Dr. Umesh Varshney, *FNA, FASc, FNASc, FTWAS*
Honorary Professor
Department of Microbiology and Cell Biology,
Indian Institute of Science, Bangalore 560 012. India.

(i) Name: Umesh Varshney

(ii) Date & Place of Birth: Oct. 26, 1957. Vill. & P. O. Gonda, District- Aligarh 202123

(iii) Present Position/designation: Honorary Professor.

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(v) Academic Qualifications (B. Sc. onwards):

Ph. D. (1985) Biochemistry with specialization in Molecular Biology, the University of Calgary, Calgary, Canada, Thesis Title: 'Structure and expression of human metallothionein gene family'.

M. Sc. (1979) Microbiology with minor in Biochemistry, the G. B. Pant University of Agriculture and Technology, Pantnagar, 263145, India.

B. Sc. (1975) Chemistry, Botany and Zoology, Jiwaji University, Gwalior, 474011, India.

(vi) Positions held (in chronological order):

2023- : Honorary Professor, Indian Institute of Science, Bangalore, 560012.

2021-2023: Dean, Faculty of Science, Indian Institute of Science, Bangalore, 560012.

2020-2023: J. N. Tata Chair Professor, Indian Institute of Science, Bangalore, 560012.

2016-2020: Chair, Division of Biological Sciences, Indian Institute of Science, Bangalore, 560012.

2015-2016: Dean, UG Program, Indian Institute of Science, Bangalore, 560012.

2013-2016: Chair, Department of Microbiology and Cell Biology, Indian Institute of Science, Bangalore, 560012.

2010-2015: Co-ordinator, UG Biology, Indian Institute of Science, Bangalore 560012.

2009- : Honorary Professor, Jawaharlal Nehru Centre for Advanced Scientific Research, Jakkur, Bangalore.

2007-2009: Co-ordinator, Integrated Ph. D. Program, Indian Institute of Science, Bangalore, 560012.

2002-2023: Professor, Department of Microbiology and Cell Biology, Indian Institute of Science, Bangalore, 560012.

1997-2002: Associate Professor, Department of Microbiology & Cell Biology, Indian Institute of Science, Bangalore, 560012.

1991-1997: Assistant Professor, Indian Institute of Science, Bangalore, India.

1988-1991: Post-doctoral research associate at Massachusetts Institute of Technology, Cambridge, MA, USA

1985-1988: Alberta Heritage Foundation for Medical Research post-doctoral fellow, Department of Medical Biochemistry, University of Calgary, Calgary, Canada.

1986-1987: Sessional instructor (part-time), Department of Biology, University of Calgary, Calgary, Canada.

(vii) Fellowship/Membership of academies/societies/professional bodies.

1. Fellow, The World Academy of Sciences, Trieste, Italy (2019)
2. Fellow, Indian National Science Academy, New Delhi (2008)
3. Fellow, The National Academy of Sciences (India), Allahabad, (2008)
4. Fellow, Indian Academy of Sciences, Bangalore (2002)
5. Elected member, Guha Research Conference, India (1998)
6. Life member, Society of Biological Chemists (India), Bangalore, India
7. Life member, Indian Cell Biology Society, New Delhi
8. Member, American Society for Microbiology, USA
9. Member, American Society for Biochemistry and Molecular Biology, USA

(viii) Awards/recognitions:

1. J N Tata Chair Professor, Indian Institute of Science, Bangalore (2020-2023).
2. Goyal Prize, 2018 (*awarded 2019*).
3. Alumni Award for Excellence in Research for Science for 2019, Indian Institute of Science, Bangalore.
4. President, Society of Biological Chemists (India), 2017- 2018.
5. Council Member, FAOBMB (2017-)
6. Outstanding alumnus of the College of Basic Science and Humanities, G. B. Pant University of Agriculture and Technology, Pantnagar, 2016.
7. G. N. Ramachandran Gold Medal for Excellence in Biological Sciences & Technology, 2014 (CSIR).
8. Sir Walter Murdoch Distinguished Collaborator, Murdoch University, Murdoch, Australia (2013-2016).
9. Ranbaxy Research Awards, Medical Sciences- Basic Research, 2012.
10. Honorary Professor, Jawaharlal Nehru Centre for Advanced Scientific Research, Bangalore (2009-)
11. J. C. Bose National Fellowship, 2008-2023 (DST/SERB, New Delhi).
12. Life Sciences Research Award, 2002, Novo Nordisk Education Foundation, India.
13. Shanti Swarup Bhatnagar Prize in Biological Sciences, 2001 (CSIR, New Delhi).
14. P. S. Sarma Memorial Award, 2001, Society of Biological Chemists (I), Bangalore.
15. First National Bioscience Career Development Award, 1999 (DBT, New Delhi).

(ix) Oration awards:

1. The 34th Foundation day oration, Institute of Life Sciences, Bhubaneshwar, Odisha (Feb. 11, 2023).

2. Annual Endowment Lecture, 2022 of the Department of Biochemistry, University of Hyderabad, Hyderabad.
3. Prof. J Das Memorial Lecture Award for year 2021 (selected for in 2022), Indian Cell Biology Society.
4. Prof. J. V. Bhat Endowment Oration 2016, Manipal University, Manipal.
5. 69th CSIR Foundation day lecture at Indian Institute of Chemical Biology, Kolkata (Sept. 26, 2011)

(x) Chair/Member of the Task Forces of the Funding Agencies:

1. Chair, Program Advisory Committee on Interdisciplinary Biological Sciences, Science and Engineering Research Board, Department of Science and Technology, New Delhi.
2. Co-Chair, Special -TEC- Indian Tuberculosis Genomic Surveillance Consortium, Department of Biotechnology, New Delhi (2022-2025).
3. Chair, National Biotech URJIT (University Research Joint Industry Translational) Cluster Steering Committee, Department of Biotechnology, New Delhi (2022-).
4. Member, The Biotechnology APEX Board of the Department of Biotechnology (DBT Apex Board), DBT, New Delhi (2022-).
5. Chair, Early Career Fellowship Committee, Wellcome-Trust DBT-India Alliance (2018-2021)
6. Co-Chair, Technical Expert Committee on Basic Research in Modern Biology, DBT, New Delhi (2018- 2022)
7. Member, Scientific & Technical Appraisal & Advisory Group on Knowledge Generation and Discovery Research, New Tools and Technologies, DBT, New Delhi (2018-2022)
8. Chair, Infectious Diseases Task Force, DBT, New Delhi (2014-2017)
9. Member, The Wellcome Trust - DBT India Alliance Early Career Fellowship Committee (2012-2018)
10. Member, Animal Sciences and Biotechnology Research, CSIR (2015-2018)
11. Member, Technical Advisory Committee, Centres of Excellence and Innovation in Biotechnology, DBT, New Delhi (2014-2016)
12. Co-Chair, Infectious Diseases Task Force, DBT, New Delhi (2009-2014)
13. Member, Expert Committee on Tuberculosis, DBT, New Delhi (2009-2014)
14. Member, Task Force on Basic Research in Modern Biology, DBT, New Delhi (2009-2011).

