



**Dr. Jaydip Ghosh**

**Department:** Microbiology & ENVS

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**Designation:** Assistant Professor

**Qualification:** M.Sc., Ph.D.

**Short Profile:**

Graduation in Chemistry, post-graduation in Biochemistry (with Molecular Biology as special paper, from Calcutta University. Ph.D. from the Department of Biophysics, Molecular Biology and Genetics, Calcutta University. Ph.D. thesis title: "Protein Folding: Chaperones and Ribosomes." First post-doctoral research in Uppsala University, Sweden where primarily worked on (i) Sporulation in Mycobacteria, and (ii) Identification and Characterization of small non coding RNA in Mycobacteria. Second post-doctoral research in Bordeaux University, France where the major project was the elucidation of the role of small non coding RNA in the regulation of antibiotic tolerance in bacterial persister cells.

**Research Interest:**

Bacterial persisters are dormant variants of regular cells that form stochastically in a population and exhibit high antibiotic tolerance. High persister mutants (*hip*) of some pathogenic strains have been found to be selected in patients with chronic infections, e.g., *Pseudomonas aeruginosa*, *Candida albicans*, etc. These raise the possibility that persisters could be responsible for the recalcitrance of chronic infectious diseases to antimicrobial chemotherapy, such as gastroduodenal ulcers (*Helicobacter pylori*, also causing gastric carcinoma), tuberculosis (*Mycobacterium tuberculosis*), etc. Despite its significance, the progress in this field has been modest. The goal of my research will be to understand the mechanisms of persister formation and identify the key factor/s required for establishing and maintaining persisters, which may represent realistic targets for discovery of drugs capable of effectively treating chronic infections.

**Published Articles:**

- 1. Ribosome: The structure–function relation and a new paradigm to the protein folding problem.**  
Debasis Das, Dibyendu Samanta, Anindita Das, **Jaydip Ghosh**, Arpita Bhattacharya, Arunima Basu, Abhijit Chakrabarti, and Chanchal DasGupta.  
**Isr. J. Chem.** 2010, 50, 1–8.
- 2. Growth, cell-division and sporulation in mycobacteria.**  
Singh B, **Ghosh J**, Islam NM, Dasgupta S, Kirsebom LA.  
**Antonie Van Leeuwenhoek.** 2010 Aug; 98(2):165-77. Epub 2010 May 1.
- 3. Sporulation in mycobacteria.**  
**Ghosh J**, Larsson P, Singh B, Pettersson BM, Islam NM, Sarkar SN, Dasgupta S, Kirsebom LA.  
**Proc Natl Acad Sci U S A.** 2009 Jun 30; 106(26):10781-6. Epub 2009 Jun 16.  
(**Appeared as Research Highlight in Nature Microbiology Reviews, vol 7, 2009**)

**4. Role of the ribosome in protein folding.**

Das D, Das A, Samanta D, **Ghosh J**, Dasgupta S, Bhattacharya A, Basu A, Sanyal S, Das Gupta C.

**Biotechnol J.** 2008 Aug; 3(8):999-1009.

**5. Protein folding by domain V of *Escherichia coli* 23S rRNA: specificity of RNAprotein interactions.**

Samanta D, Mukhopadhyay D, Chowdhury S, **Ghosh J**, Pal S, Basu A, Bhattacharya A, Das A, Das D, DasGupta C.

**J Bacteriol.** 2008 May; 190(9):3344-52. Epub 2008 Feb 29.

**6. In vitro protein folding by *E. coli* ribosome: unfolded protein splitting 70S to interact with 50S subunit.**

Basu A, Samanta D, Das D, Chowdhury S, Bhattacharya A, **Ghosh J**, Das A, Dasgupta C.

**Biochem Biophys Res Commun.** 2008 Feb 8; 366(2):598-603. Epub 2007 Dec 7.

**7. Ribosome-DnaK interactions in relation to protein folding.**

**Ghosh J**, Basu A, Pal S, Chowdhuri S, Bhattacharya A, Pal D, Chattoraj DK, DasGupta C.

**Mol Microbiol.** 2003 Jun; 48(6):1679-92.

**8. Splitting of ribosome into its subunits by unfolded polypeptide chains.**

Basu Arunima, **Ghosh Jaydip**, Bhattacharya Arpita, Pal Saumen, Chowdhury Saheli, and Dasgupta Chanchal.

**Current science**, 2003, vol. 84, no. 8, pp. 1123-1125.

**9. Mutations in domain V of the 23S ribosomal RNA of *Bacillus subtilis* that inactivate its protein folding property in vitro.**

Chowdhury S, Pal S, **Ghosh J**, DasGupta C.

**Nucleic Acids Res.** 2002 Mar 1; 30(5):1278-85.

**Book chapter:**

**Ribosome Assisted Protein Folding: Some of its Biological Implications.**

Dibyendu Samanta, Anindita Das, Debasis Das, Arpita Bhattacharya, Arunima Basu, **Jaydip Ghosh** and Chanchal DasGupta.

**Protein Folding, Novascience publications**, Editor: Eric C. Walters, 2010, 4<sup>th</sup> quarter, ISBN: 978-1-61728-990-3

**Patent:**

As an **inventor**, I am a part of an international patent (WO/2009/078799) titled "**New vaccine for the treatment of *Mycobacterium* related disorders**".