IACR during her doctoral studies and a research fellowship of PGIMER. Dr. Mir worked as a Postdoctoral Fellow at the Medical College of Georgia, USA and as Senior Research Associate on a European Commission funded project at CSIR-CDRI, Lucknow. She is also a recipient of DBT-BioCARE fellowship and a principal investigator on a DBT funded project. Her work has been published in several peer reviewed international journals including *Molecular Cell Biology*, *Molecular Cancer Research*, *Molecular Microbiology*, *Molecular Cytogenetics*, *International Journal of Parasitology*, *Biochemical Biophysical Research Communications*, *CNS Neurol Disord Drug Targets*, *Journal of Neurodegenerative Diseases*, *Molecular and Biochemical Parasitology*, *Lipids*, *Journal of Natural Medicine* etc.

Our team members:

1. Safia
2. Saba Sheikh
3. Shishir Srivastava
4. Sunil K. Mishra
5. Shamshad Alam
6. Usha Gupta
7. Ejazul Haque
8. Mohd Kamil

Teaching Interests:

Dr. Mir has been involved in teaching various subjects in Undergraduate programmes (B. Sc. Biotechnology) as well as Post graduate programme (M.Tech. Biotechnology, M.Sc. Biotechnology, Biochemistry and Microbiology, Medical Biotechnology) like Cell & Molecular Biology, Immunology, Molecular Genetics, Molecular Biology, Animal Biotechnology, Free Radical Biochemistry, and Applied Biotechnology,

Research Interests:

The research in her laboratory is focused towards understanding the molecular mechanisms of chaperones, their activities and protein quality control. It is well known that most of the neurodegenerative disorders and cancer arise due to an underlying incapacity of the protein quality control (PQC) pathways that have evolved to protect cells from the deleterious effects of misfolded proteins. To handle a build up of abnormally folded proteins, cells employ a sophisticated protein proof reading and elimination mechanism called the protein quality control mechanism. The molecular switches that trigger the chaperones to act under stressful conditions and the impairment of such commands during disease processes are yet to be identified. Understanding the protein quality control pathways would not only give us an insight into the basic cellular mechanisms but also help in identifying novel genetic targets of the disease processes thereby leading to development of new treatment strategies to a diverse set of diseases. To this end her research utilizes the powerful genetics of baker's yeast *Saccharomyces cerevisiae*, which has long been recognized as a model system for understanding the fundamental cellular functions and the development of disease processes in human beings. For its well deciphered genome and ease of genetic manipulation, this model system has been usefully exploited in unraveling the mechanistic aspects of molecular chaperone function/dysfunction in Huntington's disease and seems to hold promise in leading the researchers towards a better understanding of other diseases. Dr. Mir's laboratory is also working on screening of novel bioactive compounds that have the potential to modulate protein quality control machinery and to understand their mode(s) of action. The identification of the molecules involved in the induction and targeting of the client proteins to autophagy and apoptosis in cells, is particularly crucial to move forward in our understanding of the process in terms of intervention, inhibition or acceleration of tumorigenesis and neurodegeneration. Thus, taking advantage of the recent reverse genetics technologies along with the well-deciphered genetic make-up of yeast, the objective is to identify novel modulators of protein quality control pathways in neurodegenerative diseases and cancer.

Representative Publications:

- **Mir Snober Shabnam** and Rizwan H. Khan. (2001). Effect of sugars on rabbit serum albumin stability and induction of secondary structure. *Biochemistry* (Mos.), 66(9): 1042-1046. (In Pubmed last name mis-spelt as shabnUm).
- **Mir Snober Shabnam**, S. Radhika, Anjlina Wali, S. Majumdar, D. Behera. (2004). Expression of p53 and apoptosis regulatory molecules Bcl-2, Bcl-XL and Bax in locally advanced squamous cell carcinoma of the lung. *Lung Cancer* 45(2): 181-188.
- Puneet Malhotra, S. Radhika, **Mir Snober Shabnam**, S. Majumdar, D. Behera. (2004). Microsatellite alterations in non-small cell lung cancer. *Jap. Journal of Clinical Oncology* 34(8): 439-444.
- Jyotika Sharma, Radhika Srinivasan, Siddhartha Majumdar, **Mir Snober Shabnam**, Bishan Dass Radotra, Jai Dev Wig, (2005) Bcl-XL Protein Levels Determine Apoptotic Index in Pancreatic Carcinoma. *Pancreas* 30(4): 337-342.
- Anjlina Wali, Radhika Srinivasan, **Mir Snober Shabnam**, Siddhartha Majumdar, K. Joshi, D. Behera. (2006). Loss of fragile histidine triad gene expression in advanced lung cancer is consequent to allelic loss at 3p14 locus and promoter methylation. *Mol Cancer Res* 4(2): 93-99.
- **Mir Snober Shabnam**, Fiedler David and Anil G. Cashikar. Ssd1 Is Required for Thermotolerance and Hsp104-Mediated Protein Disaggregation in *Saccharomyces cerevisiae*. (2009) *Mol Cell Biol*. 29: 187-200
- Subir Biswas, Erin E.Lim, **Mir Snober Shabnam**, Stuart Ralph, Saman Habib Interaction of apicoplast-encoded elongation factor (EF) EF-Tu with nuclear-encoded EF-Ts mediates translation in the *Plasmodium falciparum* plastid. (2010) **International Journal Of Parasitology** 41:417-427
- Pooja Jadiya, Asif Khan, Shreesh Raj Sammi, Supinder Kaur, **Snober S. Mir**, Aamir Nazir. Anti-Parkinsonian effects of *Bacopa monnieri*: Insights from transgenic and pharmacological *Caenorhabditis elegans* models of Parkinson's disease.(2011) **Biochemical and Biophysical Research Communications** 413, 4, 7 605-610