(xi) Chair/Member Research Advisory Committees/Governing Councils/Sectional Committees

1. Chair, PAC, Regional Centre for Biotechnology, Faridabad (2022-)
2. Chair, RAP-SAC, National Institute of Plant Genomics Research, New Delhi (2022-)
3. Chair, RC, CSIR-Institute of Microbial Technology, Chandigarh (2020-2023)

4. Convenor, Sectional Committee on General Biology, Indian Academy of Sciences, Bangalore (2019- 2021)
5. Member, Scientific Advisory Board, InStem, Bangalore (2022-)
6. Member, RC, CSIR-Centre for Cellular and Molecular Biology, Hyderabad (2017-2020).
7. Member, RAP-SAC, National Institute of Immunology, New Delhi (2012- 2018).
8. Member, RAP-SAC, Centre for DNA Fingerprinting and Diagnosis (2008-2018).
9. Member, Governing Council, Rajiv Gandhi Centre for Biotechnology, Thiruvananthapuram (2009- 2021).
10. Member, RC, CSIR-Institute of Genomics and Integrative Biology, Delhi (2013-2016).
11. Member, RAP-SAC, National Centre for Cell Sciences, Pune (2013-2015).
12. Member, RC, CSIR-Institute of Microbial Technology, Chandigarh (2008-2010).
13. Member, Governing Council, National Centre for Cell Sciences, Pune (2010-2013).
14. Member, Senate, Indian Institute of Science Education and Research, Thiruvananthapuram (2009-2014).
15. Member, Academic Advisory Committee, Indian Institute of Science Education and Research, Thiruvananthapuram (2009-2014).
16. Member, Scientific Advisory Committee, Sir Dorabji Tata Centre for Tropical Diseases, Indian Institute of Science, Bangalore (2000-2011).

(xii) Editorial Board Member/Reviewer

1. Associate Editor, J. Genet., Indian Academy of Sciences (2016-2020)
2. Member, Editorial Board, Indian Journal of Biochemistry and Biophysics (past).
3. Reviewer for international journals in molecular, general biology and general science (Nature, Nature Microbiol., Nature Commun., Nucleic Acids Res., Science Advances, J. Biol. Chem., J. Mol. Biol., and numerous others).
4. Reviewer Ph. D. theses of numerous national and international Universities.

(xiii) National fellowship examinations

1. Convenor, Life Sciences, Joint CSIR-UGC NET for JRF/Lectureship (2016-2023)
2. Member, Co-ordination committee, Kishore Vaigyanik Protsahan Yojana (1999-2007)

(xiv) Current areas of research:

Research activities in my group are focused in the area of molecular biology. We use *Escherichia coli* and mycobacteria as model organisms and exploit various heterologous systems to address mechanistic and evolutionary aspects relevant to protein synthesis, and DNA repair pathways. Advances in our understanding of the process of protein synthesis are fundamental to development of novel strategies in broader areas of biotechnology, medicine and agriculture. As to our studies on DNA repair, it is known that pathogenic

mycobacteria are exposed to reactive oxygen species and reactive nitrogen intermediates within host macrophages. Both of these innate immune responses lead to DNA damage. Thus, we believe that our studies contribute to the overall scientific endeavor of developing newer drug targets and the attenuated strains to control mycobacterial infections such as tuberculosis, which has attained the status of global human health problem.

(xv) List of publications in indexed journals:

1. Singh, J., Singh, S., Emam, E. A. F. and **Varshney, U.** (2024) Role of Rmd9p in 3'-end processing of mitochondrial 15S rRNA in *Saccharomyces cerevisiae*. **Mitochondrion** (*under revision*).
2. Lahry, K., Datta, M. and **Varshney, U.** (2024) Genetic analysis of translation initiation in bacteria: an initiator tRNA-centric view. **Mol. Microbiol.** (doi: 10.1111/mmi.15243).
3. **Varshney, U.** (2023) Co-evolution of the translation apparatus and eukaryotes. **J. Bioscience** 48, 47.
4. Singh, S., Lahry, K., Mandava, C. S., Singh, J., Shah, R. A., Sanyal, S. and **Varshney, U.** (2023) Lamotrigine compromises the fidelity of initiator tRNA recruitment to the ribosomal P-site by IF2, and the RbfA release from 30S ribosomes in *Escherichia coli*. **RNA Biol.**, 20, 681-692, doi: 10.1080/15476286.2023.2253395
5. Aroli, S. Woo, E. J., Gopal, B. and **Varshney, U.** (2023) Mutational and structural analyses of UdgX: insights into the active site pocket architecture and its evolution. **Nucleic Acids Res.** 51, 6554-6565. doi: 10.1093/nar/gkad486.
6. Kesharwania, S., Raj, P., Paul, A., Roy, K., Bhanota, A., Mehta, A., Gopal, A., **Varshney, U.,** Gopal, B., and Sundriyal, S. (2023) Crystal structures of non-uracil ring fragments in complex with *Mycobacterium tuberculosis* uracil DNA glycosylase (MtUng) as a starting point for novel inhibitor design: A case study with the barbituric acid fragment. **Eur. J. Med. Chem.**, 258, 115604. doi: https://doi.org/10.1016/j.ejmech.2023.115604.
7. Sah, S. and **Varshney, U.** (2023) Methionyl-tRNA formyltransferase utilizes 10-formyldihydrofolate as an alternate substate and impacts antifolate drug action. **Microbiology** (Reading), 169. doi: 10.1099/mic.0.001297.
8. Naz, S., Paritosh, K., Sanyal, P. Khan, S., Singh, Y, **Varshney, U.** and Nandicoori, V.K. (2023) GWAS and functional studies suggest a role for altered DNA repair in the evolution of drug resistance in *Mycobacterium tuberculosis*. **eLife**, 12:e75860. doi: 10.7554/eLife.75860.
9. Singh, J., Mishra, R., Ayyub, S. Hussain, T.*, and **Varshney, U.*** (2022) The initiation factor 3 (IF3) residues interacting with initiator tRNA elbow modulate the fidelity of translation initiation and growth fitness in *Escherichia coli*. **Nucleic Acids Res.** 50, 11712-11726. (doi.org/10.1093/nar/gkac1053)
10. Chowdhury, A. R., Sah, S., **Varshney, U.**, and Chakravortty, D. (2022) Salmonella Typhimurium outer membrane protein A (OmpA) renders protection from nitrosative stress of macrophages by maintaining the stability of bacterial outer membrane. **PLoS Pathog.** 18: e1010708. (doi.org/10.1371/journal.ppat.1010708)

