

Dr. Amit Kumar Sahu

Assistant Professor

Centre for Molecular Biology,

Central University of Jammu, Samba, J&K, India- 181143,

+91-7838911008, Email: amit.molb@cuammu.ac.in

Current position

Assistant Professor

2026 - till date

Centre for Molecular Biology, Central University of Jammu, J&K, India

Research Area

Molecular Biology, Molecular Genetics, Microbiology, Molecular Modeling

Research Interest

My research focuses on understanding how tRNA abundance and post-transcriptional modifications regulate translation. I am also interested in elucidating how tRNA expression is modulated in antibiotic-resistant bacteria and the role of these changes in translational regulation and bacterial adaptation.

Research Experience

Research Associate-I(Post Doc)

2025-2026

Dept. of Microbiology and Cell Biology, IISc. Bengaluru, Karnataka

Senior Research Fellow

2020-2025

Indian Institute of Science, Bengaluru, India

Junior Research Fellow

2018-2020

Indian Institute of Science, Bengaluru, India

Junior Research Fellow

2017-2018

National Institute of Immunology, Delhi, India

Education

Ph.D. in Molecular Biology and Microbiology

2025

Indian Institute of Science, Bengaluru, Karnataka, India

PhD Thesis: Physiological significance of tRNA sequences and modifications in the regulation of bacterial growth

Master of Science in Biotechnology

2017

Madurai Kamaraj University, Madurai, T.N., India

Bachelor of Science in Zoology (Hons)

2015

Hansraj College, University of Delhi, Delhi, India

Awards and Scholarship

- Qualified **CSIR-UGC NET JRF** June 2017 in Life Science. UGC-JRF
- Qualified **DBT- JRF/SRF 2017**
- Qualified **CBSE-UGC NET** January 2017 for Assistant Professor in Forensic Sciences
- Qualified **GATE 2017** in Life Sciences.
- Qualified **CSIR-UGC NET JRF** December 2016 in Life Sciences. UGC-JRF
- Qualified **JGEEBILS** in 2017
- DBT fellowship for M.Sc. (2015-2017)

Research Guidance

Total Dissertation – 6

Ms. Tanu Parihar (M.Sc.) titled “Functional analysis of Alanine tRNA deletion and heterologous tRNA expression in *Escherichia coli*”.

Ms. Alice Manhas (M.Sc.) titled “Genetic disruption of *glyW* tRNA gene and its impact on growth dynamics and antibiotic response”

Ms. Suhani Choudhary (M.Sc.) titled “Generation and phenotypic characterization of *glyVXY* tRNA knockout mutant and analysis of antibiotic sensitivity”.

Ms. Janvi Verma (M.Sc.) titled “Targeted deletion of Lysine tRNA genes and subsequent analysis of growth and antibiotic susceptibility profiles”.

Ms. Deepali Sharma (M.Sc.) titled “Comparative analysis of tRNA abundance across bacterial and archaeal genomes & functional characterization of *glyT* knockout in *E. coli*”.

Ms. Sushila Bharti (M.Sc.) titled “Investigation of antibiotic resistance in single copy initiator tRNA background through heterologous tRNA overexpression and *glyU* knockout generation”.

Publications

- Singh, Jitendra, **Amit Kumar Sahu**, and Umesh Varshney. "Transplantation of *Saccharomyces cerevisiae* Rmd9p peptide into mammalian mitochondrial IF2 substitutes for the IF1 function in *Escherichia coli*." *Microbiology* 172.3 (2026): 001689.
- **Sahu, Amit Kumar**, Riyaz Ahmad Shah, Divya Nashier, Prafful Sharma, Rajagopal Varada, Kuldeep Lahry, Sudhir Singh, Sunil Shetty, Tanweer Hussain, and Umesh Varshney. "Physiological significance of the two isoforms of initiator tRNAs in *Escherichia coli*." *Journal of Bacteriology* 206, no. 9 (2024): e00251-24.
- Pal, Aditya Kumar, Dipankar Ghorai, Xueliang Ge, Biplab Sarkar, **Amit Kumar Sahu**, Vikas Chaudhary, Ruchi Jhavar, Suparna Sanyal, Mahavir Singh, and Anirban Ghosh. "Second messenger c-di-AMP regulates multiple antibiotic sensitivity pathways in *Mycobacterium smegmatis* by discrete mechanisms." *FEMS Microbiology Letters* (2024):

fnae084.

