

Dr. Arnab Basu

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RESEARCH INTEREST

- (1) Role of different ribosome bound GTPases on stringent response of *S aureus*.
- (2) Role of alarmone (ppGpp) on stress response of different bacteria.
- (3) Exploring the effect of different inhibitory molecules on virulence and antibiotic resistance.
- (4) Bacterial chaperone and toxin production..
- (5) Eukaryotic translation.

ACADEMIC AND RESEARCH EXPERIENCES

2014-2019	Post-doctoral fellow, Department of Biochemistry and Molecular Biology Saint Louis University, Saint Louis, MO-63104, USA Mentor: Dr. M.-N. Frances Yap
2012-2014	Post-doctoral fellow, Saha Institute of Nuclear Physics, India. Mentor: Prof. Munna Sarkar
2006-2013	Ph.D. (Biochemistry), Bose Institute, Kolkata Advisor : Prof. Sujoy K. Das Gupta
2003-2006	M.Sc. (Biochemistry), University of Calcutta, India
2000-2003	B.Sc. (Microbiology), University of Calcutta, India

PROFESSIONAL EXPERIENCE

2021-Till date: Assistant Professor and Ramalingaswami Fellow, Ramakrishna Mission Vivekananda Educational Research Institute (RKMVERI)

2020-2021: Assistant Professor and Ramalingaswami Fellow, Amity University Kolkata

MAJOR RESEARCH ACHIEVEMENTS:

- First ever demonstration of translational attenuation in gram positive bacteria by inactive dimer formation of ribosome (ribosomal hibernation)
- Antimicrobial property of peptide drug on gram positive bacteria.
- Regulation of replication of *Mycobacterium smegmatis*.

PUBLICATIONS:

Total publications: 12, h-index: 7, i-10 index-5, total citations: 222

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Asmita Chakraborty, Sheta Halder, Purvi Kishore, Disha Saha, Sujata Saha, Kunal Sikder, **Arnab Basu***; 2022, The structure-function analysis of Obg like GTPase proteins along the evolutionary tree from bacteria to humans, **Genes to Cells**, (Accepted) * Corresponding author

Sayoni Maitra Roy, Sourav Barman, **Arnab Basu**, Tapas Ghatak, Subrata Kumar Pore, Surya K. Ghosh, Rupam Mukherjee, Amit Ranjan Maity, 2022, Amine as a bottom-line functionality on DDS surface for efficient endosomal escape and further subcellular targets, **Journal of Drug Delivery Science and Technology**, 71(2003)103303.

Arnab Basu, Kate Shields, M.-N.Frances Yap; 2020, Hibernating 100S complex is a target of ribosome recycling factor and elongation factor G in *Staphylococcus aureus*, **Journal of Biological Chemistry** 295(18) 6053-6063.

Arnab Basu, Kate Shields, Christopher S. Eickhoff, Daniel F. Hoft, M.-N.Frances Yap; 2018, Thermal and nutritional regulation of ribosome hibernation in *Staphylococcus aureus*, **J Bacteriol.**, 200(24) DOI: 10.1128/JB.00426-18.

Arnab Basu, M.-N. Frances Yap; 2017, Disassembly of the *Staphylococcus aureus* hibernating 100S ribosome by an evolutionary conserved GTPase, **Proceedings of the National Academy of Sciences**, USA 114(39): 8165-8173.

Donna Matzov, Shintaro Aibara, **Arnab Basu**, Ella Zimmerman, Anat Bashan, M.-N Frances Yap, Alexe Amunts, Ada Yonath ; 2017, The Cryo-EM structure of hibernating 100S ribosome dimer from pathogenic *Staphylococcus aureus*, **Nature Communications**, 8(1):723.

Arnab Basu, M.-N. Frances Yap; 2016, Ribosome hibernation factor promotes Staphylococcal survival and differentially represses translation, **Nucleic Acid Research**, 44(10):4881-4893.

Arnab Basu[★], Tahsina Shireen[★], Munna Sarkar, Kasturi Mukhopadhyay; 2015, Lipid composition is an important determinant of antimicrobial activity alpha-melanocyte stimulating hormone, **Biophys Chem.**, 196:33-39 ★Equal authorship.

Arnab Basu, Sujoy Chatterjee, Soniya Chatterjee, Sujoy K. Das Gupta; 2012, An Evolutionary link between the mycobacterial plasmid pAL5000 replication protein RepB and Extra Cytoplasmic Function (ECF) family of σ factors. **J Bacteriol**, 194(6), 1331–1341. (Mentioned in **NATURE INDIA**, 2012 April).

Sujoy Chatterjee, **Arnab Basu**, Abhijit Basu, Sujoy K. Das Gupta; 2007, DNA Bending in the ycobacterial Plasmid pAL5000 Origin-RepB Complex. **J Bacteriol**, 189:8584–8592.

Sonia Chatterjee, Madhumanti Patra, Sourabh Samadder, **Arnab Basu**, Sujoy K Das Gupta; 2017, Mutual interaction enables the mycobacterial plasmid pAL5000 origin binding protein RepB to recruit RepA, the plasmid replicase, to the origin. **Microbiology**, 163(4):595-610.

AWARDS AND HONORS

Nominated Associate Editor of *Frontiers in Bioengineering and Biotechnology* (2022)

Recipient of Ramalingaswami Fellowship (2020-2025)

Received postdoctoral fellowship from University of Jena, Germany (2020)

Received best postdoctoral award from Department of Biochemistry and Molecular Biology, Saint Louis University (2017)

Received postdoctoral fellowship from Saint Louis University under National Institute of Health (NIH) project (2014)

Nominated for research associate programme at Saha Institute of Nuclear Physics (2014)

Research article mentioned in *Nature India*'s cover page (2012)

Graduate Aptitude Test in Engineering (GATE, February 2006) conducted by Indian Institute of Technology (IIT), Kanpur, India passed in Life Sciences.

Received National Scholarship from University of Calcutta (2006)

OTHER SCIENTIFIC ACTIVITY

1. Delivered a invited talk at ICMR-National Institute of Cholera and Enteric Diseases (2019).
2. Invited speaker at Centre for DNA Fingerprinting and Diagnostics (2019)
3. Delivered a invited talk at Department of Biotechnology, IIT Kharagpur (2018)
4. Delivered a invited talk at School of Biological Sciences, IIT Delhi (2018)
5. Presented poster at American Society for Biochemistry and Molecular Biology, Chicago (2017)
6. Delivered talk on Departmental Retreat Programme, organized by Department of Biochemistry and Molecular Biology, Saint Louis University (2014)
7. Presented poster at International Symposium of Cell Biology (2012)

RESEARCH SUPERVISION

PhD Students Ongoing: Total= 3; as a main supervisor.

Masters students: Supervised M.Sc project of 10 students.

TEACHING EXPERIENCE

1. Took M.Sc Medical Biotechnology Courses at RKMVERI in different semesters.
2. Took M.Sc Biotechnology courses at Amity University Kolkata.

REFERENCES

Dr. M.-N. Frances Yap

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Northwestern University
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Dr. Sujoy K. Das Gupta,

Ex-Professor, Microbiology
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Presidency University
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