11. Raj, P., Selvam, K., Roy, K., Tripathi, S. M., Kesharwani, S., Balasubramanian, G., **Varshney, U.** and Sundriyal, S. (2022) Identification of a new and diverse set of *Mycobacterium tuberculosis* is uracil-DNA glycosylase (*Mt*Ung) inhibitors using structure-based virtual screening: experimental validation and molecular dynamics studies. **Bioorg. Med. Chem. Letts.** (doi.org/10.1016/j.bmcl.2022.129008)
12. Lahry, K., Gopal, A., Sahu, A. K., Marbaniang, C. N., Shah, R.A., Mehta, A. and **Varshney, U.** (2022) An alternative role of RluD in the fidelity of translation initiation in *Escherichia coli*. **J. Mol. Biol.** 434, 167588. doi: 10.1016/j.jmb.2022.167588.
13. Kapoor, I., Shaw, A., Naha, A., Emam, E. A. F. and **Varshney, U.** (2022) Role of the nucleotide excision repair pathway proteins (UvrB and UvrD2) in recycling UdgB, a base excision repair enzyme in *Mycobacterium smegmatis*. **DNA Repair (Amst)** 113: article 103316. doi.org/10.1016/j.dnarep.2022.103316
14. Datta, M., Singh, J., Modak, M. J., Pillai, M. and **Varshney, U.** (2022) Systematic evolution of initiation factor 3 and the ribosomal protein uS12 optimizes *Escherichia coli* growth with an unconventional initiator tRNA. **Mol. Microbiol.** 117, 462-479. doi: 10.1111/mmi.14861.
15. Raja, S., Paul, A., Raghavan, S. Narayanan, S., Shee, S., Singh, A., **Varshney, U.**, Gopal, B. and Vijayan, M. (2022) Structural variability of *Mycobacterium tuberculosis* SSB and susceptibility to inhibition. **Current Science**, 122, 281-289.
16. Ray, U., Sharma. S, Kapoor, I., Kumari, S., Gopalakrishnan, V., Vartak, S.V., Nitu Kumari, N., **Varshney, U.** and Raghavan, S.C. (2021) G4 DNA present at human telomeric DNA contributes towards reduced sensitivity to γ-radiation induced oxidative damage, but not bulky adduct formation. **Int. J. Radiation Biol.** 97, 1166-1180. doi: 10.1080/09553002.2021.1955997.
17. Naz, S., Dabral, S., Nagarajan, S. N., Arora, D., Singh, L.V., Kumar, P., Singh, Y., Kumar, D., **Varshney, U.*** and Nandicoori, V. K.*, (2021) Compromised base excision repair pathway in *Mycobacterium tuberculosis* imparts superior adaptability in the host. **PLoS Pathog.** 17: e1009452. doi.org/10.1371/journal.ppat.1009452
18. Mehta, A., Raj, P, Sundriyal, S. Balasubramanian, G. and **Varshney, U.** (2021) Use of a molecular beacon based fluorescent method for assaying uracil DNA glycosylase (Ung) activity and inhibitor screening. **Biochem. Biophys. Rep.** 26, doi.org/10.1016/j.bbrep.2021.100954
19. Datta, M., Pillai, M., Modak, M. J., Liiv, A., Khaja, F. T., Hussain, T., Remme, J. and **Varshney, U.** (2021) A mutation in the ribosomal protein uS12 reveals novel functions of its universally conserved PNSA loop. **Mol. Microbiol.** 115, 1292–1308 (doi: 10.1111/mmi.14675).
20. Shetty, S. and **Varshney, U.** (2020) Regulation of translation by one-carbon metabolism in bacteria and the eukaryotic organelles. **J. Biol. Chem.** 296, 100088 doi:10.1074/jbc.REV120.011985.

21. Lahry, K., Gopal, A., Sah, S., Shah, R. A. and **Varshney, U.** (2020) Metabolic flux of N^{10}-formyltetrahydrofolate plays a critical role in the fidelity of translation initiation in *Escherichia coli*. **J. Mol. Biol.** 432, 5473-5488. doi: 10.1016/j.jmb.2020.08.003.

22. Raj, P., Karthik, S, Arif, S. M., **Varshney, U**. and Vijayan, M. (2020) Aggregation, plasticity and enzyme action of *Mycobacterium smegmatis* MutT1. **Acta Cryst. D** 76, 982–992 (doi.org/10.1107/S2059798320010992).

23. Sah, S., Lahry, K., Talwar, C., Singh, S. and **Varshney, U.** (2020) Monomeric NADH-oxidizing methylenetetrahydrofolate reductases from *Mycobacterium smegmatis* lack flavin coenzyme. **J. Bacteriol.** 202, e00709-19. doi: 10.1128/JB.00709-19.

24. Kapoor, I. and **Varshney, U.** (2020) Diverse roles of nucleoside diphosphate kinase in genome stability and growth fitness. **Curr. Genet.** 66, 671-682. doi: 10.1007/s00294-020-01073-z.

25. Tharp, J. M., Krahn, N., **Varshney, U.** and Söll, D. (2020) Hijacking Translation initiation for synthetic biology. **Chembiochem.** 21, 1387-1396. doi: 10.1002/cbic.202000017.

26. Kurthkoti, K., Kumar, P., Sang, P. B., **Varshney, U.** (2020) Base excision repair pathways of bacteria: new promise for an old problem. **Future Med Chem.** 12, 339-355. doi: 10.4155/fmc-2019-0267.

27. Ayyub, S. A. and **Varshney, U.** (2020) Translation initiation in mammalian mitochondria: a prokaryotic perspective. **RNA Biol.** 17, 165-175. doi: 10.1080/15476286.2019.1690099.

28. Kapoor, I., Emam, E. A. F., Shaw, A. and **Varshney, U.** (2019) Nucleoside diphosphate kinase escalates A to C mutations in MutT deficient strains of *Escherichia coli*. **J. Bacteriol.** pii: JB.00567-19. doi: 10.1128/JB.00567-19.

29. Kapoor, I., Varada, R., Aroli, S. and **Varshney U**. (2019) Nudix hydrolases with Coenzyme A (CoA) and acyl-CoA pyrophosphatase activities confer growth advantage to *Mycobacterium smegmatis*. **Microbiology** (Reading) 165, 1219-1232. doi: 10.1099/mic.0.000850

30. Datta, M., Aroli, S., Karmakar, K., Dutta, S., Chakravortty, D. and **Varshney, U**. (2019) Development of mCherry tagged UdgX as a highly sensitive molecular probe for specific detection of uracils in DNA. **Biochem Biophys Res Commun.** 518, 38-43. doi: 10.1016/j.bbrc.2019.08.005.

31. Ravi, V., Jain, A., Khan, D., Ahamed, F., Mishra, S., Giri, M., Inbaraj, M., Krishna, S., Sarikhani, M., Maity, S., Kumar, S., Shah, R. A., Dave, P., Pandit, A. S., Rajendran, R., Desingu, P. A., **Varshney, U.**, Das, S., Kolthur-Seetharam, U., Rajakumari, S., Singh, M., Sundaresan, N. R. (2019) SIRT6 transcriptionally regulates global protein synthesis through transcription factor Sp1 independent of its deacetylase activity. **Nucleic Acids Res.** 47, 9115-9131. doi: 10.1093/nar/gkz648.

