Dr. Sudipa Saha

Department: Biotechnology

Designation: Associate Professor

Qualifications:
M. Sc. (Chemistry), University of Calcutta.
CSIR-NET (Chemical Sciences)
Ph. D. (Biophysical Chemistry), Jadavpur University (Research pursued at Bose Institute, Kolkata).

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Area of Research Interest:

Structure function studies of proteins.

List of Publications:

- Ashis Biswas, **Sudipa Saha** and K. P. Das. "Structural Features of Molecular Chaperones: A Possible Micellar Connection". J. Surface Sci. Technol., Vol. 18, (2002), 1-24.
- **Sudipa Saha** and K. P. Das. "Relationship between Chaperone Activity and Oligomeric Size of Recombinant Human αA- and αB-Crystallin: A Tryptic Digestion Study". Proteins, Vol. 57, (2004), 610-617.
- C. Bhattacharjee, **Sudipa Saha**, A. Biswas, M. Kundu, L. Ghosh and K. P. Das. "Structural Changes of β- Lactoglobulin during Thermal Unfolding and Refolding- An FT-IR and Circular Dichroism Study". The Protein Journal, Vol. 24, (2005), 27-35.
- **Sudipa Saha** and K. P. Das. "Unfolding and refolding of Bovine α-Crystallin in Urea and Its Chaperone Activity". The Protein Journal, Vol. 26, (2007), 315-326.
- Ashis Biswas, Srabani Karmakar, Victor Banerjee, **Sudipa Saha**, Madhuchhanda Kundu, Jaya Bhattacharyya, Dipak Chandra Konar and K. P. Das. "Biophysical studies on the molecular chaperone function, structure and interaction of eye lens protein α- crystallin – A Review". J. Indian Chem. Soc., Vol. 88, (2011), 1827-1855.
- **Sudipa Saha** and K. P. Das. "Structure and interactions in α-crystallin probed through thiol group reactivity". Advances in Biological Chemistry, Vol. 3, (2013), 427-439.
- **Sudipa Saha** and K. P. Das. "Effect of thermal treatment on the oligomeric size and chaperone activity of α-crystallin". J. Indian Chem. Soc., Vol. 92, (2015), 1531-1536.
- **Sudipa Saha**. "Oligomeric structure and molecular chaperone function of eye lens protein α-crystallin – A Review". J. Indian Chem. Soc., Vol. 93, (2016), 1233-1242.
- **Sudipa Saha** and K. P. Das. "Hydrophobicity of α-crystallin and its relationship with chaperone activity- bis-ANS binding study". J. Indian Chem. Soc., Vol. 94, (2017), 959-970.
- **Sudipa Saha**. "Eye lens protein α-crystallin and cataract – A Review". J. Indian Chem. Soc., Vol. 96, (2019), 239-253.
- Aparajita Chakraborty, Priyanka De and **SudipaSaha**. "Structure-function relationship of α-crystallin in the context of vertebrate lens evolution and its role in eye disorders"

(Review). Journal of Proteins and Proteomics, (2022). https://doi.org/10.1007/s42485-022-00101-5.

- Aparajita Chakraborty, Sayak Ganguli, Priyanka De and **Sudipa Saha**. "An insight into the structural analysis of α-crystallin of habitat-specific fish: a computational approach". Journal of Proteins and Proteomics, (2023). https://doi.org/10.1007/s42485-023-00107-7
- Aparajita Chakraborty, Sushmita Nandy, **Sudipa Saha** and Priyanka De. "An Insight on α-crystallin Interactions with Various Proteins in Systemic Disorders" (Review). Journal of Stress Physiology & Biochemistry, Vol. 19, No. 3, (2023), 35-46. ISSN 1997-0838.
- Aparajita Chakraborty, Priyanka De and **Sudipa Saha**. "Elucidating the mechanism of anti-apoptotic activity of α-crystallin and its therapeutic potential" (Review). Journal of Stress Physiology & Biochemistry, Vol. 21, No. 1, (2025), 182-189. ISSN 1997-0838.
- Sutrisha Kundu, Vivek Raychaudhuri and **Sudipa Saha**. "GroEL/GroES Mechanism of Action and Formation of Complexes During Reaction Cycle: A Matter of Debate" (Review). Journal of Stress Physiology & Biochemistry, Vol. 21, No. 3, (2025), 143 - 160. ISSN 1997-0838.