- Lahry, Kuldeep, Aiswarya Gopal, **Amit Kumar Sahu**, Carmelita Nora Marbaniang, Riyaz Ahmad Shah, Avani Mehta, and Umesh Varshney. "An alternative role of RluD in the fidelity of translation initiation in Escherichia coli." *Journal of Molecular Biology* 434, no. 12 (2022): 167588.
- Majumdar, Tanmay, Shagun Sharma, Manmohan Kumar, Md Arafat Hussain, Namita Chauhan, Inderjeet Kalia, **Amit Kumar Sahu**, Vipin Singh Rana, Ruchi Bharti, Arun Kumar Halder, Agam P. Singh and Shibnath Mazumder. "Tryptophan-kynurenine pathway attenuates β -catenin-dependent pro-parasitic role of STING-TICAM2-IRF3-IDO1 signalosome in Toxoplasma gondii infection." *Cell death & disease* 10, no. 3 (2019): 161.
- Sundaresan, Natesan, **Amit Kumar Sahu**, Enthai Ganeshan Jagan, and Mohan Pandi. "Evaluation of ITS2 molecular morphometrics effectiveness in species delimitation of Ascomycota—A pilot study." *Fungal biology* 123, no. 7 (2019): 517-527.

Academic Activities

Served as a **Resource Person** for the technical session “**Gene Expression Profiling Using qRT-PCR: Design, Execution, and Interpretation**” at the Faculty Development Programme on ‘Integrated Approaches in Applied Science Research: Techniques and Funding Opportunities’, organized by the Department of Life Sciences, **Kristu Jayanti (Deemed to be University), Bengaluru** (23 June 2026).

Conferences (presented my work)

- “EMBO workshop: **Recoding and the Diversity of Genetic Decoding**”, 2024, held in **Bantry, Ireland**
- **12th RNA Group Meeting**, 2024: IIT, Guwahati, India
- “EMBO-EMBL symposium: **The non-coding genome**”, 2023, held in **EMBL, Heidelberg, Germany**
- “EMBO workshop: **Bacterial morphogenesis, survival and virulence: Dynamics and genome envelopes**”, 2023, held in **Goa, India**
- 2nd International Conference on “**Biological Transactions: From Molecules To**

Organisms", 2018 organized by Department of Microbiology and Cell Biology, Indian Institute of Science, Bengaluru, Karnataka, India

Conferences (attended)

- 1st International Conference on "Biological Transactions: From Molecules to Organisms", 2018 organized by Department of Microbiology and Cell Biology, Indian Institute of Science, Bengaluru, Karnataka, India
- "Immunocon-2017", 44th Annual Conference of Immunology Society held in Nirma University, Ahmedabad, Gujrat, India
- CME cum Seminar on "Basics of immunology and its clinical application", 2017 held in Dept. of Molecular Microbiology, School of Biotechnology, Madurai Kamaraj University, Madurai, T.N., India
- NCRM NICHE 2016, XI edition held on 22nd October 2016 in Chennai, India.
- "National Conference on Biotechnology- New Horizons and Hopes", 2016-organized by Dept. of Molecular Microbiology, School of Biotechnology, Madurai Kamaraj University, Madurai, T.N., India
- Avidadham 2016- "International Conference on "Recent Advances in Diagnosis & Treatment of Metabolic Disorders" organized by Dept. Of Biotechnology, Anna University, Chennai, T N, India
- "Workshop on Molecular Techniques in Biotechnology"- 2015 organized by Dept. of Zoology, Hansraj College, University of Delhi, Delhi, India

Membership of Professional Bodies

- Global outreach member of American Society for Microbiology (2024-2026)