

Dr. Mousumi Das Goswami

Academic Profile:

Ph.D. Biotechnology (Department of Biosciences and Bioengineering)	Indian Institute of Technology (IIT) Guwahati, Assam Thesis title: Studies on redox system of <i>Leishmania donovani</i> : Understanding drug resistance process and discovery of novel drug candidates. 2010-2015
M.Sc. (Department of Molecular Biology and Biotechnology)	Tezpur Central University, Assam, India Master Dissertation Topic: Studies on certain biochemical and antimicrobial properties <i>Clerodendrum indicum</i> and <i>Commelina diffusa</i> 2007-2009
B.Sc. (Zoology Honours)	Handique Girls' College, Gauhati University, Assam, India [Zoology (Hons), Botany & Chemistry] 2004-2007
Class XII PCMB	Kendriya Vidyalaya Digaru, Assam, India 2004
Class X	Kendriya Vidyalaya Digaru, Assam, India 2002

Research interest:

Molecular Biology, Protein-Protein Interaction, Enzyme Kinetics, Phage Therapy, Cancer Biology

Experience:

- Assistant Professor at Royal Global University [2024-08 - Till date]
- Research Associate at ICMR National Institute of Cholera and Enteric Disease (NICED) [2023-02 to 2024-07]
- Assistant Professor at Raffles University, Rajasthan [2019-08 to 2020-11]
- Assistant Professor at PDM University, Haryana [2018-08 to 2019-07]
- Postdoctoral fellow at H. Lee Moffitt Cancer Centre and Research Institute, Tampa, Florida, U.S.A [2015-09 to 2018-02]

Academic achievements:

1. Best oral presentation Award in BioSangam, "International conference on Health, Environment & Environmental Biotechnology" organized by Motilal Nehru National Institute of Technology (NIT), Allahabad, November-2013.
2. Qualified entrance Exam for Post graduate course (M.Sc.), Department of Molecular Biology and Biotechnology, Tezpur Central University, top eight among north-east candidates and Scholarship from Department of Biotechnology (DBT), for the Course.

3. Qualified Graduate Aptitude Test in Engineering (GATE) 2009, a national level examination organized by Ministry of Human Resources Development (MHRD), Government of India. Utilized the scholarship to carry out Ph.D. at IIT Guwahati.
4. Qualified CSIR-UGC National Eligibility Test (NET) for Lectureship in 2009
5. Qualified CSIR-UGC-NET for Junior Research Fellowship (JRF) in 2010
6. State Eligibility Test (SET) 2010 of Assam, India for appointment as Lecturer in various Colleges and Universities.

Publications in Peer Reviewed Journals: (307 citations, H-index 8)

1. Junhao Lu, Lihong Chen, Zheng Song, **Mousumi Das** and Jiandong Chen (2021) Hypothermia effectively treats tumors with temperature-sensitive p53 mutations. *American Association for Cancer Research*, 81:3905-15.
2. Qingliang Li, Rezaul M. Karim, Mo Cheng, **Mousumi Das**, Lihong Chen, Chen Zhang, Harshani R. Lawrence, Gary W. Daughdrill, Ernst Schonbrunn, Haitao Ji, Jiandong Chen (2020) Inhibition of p53 DNA binding by a small molecule protects mice from radiation toxicity. *Oncogene*, 39(29): 5187-5200.
3. Fan He, Wade Borchard, Tanjing Song, Xi Wei, **Mousumi Das**, Lihong Chen, Gary W. Daughdrill and Jiandong Chen (2019) Interaction between p53 N-terminus and core domain regulates specific and nonspecific DNA binding. *PNAS* (published on 15th April 2019), 116(18): 8859–8868.
4. **Mousumi Das**, Gundappa Saha, Anil Saikia and Vikash Dubey (2015) Novel leads against miltefosine unresponsive *Leishmania donovani*. *Antimicrobial Agents and Chemotherapy short communications*, 59:7826-7829.
5. **Mousumi Das**, Shalini Singh and Vikash Kumar Dubey (2015) Novel inhibitors of ornithine decarboxylase of *Leishmania* parasite (LdODC): The parasite resists LdODC inhibition by over-expression of spermidine synthase mRNA. *Chemical Biology & Drug Design*, 87(3):352-360.
6. **Mousumi Das**, Ritesh Kumar and Vikash Kumar Dubey (2015) Ornithine decarboxylase of *Leishmania donovani*: Biochemical properties and possible role of N- terminal extension. *Protein & Peptide Letters*, 22:130-136.
7. **Mousumi Das**, Prakash Saudagar, Shyam Sundar and Vikash Kumar Dubey (2013) Miltefosine unresponsive *Leishmania donovani* has better ability of resist reactive oxygen species. *FEBS Journal*, 280:4807-4815.
8. Ruchika Bhardwaj, **Mousumi Das**, Shalini Singh, Sitaraau Vijaya Prabhu, Sanjeev Kumar Singh, and Vikash Dubey (2017) Evaluation of CAAX prenyl protease II of *Leishmania donovani* as potential drug target: Infectivity and growth of the parasite is significantly lowered after the gene knockout. *European Journal of Pharmaceutical Sciences*, 102:156-160.
9. Sudipta Hazra, Subhalakshmi Ghosh, Madhushree Das Sarma, Smriti Sharma, **Mousumi Das**, Prakash Saudagar, Vijay Kumar Prajapati, Vikash Kumar Dubey, Shyam Sundar, Banasri Hazra (2013) Evaluation of diospyrin and its derivatives as antileishmanial agents and potential modulators of ornithine decarboxylase of *Leishmania donovani*. *Experimental Parasitology*, 135:407-413.
10. Neha Sharma, Anil Kumar Shukla, **Mousumi Das** and Vikash Kumar Dubey (2012) Evaluation of plumbagin and its derivative as potential modulator of redox thiol metabolism of *Leishmania* parasite. *Parasitology Research*, 110:341-348.