Research Projects:

1. Project Title: Preparation and properties of molecular chaperone α-Crystallin from easily available sources
Granting Agency: University Grants Commission (UGC)
Period of Sanction: 09.01.2009-08.07.2010.

2. Project Title: Comparative studies of molecular and functional properties of eye lens proteins from some Indian fishes
Granting Agency: University Grants Commission (UGC)
Period of Sanction: 27.02.2013-26.02.2015.

3. Project Title: Comparative studies on biochemical and physicochemical characteristics of lens α-crystallin from habitat-specific fish
Granting Agency: West Bengal Department of Higher Education, Science & Technology and Biotechnology
Period of Sanction: 2018-2021.

Research Scholars:

Aparajita Chakraborty
Sushmita Nandy

Invited talks/ Papers presented at Conferences/ Seminars:

- Presented paper entitled "Studies on the Oligomeric Structure of α-Crystallin- Effect on Chaperone Function" in "38th Annual Convention of Chemists, 2001" held at JaiNarain Vyas University, Jodhpur, Rajasthan during December 26-29, 2001 organized by Indian Chemical Society.
- Presented paper entitled "Relationship between Chaperone Activity and OligomericSize α-Crystallin- A Tryptic Digestion Study" in "40th Annual Convention of Chemists, 2003" held at Bundelkhand University, Jhansi, Uttar Pradesh during December 23-27, 2003 organized by Indian Chemical Society.
- Delivered invited lecture on the topic "Structure and interactions in α-crystallin probed through thiol group reactivity" in "50th Annual Convention of Chemists 2013" held at the Department of Chemistry and Centre for Advanced Studies in Chemistry, Punjab University, Chandigarh during December 04-07, 2013 organized by Indian Chemical Society.
- Presented poster on the topic "Relationship between Chaperone Activity andOligomeric Size of α-Crystallin by Unfolding and Refolding study" in 33rd Annual National Conference of Indian Council of Chemists held at the Department of Applied Chemistry, Indian School of Mines, Dhanbad during December 15-17, 2014 organized by Indian Council of Chemists.
- Presented poster on the topic "Study of chaperone activity and hydrophobicity of α-

crystallin in presence and absence of urea" in "52nd Annual Convention of Chemists and International Conference on Recent Advances in Chemical Sciences" held at JECRC University, Jaipur, Rajasthan during December 28-30, 2015 organized by Indian Chemical Society.

- Presented poster on the topic "Study of oligomeric structure of α-crystallin by using denaturant" in "National Seminar on Current Trends in Chemistry-VII (NSCTC-VII)" held at University of Kalyani on 24th February, 2016 organized by Department of Chemistry, University of Kalyani.
- Presented poster on the topic "Hydrophobicity- the important determinant of chaperone activity of α-crystallin" in "23rd West Bengal State Science and Technology Congress, 2016" held at Presidency University, Kolkata during 28-29 February, 2016 organized by Presidency University.
- Presented poster on the topic "Recognition of substrate binding site in α-crystallin" in "National Symposium on Recent Advances in Chemistry & Industry 2016" held at University of Calcutta during 02-03 August, 2016 organized by Indian Chemical Society.
- Presented poster on the topic "Study of oligomeric structure and chaperone activity of α-crystallin under heat stress condition" in 35th Annual National Conference of Indian Council of Chemists held at Haribhai V. Desai College, Pune in association withCollege of Engineering, Pune during December 22-24, 2016 organized by Indian Council of Chemists.
- Delivered talk on the topic "Determination of molecular chaperone function of α-crystallin using tryptic digestion study" in "International Seminar on Recent Advances on Chemical Sciences and Allied Areas (RACS2A-2018) and 55th Annual Convention of Chemists 2018" held at Department of Chemistry, G. B. College, Naugachia (T. M. Bhagalpur University), Bhagalpur, Bihar during December 28-30, 2018 organized by Indian Chemical Society.