

Profile details for Dr. Charu Thapliyal, SoBS

1. VIDWAN ID- Vidwan-735835

2. Academic qualifications:

1. Ph.D. Amity University, Noida in collaboration with IIT Delhi.
2. M.Sc. Biotechnology, H.N.B. Garhwal University, Srinagar, Uttarakhand.
3. B. Pharm, H.N.B. Garhwal University, Srinagar, Uttarakhand.

3. Experience:

1. Assistant Professor- Doon University (September 2026 to present).
2. Assistant Professor- Swami Rama Himalayan University, Jolly grant, Dehradun (December 2025 to August 2026).
3. DST-WOS-A- Jawaharlal Nehru University, New Delhi (December 2023 to November 2025).
4. Guest Faculty- Doon University, Dehradun (August 2022- November 2023).
5. DST-WOS-A- Jawaharlal Nehru University, New Delhi (May 2019 to April 2022).
6. ANRF- National Post- Doc Fellow- Indian Institute of Technology, New Delhi (April 2017- March 2019).

4. Patent

Charu Thapliyal and Pratima Chaudhuri, “Efficient protein folding process to improve the functional yield of recombinant zDHFR protein.” Indian Patent Award No. 489569.

5. Publications

1. **Charu Thapliyal*** and Rajesh Mishra*, ‘The Chaperone-Active State of HdeB at pH 4 Arises from Its Conformational Rearrangement and Enhanced Stability Instead of Surface Hydrophobicity’ (2024) **Biochemistry ACS** 63 (9), 1147-116 (ISSN: 0006-2960) (* Corresponding author).
2. **Charu Thapliyal**, Prachi Joshi, Masochon Raingam and Rajesh Mishra, ‘Lacmoid-Induced Conformational Changes Inhibit Fibrillation of Human Islet Amyloid Polypeptide’ (2025) **ChemBioChem**, 26 (17) e202500383 (ISSN:1439-7633).
3. **Charu Thapliyal**, Neha Jain, Naira Rashid, and Pratima Chaudhuri (Chattopadhyay), ‘Kinetics and thermodynamics of the thermal inactivation and chaperone assisted folding of zebrafish dihydrofolate reductase’ (2018) **Archives of Biochemistry and Biophysics**, 637, 21-30 (ISSN: 0003-9861).
4. **Charu Thapliyal**, Neha Jain, and Pratima Chaudhuri, ‘Investigation of folding, unfolding process of a new variant of Dihydrofolate reductase protein from Zebrafish’ (2016) **International Journal of Biological Macromolecules** 91, 736-743 (ISSN: 0141-8130).
5. Naira Rashid, **Charu Thapliyal** and Pratima Chaudhuri (Chattopadhyay), ‘Osmolyte induced enhancement of expression and solubility of human dihydrofolate reductase: An in vivo study’ (2017) **International Journal of Biological Macromolecules** 103, 1044-1053 (ISSN: 0141-8130).

6. **Charu Thapliyal***, Sonali Negi, Sakshi Nagarkoti and Achlesh Daverey*, '*Mechanistic insight into potential toxic effects of microplastics and nanoplastics on human health*' (2025) **Discover Applied Sciences** 7 (645) (* Corresponding author).
7. **Charu Thapliyal**, Anshu Priya, Salam Bhopen Singh, Vivekanand Bahuguna and Achlesh Daverey, '*Potential strategies for bioremediation of microplastic contaminated soil*' (2024) **Environmental Chemistry and Ecotoxicology** 6, 117–131 (ISSN: 2590-1826).
8. Naira Rashid, **Charu Thapliyal** and Pratima Chaudhuri (Chattopadhyay), '*Quantification of differential efficacy of chemical chaperones in ameliorating solubilization and folding of zebrafish dihydrofolate reductase*' (2018) **International Journal of Biological Macromolecules** 111, 186–192 (ISSN: 0141-8130).
9. Naira Rashid, **Charu Thapliyal** and Pratima Chaudhuri (Chattopadhyay), '*Dihydrofolate Reductase as a versatile drug target in health care*' (2016) **Journal of Proteins and Proteomics** 7 (4) 247-257 (ISSN: 0975-8151).
10. **Charu Thapliyal**, Neha Jain, and Pratima Chaudhuri, '*A Comparison of physico-chemical aspects between E. coli and Human Dihydrofolate Reductase: An equilibrium unfolding study*' (2015) **Biophysics Journal** 60 (3) 378-386 (ISSN: 0006-3509).
11. **Charu Thapliyal** and Pratima Chaudhuri (Chattopadhyay), '*Effect of various osmolytes on expression and functionality of Zebrafish Dihydrofolate reductase: an in vivo study*' (2015) **Journal of Proteins and Proteomics** 6 (2) 211-218 (ISSN: 0975-8151).