32. Ahn, W. C., Aroli, S., Kim, J. H, Moon, J. H., Lee, G. S., Lee, M. H., Sang, P. B., Oh, B. H., **Varshney, U.***, and Woo, E. J.* (2019) Covalent binding of uracil DNA glycosylase

UdgX to abasic DNA upon uracil excision. **Nat. Chem. Biol.** 15, 607-614. [*Co-corresponding authors].

33. Shah, R., Varada, R., Sah, S. Shetty, S. Lahry, K. Singh, S., **Varshney, U.** (2019) Rapid formylation of the cellular initiator tRNA population makes a crucial contribution to its exclusive participation at the step of initiation. **Nucleic Acids Res.** 47, 1908-1919. doi: 10.1093/nar/gky1310.
34. Govindan, A., Ayyub, S. A. and **Varshney, U.** (2018) Sustenance of *Escherichia coli* on a single $tRNA^{Met}$. **Nucleic Acids Res.** 46,115 66-11574. doi: 10.1093/nar/gky859.
35. Datey, A., Sreenivas, A., Chandrasekharan, G, Joseph, A., Sah, S., Saha, S., Aluri, S., **Varshney, U.*** and Chakravortty, D.* (2018) Rewiring of one carbon metabolism in Salmonella serves as an excellent live vaccine against systemic salmonellosis. **Vaccine** 36, 7715-7727. doi: 10.1016/j.vaccine.2018.10.079. [*Co-corresponding authors].
36. Singh, A., Arif, S. M., Sang, P. B., **Varshney, U.** and Vijayan, M. (2018) Structural insights into the specificity and catalytic mechanism of mycobacterial nucleotide pool sanitizing enzyme MutT2. **J. Struct. Biol.** 204, 449-456. doi: 10.1016/j.jsb.2018.10.002.
37. Govindan, A., Miryala, S., Mondal, S. and **Varshney, U.** (2018) Development of assay systems for amber codon decoding at the steps of initiation and elongation in mycobacteria. **J. Bacteriol.** 200, pii: JB.00372-18. doi: 10.1128/JB.00372-18.
38. Ayyub, S., Lahry, K., Dobriyal, D., Mondal, S. and **Varshney, U.** (2018) Antimicrobial activity of fusidic acid in *Escherichia coli* is dependent on the relative levels of ribosome recycling factor (RRF) and elongation factor G (EFG). **FEMS Microbiol. Lett.** 365, doi: 10.1093/femsle/fny133.
39. Sah, S., Shah, R. A., Govindan, A., Varada, R., Rex, K. and **Varshney, U.** (2018) Utilization of 10-formyldihydrofolate as substrate by dihydrofolate reductase (DHFR) and 5-aminoimidazole-4-carboxamide ribonucleotide (AICAR) tranformylase/IMP cyclohydrolase (PurH) in *Escherichia coli*. **Microbiology** (Reading) 164, 982-991. doi: 10.1099/mic.0.000671.
40. Shah, R. A., Shetty, S. and **Varshney, U.** (2018) Role of the two highly conserved features of initiator tRNAs in initiation of proteins synthesis in eubacteria. **Proc. Indian Natl. Sci. Acad.** 84, 429-438 doi: 10.16943/ptinsa/2018/49343
41. Singh, A., Vijayan, M. and **Varshney, U.** (2018) Distinct properties of a hypoxia specific paralog of single stranded DNA binding (SSB) protein in mycobacteria. **Tuberculosis (Edinb)** 108, 16-25. doi.org/10.1016/j.tube.2017.10.002.
42. Agrawal, P., Varada, R., Sah, S., Bhattacharyya, S. and **Varshney, U.** (2018) Species specific interactions of Arr with RplK mediate stringent response in bacteria. **J. Bacteriol.** 200, e00722-17. doi: 10.1128/JB.00722-17.
43. Ayyub, S. A., Dobriyal, D., Shah, R. A., Lahry, K., Bhattacharyya, M., Bhattacharyya S., Chakrabarti, S. and **Varshney, U.** (2018) Coevolution of the translational machinery optimizes initiation with unusual initiator tRNAs and initiation codons in mycoplasmas. **RNA Biol.** 15, 70-80. doi: 10.1080/15476286.2017.1377879.

44. Ayyub, S. A., Aswathy S. L., Dobriyal, D., Srinivas A., Spremulli, L. L. and **Varshney, U.** (2018) Fidelity of translation in the presence of mammalian mitochondrial initiation factor 3. **Mitochondrion** 39, 1-8. doi: 10.1016/j.mito.2017.08.006.
45. Arif, S. M., **Varshney, U.** and Vijayan, M. (2017) Hydrolysis of diadenosine polyphosphates. Exploration of an additional role of *Mycobacterium smegmatis* MutT1. **J. Struct. Biol.** 199, 165-176. doi: 10.1016/j.jsb.2017.07.002.
46. Ayyub, S. A., Dobriyal, D. and **Varshney, U.** (2017) Contributions of the N- and C-terminal domains of initiation factor 3 to its functions in the fidelity of initiation and antiassociation of the ribosomal subunits. **J. Bacteriol.** 199, e00051-17. (doi: 10.1128/JB.00051-17).
47. Chembazhi, U., Patil, V., Sah, S., Reeves, W., Tiwari, R., Woo, E-J. and **Varshney, U.** (2017) Uracil DNA glycosylase (UDG) activities in *Bradyrhizobium diazoefficiens*: characterization of a new class of UDG with broad substrate specificity. **Nucleic Acids Res.** 45, 5863-5876. doi: 10.1093/nar/gkx209
48. Arif, S. M., Patil, A. G., **Varshney, U.** and Vijayan, M. (2017) Biochemical and structural studies of *Mycobacterium smegmatis* MutT1, a sanitization enzyme with unusual modes of association. **Acta Cryst. D** 73, 349–364. doi: 10.1107/S2059798317002534
49. Bianco P. R., Pottinger, S., Tan, H. Y., Nguyenduc, T., Rex, K., **Varshney, U.** (2017) The IDL of *E. coli* SSB links ssDNA and protein binding by mediating protein-protein interactions. **Protein Sci.** 26, 227-241. doi: 10.1002/pro.3072
50. Shetty, S., Shah, R., Chembazhi, U. V., Sah, S. and **Varshney, U.** (2017) Two highly conserved features of bacterial initiator tRNAs license them to pass through distinct checkpoints in translation initiation. **Nucleic Acids Res.** 45, 2040-2050. doi: 10.1093/nar/gkw854
51. Shetty, S. and **Varshney, U.** (2016) An evolutionarily conserved element in initiator tRNAs prompts ultimate steps in ribosome maturation. **Proc. Natl. Acad. Sci. (USA)** 113, E6126-E6134.
52. Singh, A., **Varshney, U.** and Vijayan, M. (2016) Structure of the second single stranded DNA binding protein (SSBb) from *Mycobacterium smegmatis*. **J. Struct. Biol.** 196, 448-454.
53. Qin, B., Yamamoto, H., Ueda, T., **Varshney, U.**, Nierhaus, K. H. (2016) The termination phase in protein synthesis is not obligatorily followed by the RRF/EF-G dependent recycling phase. **J. Mol. Biol.** 428, 3577-3587.
54. Bhattacharyya, S. and **Varshney, U.** (2016) Evolution of initiator tRNAs and selection of methionine as the initiating amino acid. **RNA Biol.** 13, 810-819.
55. Aluri, S., Sah, S, Miryala, S. and **Varshney, U.** (2016) Physiological role of methylenetetrahydrofolate dehydrogenase (FolD), methenyltetrahydrofolate cyclohydrolase (FchA) and formyltetrahydrofolate synthetase (Fhs) from *Clostridium perfringens* in a heterologous model of *Escherichia coli*. **Microbiology** (Reading) 162, 145-155.