11. Shalini Singh, Shyamali Sarma, Shashank Katiyar, **Mousumi Das**, Ruchika Bhardwaj, Durai Sundar, and Vikash Kumar Dubey (2015) Probing molecular mechanism of hypericin induced parasitic death: An insight into role of spermidine beyond redox metabolism of Leishmania, *Antimicrobial Agents and Chemotherapy*, 59:15-24.

Oral or Poster Presentation or Conferences attended:

1. Participated in National Conference on Antimicrobial Resistance (AMRC 2024) at Science City, Kolkata, India during April 4-5, 2024.
2. Participated in two days online conference on “National Conference on Computational and Biochemical Drug Discovery” during September 11-12, 2021 organized by DST funded I-DAPT Hub foundation IIT (BHU) Varanasi, and School of Biochemical Engineering, IIT BHU jointly with Bioinformatics and Drug Discovery Society (BIDDS).
3. **Mousumi Das** and Jiandong Chen. Developing high throughput screen (HTS) assay based on luciferase complementation" poster presented at Moffitt, Cancer Biology Evolution symposium, 12th June, 2017, (among top 10 posters).
4. **Mousumi Das** and Vikash Kumar Dubey. Exploring ornithine decarboxylase for novel drugs against Leishmania donovani. 80th Annual Meeting of Society of Biological Chemists, held at Central Institute of Medicinal and Aromatic Plants (CIMAP), Lucknow, India, November 12-15, 2011.
5. **Mousumi Das** and Vikash Kumar Dubey. Discovery of novel drug candidate by targeting ornithine decarboxylase enzyme: Biochemical analysis of cellular effects of identified drug candidates. “BioSangam-2013, International conference on Health, Environment & Environmental Biotechnology” organized by Motilal Nehru National Institute of technology, Allahbad [**Best Oral Presentation Award**].
6. Participated in “TECHEVINCE 1.0”, demonstrated project titled “Activities of Leishmania research group at IIT Guwahati”, conducted by IITG Technical Board, 14th November, 2013.
7. **Mousumi Das** and Vikash Kumar Dubey. Actively participated in Research Conclave from 23rd – 26th March, 2015 organized by the PhD Council of the Students’ Academic Board (SAB), Indian Institute of Technology Guwahati.

Workshop / Training attended:

1. Participated in three days workshop on WGS data analysis (online) organized by Negenome Bio Solutions Pvt. Ltd., India held on June 14-16, 2024.
2. Participated in two days workshop on Basic Bioinformatics (online) organized by Negenome Bio Solutions Pvt. Ltd., India held on May 25-26, 2024.
3. Molecular Oncology research in progress Symposium on 3rd Feb 2017, golf court, Tampa, Fl, U.S.A.
4. Participated in 8th International MDM2 Workshop, New Orleans, LA USA Nov.1- 4, 2015
5. Participated in 13th INDO-US Cytometry Workshop on ‘Application of Flow Cytometry in Nanotechnology and Plant Genomic’, jointly organized by Department of Biotechnology, IIT Guwahati, India & Miller School of Medicine, University of Miami, USA during 8th-10th October, 2012 held at IIT Guwahati.
6. Participated in “Bioinformatics and its implications”, short term training held at Bioinformatics Infrastructure Facility (BIF), Department of Molecular Biology and

Biotechnology, Tezpur University, Tezpur-784028 from 15th to 21st December 2008. Funded by Department of Biotechnology, Govt. Of India, New Delhi.

7. Participated in The National Conference on “Recent Advances in Cancer Biology and Therapeutics-2014” organised by Department of Biotechnology, IIT Guwahati held on December 5th, 2014.
8. Participated in the Symposium cum Workshop on “Advances in Computational Biology and Computer Aided Drug Design” held at IIT Guwahati, organized by the Bioinformatics Infrastructure Facility (BIF), Department of Biosciences and Bioengineering during 24th-26th June, 2015.

Technical Expertise:

- Protein Biochemistry Related: Purification of recombinant protein, Enzyme kinetics and inhibition studies, chromatography techniques for protein purification, UV-VIS spectroscopy, fluorescence spectroscopy, Luciferase assay.
- Molecular Biology Related: Isolation of DNA/RNA, PCR, primer designing, competent cell preparation, restriction digestion, ligation, transformation, cloning, expression, C-DNA synthesis, Real time PCR, Site directed mutagenesis, Agarose gel electrophoresis, Native and SDS-PAGE, Western blot, FPLC, HPLC, Size exclusion chromatography, Stable and transient transfection of human cell lines.
- Computer Proficiency & Bioinformatics Related: Basic NCBI tools like BLAST, Clustral-W, Mega for phylogenetic tree, and Homology based protein modelling, and Molecular docking using AutoDock, CellQuestPro software for flow cytometric data analysis.
- Cell Culture Techniques: handling and maintenance of Bacterial, Mammalian cell, cancer cell lines, Leishmania parasite culture, cell diffusion assay, cell counting, trypsinization, viability test, Flow cytometry, Microscopy (Bright field/Fluorescence), Electroporation.
- Analytical Instruments: ultracentrifuge (CsCl), multimode ELISA plate reader, lyophilizer, nanodrop. VITEK 2 System for Rapid Identification of Clinical Isolates.
- Phage therapy: mice handling, plaque assay