6. **Book Chapter:**

Pratima Chaudhuri (Chattopadhyay), Naira Rashid, **Charu Thapliyal** "*Osmolyte System and Its Biological Significance*" Cellular Osmolytes **2017**, pp 1-34, **Springer Nature**.

7. **Research interests:** Protein aggregation and amyloid disorders, Chaperone-assisted protein folding, neurodegenerative diseases.

8. **List of best 05 publications: (Selected from above publication list)**

- (1) **Charu Thapliyal*** and Rajesh Mishra*, '*The Chaperone-Active State of HdeB at pH 4 Arises from Its Conformational Rearrangement and Enhanced Stability Instead of Surface Hydrophobicity*' (2024) **Biochemistry ACS** 63 (9), 1147-116 (ISSN: 0006-2960) (* Corresponding author).
- (2) **Charu Thapliyal**, Prachi Joshi, Masochon Raingam and Rajesh Mishra, '*Lacmoid-Induced Conformational Changes Inhibit Fibrillation of Human Islet Amyloid Polypeptide*' (2025) **ChemBioChem**, 26 (17) e202500383 (ISSN:1439-7633).
- (3) **Charu Thapliyal**, Neha Jain, Naira Rashid, and Pratima Chaudhuri (Chattopadhyay), '*Kinetics and thermodynamics of the thermal inactivation and chaperone assisted folding of zebrafish dihydrofolate reductase*' (2018) **Archives of Biochemistry and Biophysics**, 637, 21-30 (ISSN: 0003-9861).
- (4) **Charu Thapliyal**, Neha Jain, and Pratima Chaudhuri, '*Investigation of folding, unfolding process of a new variant of Dihydrofolate reductase protein from Zebrafish*' (2016) **International Journal of Biological Macromolecules** 91, 736-743 (ISSN: 0141-8130).

- (5) Naira Rashid, **Charu Thapliyal** and Pratima Chaudhuri (Chattopadhyay), ‘*Osmolyte induced enhancement of expression and solubility of human dihydrofolate reductase: An in vivo study*’ (2017) **International Journal of Biological Macromolecules** 103, 1044-1053 (ISSN: 0141-8130).

Other relevant academic/professional details

9. Independent Research Project completed:

- a. *Deciphering the mechanism of action of periplasmic acid stress chaperone system HdeA/ HdeB in conferring acid resistance to enteric bacteria using in vitro and in vivo approaches.*

Role: Principal investigator, funded by Department of Science and Technology
Sanctioned duration- 3 years (Total sanctioned grant amount- Rs.36,85,200.00).

- b. *Investigating the effect of osmolytes on the self-association and substrate interaction of acid stress chaperones responsible for the survival of Enterohaemorrhagic E. coli in mammalian stomach*

Role: Principal investigator, funded by Department of Science and Technology.
Sanctioned duration- 3 years (Total sanctioned grant amount- Rs.42,79,608.00).

10. Memberships in Professional Bodies

1. Biochemical Society, London- Full membership till 28.10.2028.
2. Indian Biophysical Society- Life membership no. 1386.
3. The Society of Biological Chemists India- Life membership no. 4905.

11. Honours and awards

1. **ANRF International Travel Support (ITS) and DBT-CTEP Travel Grant**, awarded for presenting research work at the **Biophysical Society Annual Meeting, San Francisco, USA**.
2. Participation in Sokendai Asian Winter School “Basics and Frontiers in Molecular Sciences,” fully funded by **Institute of Molecular Sciences, Okazaki, Japan**.
3. **ICMR Postdoctoral Research Associate, Govt. of India** (Not availed).

12. Reviewer for the following journals:

- a. Angewandte Chemie International Edition, German Chemical Society.
- b. Bioorganic Chemistry, Elsevier.
- c. Neurochemical Research, Springer Nature.
- d. Frontiers in Environmental Science.
- e. International Journal of Biodeterioration and Biodegradation, Elsevier.
- f. Environmental Microbiology, Wiley.

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