56. Sang, P. B., Srinath, T., Patil, A. G., Woo, E. J., **Varshney, U.** (2015) A unique uracil-DNA binding protein of the uracil DNA glycosylase superfamily. **Nucleic Acids Res.** 30, 8452-8463.
57. Aluri, S., Rex, K. and **Varshney, U.** (2015) Simultaneous presence of *fhs* and *purT* genes is disadvantageous for the fitness of *Escherichia coli* growth. **FEMS Microbiol. Lett.** Jul;362(14). pii: fnv101. Doi: 10.1093/femsle/fnv101
58. Arif, S. M., Geethanandan, K., Mishra, P., Surolia, A., **Varshney, U.**, Vijayan, M. (2015) Structural plasticity in *Mycobacterium tuberculosis* uracil-DNA glycosylase (MtUng) and its functional implications. **Acta Crystallogr. D Biol. Crystallogr.** 71, 1514-1527.
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(xv) List of short reviews/opinions:

188. **Varshney, U.** (2021) Book review: Annual Review of Microbiology, 2020 (Susan Gottesman and Caroline S. Harwood (eds)). **Current Science** 121, pp 1362-1363.
189. **Varshney, U.** (2019) Book review: Annual Review of Microbiology, 2018 (Eds. Susan Gottesman, Caroline S. Harwood and Olaf Schneewind) **Current Science** 117, pp 1537-1538.
190. Invited views article, 'Make Science an Attractive Career' (**Nature** Vol. 521, p154, 2015)
191. **Varshney, U.** (2007) Book review: Annual Review of Microbiology, 2006 (Eds. L. Nicholas Ornston et. al.) **Current Science** 92, pp 1633-1635.
192. **Varshney, U.** (1998) Book review: Concepts in Biotechnology (Editors: D. Balasubramanian, C. F. A. Bryce, K. Dharamlingam, J. Green and K. Jayaraman; University Press, India, Ltd., Hyderabad) **Ind. J. Biochem. Biophys.** 35, 131-132.
193. **Varshney, U.** (1996) Book review: Annual Review of Microbiology 1994 (Editors: N. Ornston, A. Belows and E. P. Greenberg; Annual Reviews Inc., 4139 E1 Camino Way, Palo Alto, CA, USA) **Current Science** 71, 421-422.
194. **Varshney, U.** (1994) Nobel prize for Chemistry. **Current Science** 66, 6-7.
195. **Varshney, U.** (1994) Nobel prize for Medicine or Physiology. **Current Science** 66, 8-9.

Special issue editor:

196. Edited a special issue of **Resonance** (Vol. 17, number 12, December 2012) on Har Gobind Khorana.
197. Edited a special issue of **J. Biosciences** (Vol. 31, October 2006) on History of tRNA Research.

(xvii) Supervision of Ph. D. theses (Completed, and awarded):

1. **Mr. Shashanka Aroli,** 2024 (Title: Structure-function and evolution of a unique uracil DNA glycosylase, UdgX, from *Mycobacterium smegmatis*)
2. **Dr. Madhurima Datta,** 2021 (Title: Roles of the ribosomal protein uS12 and the initiation factor 3 in the maintenance of fidelity of translation in *Escherichia coli*).
3. **Dr. Kuldeep Lahry,** 2021 (Title: Roles of N^{10}-formyl-tetrahydrofolate (N^{10}-fTHF), ribosomal large subunit pseudouridine synthase D (RluD), and transcription-translation coupling in the fidelity of translation initiation in *Escherichia coli*).

4. **Dr. Indu Kapoor,** 2018 (Title: Studies on Nudix hydrolase proteins and crosstalk between DNA repair pathways).
5. **Dr. Riyaz Ahmad Shah,** 2018 (Title: Role of conserved features of initiator tRNA and ribosome heterogeneity in translation initiation in *Escherichia coli*).
6. **Dr. Ashwin Govindan,** 2018 (Title: Alternate fates of tRNAs in initiation and elongation).
7. **Dr. Priyanka Agrawal,** 2018 (Title: Physiological role of Arr, an ADP-ribosyltransferase in *Mycobacterium smegmatis*).
8. **Dr. Shreya Ahana Ayyub,** 2017 (Title: The role of initiation factor 3: insights from *E. coli*, mitochondria and mycoplasma).
9. **Dr. Sunil Shetty,** 2016 (Title: Initiation of protein synthesis: Role of the three consecutive GC base pairs in the anticodon stem of initiator tRNAs).
10. **Dr. Souvik Bhattacharyya,** 2016 (Title: Fidelity of translation initiation in *E. coli*: roles of the transcription-recycling factor RapA, 23S rRNA modifications, and evolutionary origin of initiator tRNA).
11. **Dr. Srinivas Aluri,** 2015 (Title: Physiological role of folate dehydrogenase in one carbon metabolism of *Escherichia coli*).
12. **Dr. Pau Biak Sang,** 2015 (Title: DNA repair proteins in mycobacteria and their physiological importance).
13. **Dr. Smriti Ahuja,** 2013 (Title: The mechanism of decoding at the P-site of the ribosome and the role of 3 GC base pairs in targeting the initiator tRNA to the P-site of the ribosome).
14. **Dr. Laasya Samhita,** 2013 (Title: How much initiator tRNA does *Escherichia coli* need?).
15. **Dr. Sanjay Kumar Bharti,** 2011 (Title: Studies on the mechanism of uracil excision repair in *Escherichia coli* and structure-function relationship of single stranded DNA binding proteins from *Escherichia coli* and *Mycobacterium tuberculosis*).
16. **Dr. Suman Kapoor,** 2010 (Title: Study on the mechanism of initiator tRNA selection on the ribosomes during translation initiation and rescue of the stalled ribosomes by SsrA in *Escherichia coli*).
17. **Dr. Krishna Kurthkoti,** 2010 (Title: Physiological importance of DNA repair in mycobacteria).
18. **Dr. Anuradha Seshadri,** 2009 (Title: Mechanism of ribosome recycling in eubacteria and the impact of rRNA methylations on ribosome recycling and fidelity of initiation in *Escherichia coli*).
19. **Dr. N. Sadananda Singh,** 2007 (Title: Mechanism of recycling of ribosomes stalled on mRNAs in *Escherichia coli*).
20. **Dr. Gautam Das,** 2007 (Title: Studies on initiator tRNA selection on the ribosomes in *Escherichia coli*)