- Afreen Haider, Ankit Gupta, Suniti Vaish, Bijay Kumar, Manish Charan, **Snober S. Mir**, Aiman Tanveer, Ashima Sinha, Saman Habib. Housekeeping and other metabolic functions of the *Plasmodium* Plastid. **Current Science** Vol 102, March (2012)
- Effect of various classes of pesticides on expression of stress genes in transgenic *C. elegans* model of Parkinson's disease. Pooja Jadiya, **Snober S. Mir**, Aamir Nazir. **CNS Neurol Disord Drug Targets**. 2012 Dec 12.
- Neurodegenerative Diseases: Multifactorial Conformational Diseases and their therapeutic interventions. Saba Sheikh, Safia, Ejazul haque, **Snober S. Mir***. **Journal of Neurodegenerative Diseases**, (2013)
- Recycling factors for ribosome disassembly in the apicoplast and mitochondrion of *Plasmodium falciparum*. Ankit Gupta, **Snober S. Mir**, Ashima Sinha, Stuart Ralph, Saman Habib. **Mol. Microbiology**. Vol5, 891-905 (2013)
- Antidyslipidemic and Antioxidant Effects of Novel Lupeol-Derived Chalcones. Shishir Srivastava, Ravi Sonkar, Sunil Kumar Mishra, Avinash Tiwari, Vishal Balramnavar, **Snober Mir**, Gitika Bhatia, Anil K. Saxena, Vijai Lakshmi **Lipids (2013)** 48:1017–1027 DOI 10.1007/s11745-013-3824-0
- The effect of fusidic acid on *Plasmodium falciparum* elongation factor G (EF-G). Ankit Gupta¹, **Snober S. Mir**¹, Uzma Saqib¹, Subir Biswas¹, Suniti Vaishya¹, Kumkum Srivastava², Mohammad Imran Siddiqi¹, and Saman Habib¹ **Molecular and Biochemical Parasitology** 10/2013

Book Chapter:

Apicomplexan Parasites: Molecular Approaches toward Targeted Drug Development (Wiley Publications)

Title: **Targeting Apicoplast Pathways in Plasmodium**. (Mir Snober Shabnam., Subir Biswas, and Saman Habib).

Research Projects:

Project approved under the Bio-CARE scheme of Department of Biotechnology, New Delhi of Rs 30.81 lakhs entitled “Role of Molecular chaperones and p53 in targeting of client proteins to autophagy” as Principal Investigator (SR/FT/LS-43/2011)

Awards and Honors:

- Recipient of honorarium from **DBT, GoI** under the BioCare Scheme (2013).
- Invited Talk at the National Symposium organized by National Institute of Food Technology Entrepreneurship and Management (NIFTEM), Haryana, on **November 15-16, 2013**
- Appointed as a Panelist on the Poster Presentation Award Committee at LUSCON (2013) BBAU, Lucknow.
- Invited Talk at the National Symposium on Drug Discovery and Therapy, organized by Interdisciplinary Biotechnology Unit (IBU), Aligarh Muslim University, Aligarh. (2012)
- Young Scientist Award for Best Paper Presentation IACR.

Contact Information:

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Designation: Associate Professor

Faculty room location: RN-337,
RLS-12-MCBGE
(Molecular Cell Biology and Genetic Engg.)

Research Areas: Molecular Cell Biology,
Translational Biology and Molecular Medicine,
Yeast and Molecular Genetics.

Academic Background: M.Sc- Ph.D,
POST-DOCTORAL FELLOWSHIP (PDF)
(Medical College of Georgia, USA and EU Commission
funded MEPHITIS project)

- Appointed as Reviewer of many high impact peer reviewed journals.
- Young Scientist Award for the Best Poster Presentation at International Conference on Advances in Cancer Research, Indian Association of Cancer Research (IACR), Thiruananthapuram, Kerala, India. (January 2003).
- Research Fellowship, Post Graduate Institute of Medical Education and Research, Chandigarh (1999- 2004).
- Research Fellowship, Department Of Biotechnology, Govt. Of India. (1997-1999).
- Bharat Sewa Fellowship (1997).
- Merit Certificate for Academic Excellence – 1997