21. **Dr. Rahul Gaur,** 2007 (Title: Metabolism of queuosine, a modified nucleoside in *Escherichia coli* and *Caenorhabditis elegans* AND dual function of bovine mitochondrial initiation factor 1 and 2 in *Escherichia coli*).
22. **Dr. Pradeep Kumar,** 2005 (Title: DNA repair in mycobacteria).
23. **Dr. Narottam Acharya,** 2003 (Title: Mechanistic studies on uracil DNA glycosylases from *Escherichia coli* and mycobacteria: interaction with uracil containing DNA, single stranded DNA binding proteins (SSBs) and an inhibitor protein, Ugi).
24. **Dr. Arasada Rajeswara Rao,** 2002 (Title: Studies on ribosome recycling using mycobacterial ribosme recycling factor and elongation factor G).
25. **Dr. Mini Thomas,** 2002 (Title: Molecular design of novel peptide-based ligands for sequence specific recognition of double stranded DNA). *Jointly with Prof. S. Bhattacharya, Department of Organic Chemistry, IISc.*
26. **Dr. Priya Handa,** 2001 (Title: Mutational analyses of *Escherichia coli* uracil DNA glycosylase and studies on interaction between single stranded DNA binding proteins and uracil DNA glycosylases from *Escherichia coli* and *Mycobacterium tuberculosis*).
27. **Dr. Swapna Thanedar,** 2000 (Title: Use of formylation defective initiator tRNAs in the study of significance of formylation in initiation of protein synthesis in *E. coli*).
28. **Dr. Kedar Purnapatre,** 1999 (Title: Uracil DNA glycosylase from mycobacteria and *Escherichia coli*: mechanism of uracil excision from synthetic substrates and differential interaction with uracil DNA glycosylase inhibitor (Ugi) and single stranded DNA binding proteins (SSBs).
29. **Dr. Nandicoori Vinay Kumar,** 1999 (Title: Mechanism of uracil excision from different structural contexts of DNA oligomers by *E. coli* uracil DNA glycosylase and its applications).

(xviii) Supervision of M.S. theses:

1. **Mr. Ullas Chembazhi,** 2016 (Title: A Novel Family of Uracil DNA glycosylases).
2. **Ms. Aparna Oruganty,** 2007 (Title: Role of queuosine in codon-anticodon recognition).
3. **Mr. Sanjay Kumar Bharti,** 2005 (Title: Structural and functional analysis of hook forming region of *Mtu*SSB in *Escherichia coli*).
4. **Ms. Laasya Samhita,** 2004 (Title: Significance of multiple copies of initiator tRNA genes in *Escherichia coli*).
5. **Ms. Vasupradha Vethantham,** 2001 (Title: On the importance of formylation in eubacterial translation initiation).
6. **Mr. Shaillay Kumar Dogra,** 2001 (Title: Towards an understanding of ribosome recycling factor: *in silico* and *in vivo* approaches).
7. **Ms. Anahita Dastur,** 2000 (Title: Use of XylE as a reporter system: promoter analysis of the initiator $tRNA^{fMet}$ gene from *M. tuberculosis* and comparison with the *M. smegmatis* promoter).

8. **Ms. Sneha Ramesh,** 1999 (Title: Mutational analysis of *M. tuberculosis metA* promoter and cloning of the initiator tRNA gene from *M. smegmatis*, and cloning and overexpression of histones, TH2A and TH2B, & RAD51).
9. **Ms. Nidhi Rumpal,** 1998 (Title: Investigation into mechanism of uracil excision by uracil DNA glycosylase from *Escherichia coli* and study on organization and copy number of initiator tRNA genes in slow- and fast- growing mycobacteria).

(xix) Organization of conferences/symposia

1. Organizer, G. N. Ramachandran birth centenary symposium (October 8, 2022, online), Indian Institute of Science, Bangalore and Central Leather Research Institute, Chennai.
2. Organizer, Khorana birth centenary symposium (August 30, 2022, online), Indian Academy of Sciences, Bangalore
3. Organizer (together with Profs. V. Nagaraja, U. Vijayraghavan, A. Singh and K. N. Balaji), international meeting on 'Biological Transactions: from Molecules to Organisms' Department of Microbiology and Cell Biology, Indian Institute of Science, Bangalore, Jan. 17-20, 2019.
4. Organizer (together with Prof. V. Nagaraja), international meeting on 'MCB75: From Molecules to Organisms' Department of Microbiology and Cell Biology, Indian Institute of Science, Bangalore, Dec. 11-14, 2015
5. Organizer (together with Prof. V. Ramakrishnan, MRC, Cambridge) Workshop on Protein Synthesis, Dec. 21-28, 2012, Indian Institute of Science, Bangalore, 560012.
6. Organizer, international meeting 'From Innovations in Nucleic Acids Research to Regulation of Biological Processes', Indian Institute of Science, Bangalore, Dec. 17-19, 2011.
7. Organizer, Guha Research Conference, India, 2009 (together with Profs. S. Das and T. Kundu).
8. Organizer, 21st International tRNA Workshop, 2005.
9. Organizer, The First RNA Group meeting of India, 2003

(xx) Teaching: I teach molecular biology to the Ph.D./Int. Ph.D. students since 1991, and molecular biology/microbiology to the undergraduate students since 2011, at Indian Institute of Science, Bangalore.

(xxi) Outreach programs: I regularly arrange workshops and/or give talks in the workshops organized by fellow colleagues, in the area of molecular biology/microbiology (since 1995)

(xxii) Invited research talks and conference talks: Delivered invited talks at numerous academic institutions/scientific conferences in India, USA, Canada, U.K., Australia, Japan, Singapore, China, S. Korea, France, Germany, Sweden, Austria, Estonia, Italy, Norway, Hungary, and Greece etc. **A partial list of these talks (2009 onwards)** is provided as follows. *Talks at the international fora have been italicised. Those held abroad are additionally indicated by (*).*

1. Invited speaker, Global Science Festival, Kerala (GSFK) 2024 organised by the Government of Kerala's Science and Technology Department, Kerala State Council for Science, Technology, and Environment, and Amuseum ArtScience (January 15, 2024, to February 15, 2024, at the Bio 360 Life Sciences Park, Thiruvananthapuram, Kerala). Popular talk on Khorana and the Genetic Code (Feb. 9, 2024).
2. Invited speaker at the Indian Institute of Science Education and Research, Thiruvananthapuram, Feb. 8, 2024. Genetic analysis of initiation of protein synthesis: a tRNA-centric view.
3. *Vistas in Life Sciences 2024, An International Conference Celebrating the Golden Jubilee of the School of Life Sciences, JNU, Jan. 21-24, 2024. Initiator tRNA-centric mechanisms of faithful translation in bacteria.*
4. School of Biological Sciences (SBS), Indian Association of Cultivation of Science, Kolkata, Annual Meeting, January 19, 2024. Keynote speaker, talk title:
5. School of Biological Sciences (SBS), Indian Association of Cultivation of Science, Kolkata, Annual Meeting, January 19, 2024. Keynote speaker, Initiator tRNA-centric mechanisms of faithful translation in bacteria.
6. Invited guest at GITAM University, Vishakhapatnam, October 30, 2023. Mechanism of uracil excision by UdgX and its covalent binding with DNA.
7. Invited guest at National Institute of Biomedical Genetics, Kalyani, Kolkata. October 10, 2023. Initiator tRNA-centric genetic analysis of the translation apparatus in bacteria.
8. 1st RGCB Research Conference, Thiruvananthapuram, September 20-23, 2023. Keynote speaker. Talk title: Genetic analysis of initiation of protein synthesis in bacteria.
9. *IUBMB Focused Meeting on Aminoacyl-tRNA Synthetases 2023, Grand Bend, ON N0M 1T0 Canada, June 4-9, 2023. IF3 interaction with initiator-tRNA elbow modulates translation initiation and growth fitness in Escherichia coli*
10. Amity University, Gurugram, Haryana March 27, 2023. Importance of one-carbon metabolism in initiation of protein synthesis in bacteria.
11. Centre for Brain Research, IISc Bangalore Campus (Feb. 24, 2023). Some thoughts on how to enjoy PhD research.
12. Foundation day lecture at Institute of Life Sciences, Bhubaneswar (Feb. 11, 2023). Initiator tRNA and the translation apparatus in bacteria.
13. *EMBO-BSMV 2023 meeting, Goa (Feb. 6-10, 2023). Importance of one-carbon metabolism in initiation of protein synthesis in bacteria.*
14. *Biological Transactions: From molecules to organisms 2023 (BTMO 2023), Microbiology and Cell Biology Department, Indian Institute of Science (Jan 18-21, 2023). Initiator tRNA and the translation apparatus in bacteria.*
15. 1st Chromatin, RNA and Genome (CRG) meeting at IISc (Jan. 9-10, 2023). Mechanism of uracil excision by UdgX and its possible roles in bacteria
16. *Chromosome stability 2022 meeting at IISER, Thiruvananthapuram (Dec. 14-18, 2022). Mechanism of uracil excision by UdgX and its possible roles in bacteria.*
17. Microbe Matters, Indian Institute of Science (Nov. 29-30, 2022). Plenary talk on Importance of one-carbon metabolism in initiation of protein synthesis in bacteria.
18. *Protein RNA interaction in cellular regulations (Nov. 22-24 2022, ICGEB, New Delhi). Plenary talk on initiator tRNA and its multifaceted roles in bacteria.*

19. Annual Endowment Lecture of the Department of Biochemistry 2022, University of Hyderabad, Hyderabad (Sept., 16, 2022). Initiator tRNA centric view of translation initiation and ribosome maturation in *Escherichia coli*.
20. Prof. J. Das Memorial Lecture Award for year 2021 (selected for in 2022), Indian Society of Cell Biology annual meeting at the University of Kashmir, Srinagar (Sept. 2-3, 2022). Initiator tRNA centric view of translation initiation and ribosome maturation in *Escherichia coli*.
21. Department of Atomic Energy, Bhabha Atomic Research Centre Bioscience Group Molecular Biology Division 1-day symposium for Dr. H S Misra (July 25, 2022). Mechanism of uracil excision by UdgX, an unusual uracil DNA glycosylase.
22. **28th International workshop on tRNA (tRNA 2022), Columbus, OH, USA (June 12-16, 2022). Unexpected roles of RluD and uS12 in the fidelity of translation initiation in Escherichia coli.*
23. School of Life Sciences, University of Hyderabad, Symposium in honour of Prof Dayananda Siddavattam (May 30-31, 2022). UdgX, an unconventional member of the uracil DNA glycosylase family.
24. Indian Institute of Technology, Guwahati (May 5, 2022). UdgX, an unconventional member of the uracil DNA glycosylase family.
25. Kumaun University, Bhimtal Campus, Bhimtal (April 20, 2022). Translation initiation and its regulation by one-carbon metabolism in bacteria.
26. Fatima Mata National College, Kollam (Feb. 28, 2022). Khorana and the genetic code: a tribute to H G Khorana.
27. National Institute of Biomedical Genomics, 1-day symposium in the honor of Prof. S. Das (Jan 28, 2022). UdgX, an unconventional member of the uracil DNA glycosylase family.
28. **16th FAOBMB Congress, New Zealand (Nov. 24, 2021, virtual). Role of formylation and N^{10}fTHF in the function of initiator tRNA in Escherichia coli.*
29. Manipal Academy of Higher Education (Oct. 23, 2021, virtual). Translation initiation and its regulation by one-carbon metabolism in bacteria.
30. Savitri Bai Phule Pune University (Sept. 4, 2021, virtual). Translation initiation and its regulation by one-carbon metabolism in bacteria.
31. Indian Institute of Technology, Guwahati (July 31, 2021, virtual). Translation initiation and its regulation by one-carbon metabolism in bacteria.
32. **University College of London (July 19, 2021, virtual). IISc effort on Covid-19.*
33. **Institute of Microbiology and Infection, University of Birmingham, UK (May 5, 2021, virtual). A tRNA-centric view of translation initiation and its regulation by one-carbon metabolism in bacteria.*
34. Salipur Autonomous College, Salipur, Odisha (Dec. 12, 2020). Khorana and genetic code.
35. UNESCO-DBT, Regional Centre for Biotechnology, Faridabad (Nov. 27, 2020, virtual). A tRNA-centric view of translation initiation and its regulation by one-carbon metabolism in bacteria.
36. Shivaji College, University of Delhi (April 30, 2020). DNA Repair.
37. *International conference In Biochemistry and Biotechnology, Shivaji College, University of Delhi, New Delhi: Strategies to combat Human diseases (Feb 12-13,*

2020). Mechanism of action of UdgX, an unusual member of the uracil: DNA Glycosylase family.

38. *Emerging areas in Biosciences and Biomedical Technologies-2 (EBBT-2), Indian Institute of Technology, Indore (Feb. 7-9, 2020). Initiator tRNA and its roles in fidelity of translation initiation and regulation of ribosome maturation/heterogeneity in Escherichia coli.*
39. Workshop on Advancement in Genomics to Proteomics to Drug Discovery & Development, The Department of Biophysics, National Institute of Mental Health and Neurosciences (NMHANS), Bangalore (Feb. 5-8, 2020). Evolution of a uracil displacing DNA binding protein into a mainstream uracil DNA glycosylase.
40. Felicitation of Prof KVA Ramaiah on occasion of his Superannuation, Department of Biochemistry, School of Life Sciences, University of Hyderabad (Jan. 10, 2020) Keynote lecture: Role of one-carbon metabolism in translation in *Escherichia coli*.
41. Guha Research Conference, Jaisalmer (Dec. 6-11, 2019). A chalk talk on 'UdgX, an unusual member of the uracil DNA glycosylase family.
42. 15th National Research Scholars Meet, ACTREC, Mumbai (Dec. 5-6, 2019). Initiator tRNA and its roles in fidelity of translation initiation and regulation of ribosome maturation/heterogeneity in *Escherichia coli*.
43. **12th International Symposium on Aminoacyl-tRNA Synthetases (AARS2019), Hangzhou (Nov. 5-9, 2019). Role of one-carbon metabolism in translation initiation and engineering of Escherichia coli strains with mitochondria like sustenance on a single tRNA^{Met}.*
44. Ashoka University, Sonepat (Sept. 30, 2019) Genetic code: Is it a frozen accident or does it evolve?
45. Biomolecular Interactions in Development and Diseases, University of Hyderabad (Sept. 26-27, 2019) An unusual member of the uracil DNA glycosylase family from mycobacteria.
46. **University of Massachusetts, Boston, MA, USA (Sept. 10, 2019) UdgX, an unusual member of the uracil DNA glycosylase family from mycobacteria.*
47. *IIT Bombay-FU Berlin Indo German Meeting on Emerging Trends In Chemistry and Materials (Aug. 27-30, 2019). UdgX, an unusual member of the uracil DNA glycosylase family from mycobacteria.*
48. Meeting on Molecular Microbiology, Centre for DNA Fingerprinting and Diagnosis, Hyderabad (July 10-12, 2019) Cross-talk between one-carbon metabolism and the fidelity of translation initiation.
49. **University of California at San Francisco, CA, USA (June 25, 2019) Role of one-carbon metabolism in translation initiation and engineering of Escherichia coli strains with mitochondria like sustenance on a single tRNA^{Met}.*
50. **Uppsala University, Uppsala, Sweden (June 17, 2019) Role of one-carbon metabolism in translation initiation and engineering of Escherichia coli strains with mitochondria like sustenance on a single tRNA^{Met}.*
51. 10th RNA Group Meeting, Thiruvananthapuram (May 2-4, 2019) Speed of formylation of the cellular initiator tRNA population regulates its participation at the steps of initiation and elongation.
52. Institute of Life Sciences, Bhubaneswar (March 18, 2019) Mechanism of action of UdgX, an unusual member of the uracil DNA glycosylase family.

53. *2nd International Conference on Novel Drug Discovery, SRM University Delhi-NCR, Sonepat, Haryana (March 17-19, 2019) Speed of formylation of the cellular initiator tRNA population regulates its participation at the steps of initiation and elongation.*
54. Kurukshetra University, Kurukshetra, Haryana (March 8, 2019) Crucial roles of P-site binding of initiator tRNA in fidelity of translation initiation and regulation of ribosome maturation/ heterogeneity in *Escherichia coli*.
55. *International meeting on Biological Transactions: From Molecules to Organisms, Indian Institute of Science, Bangalore (Jan. 17-20, 2019). Genetic analysis of translation initiation in bacteria.*
56. *International Conference on Future Diagnostic, Therapeutic and Theranostics Modalities, Interdisciplinary Biotechnology Unit, Aligarh Muslim University, Aligarh (India) (December 29-31, 2018) Roles of P-site binding of initiator tRNA in fidelity of initiation and ribosome maturation/heterogeneity in Escherichia coli.*
57. *Chromosome Stability 2018 (Dec. 14-17, 2018). Mechanism of action of UdgX, an unusual member of the uracil DNA glycosylase family*
58. From Genes to Networks: Recent trends in Cell Signaling, Amity Institute of Integrative Sciences and Health Amity University Haryana (Dec. 14-15, 2018) An unusual member of the uracil DNA glycosylase family from mycobacteria
59. Plenary lecture at Association of Microbiologists of India (AMI), annual meeting and international conference on Host Pathogen Interactions on (Dec. 9-12, 2018) Crucial roles of P-site binding of initiator tRNA in fidelity of translation initiation and regulation of ribosome maturation/heterogeneity in *Escherichia coli*.
60. Presidential address at 87th Conference of the Society of Biological Chemists (India) Genome Biology in Health and Disease, Manipal Academy of Higher Education, Manipal (Nov. 25, 2018). An unusual member of the uracil DNA glycosylase family from mycobacteria.
61. *International Symposium on Infectious Diseases, Jamia Hamdard University, New Delhi (Nov. 12-14, 2018) An unusual member of the uracil DNA glycosylase family from mycobacteria.*
62. M S University Baroda (Oct. 6, 2018) Initiator tRNA: fidelity of translation initiation and regulation of ribosome maturation/heterogeneity in *Escherichia coli*.
63. **11th International Conference on Ribosome Synthesis Orford, Quebec, Canada (Aug. 1-5, 2018) Initiator tRNA: fidelity of translation initiation and regulation of ribosome maturation/heterogeneity in Escherichia coli*
64. *Cancer Biology Division, Department of Radiation Oncology Washington University in Saint Louis School of Medicine, St. Louis, MO (July 30, 2018) An unusual member of the uracil DNA glycosylase family from mycobacteria.*
65. Yenepoya University, Deralakatte, Mangalore (July 21, 2018) Crucial roles of P-site binding of initiator tRNA in fidelity of translation initiation and regulation of ribosome maturation/ heterogeneity in *Escherichia coli*.
66. **Korea Research Institute of Bioscience and Biotechnology, Daejeon 305-806, S. Korea (June 8. 2018) An unusual member of the uracil DNA glycosylase family from mycobacteria.*
67. **Chung-Ang University, Seoul, S. Korea (June 5, 2018) An unusual member of the uracil DNA glycosylase family from mycobacteria.*
68. Surana College, Bangalore (April 9, 2018) Khorana and the Genetic Code.

69. **Uppsala University, Uppsala, Sweden (March 23, 2018) Mitochondria-like sustenance of Escherichia coli on a single $tRNA^{Met}$ (The efficiency of formylation determines the fate of tRNA in initiation/elongation).*
70. Nehru Planetarium Bangalore (Jan. 10, 2018) Life and Works of Har Gobind Khorana.
71. Manipal University, Manipal (Nov. 24, 2017) Mechanism of Protein Synthesis.
72. 9th RNA Group Meeting, Banaras Hindu University, Varanasi (Oct. 26-28, 2017) Pioneering Round of Initiation Complex Formation Triggers Ultimate Steps of rRNA Maturation in *Escherichia coli*.
73. Institute of Bioinformatics and Biotechnology, Bangalore (Sept. 16, 2017) Role of initiator tRNA in regulation of protein synthesis in *Escherichia coli*.
74. Indian Institute of Science Education Research, Thiruvananthapuram (Aug. 18, 2017) Don't forget your alimentary *Escherichia coli* (Understanding proteins synthesis using *Escherichia coli* as model).
75. Indian Institute of Science Education Research, Thiruvananthapuram (Aug. 18, 2017) Initiator tRNA levels regulate ribosome maturation and the fidelity of protein synthesis.
76. Bhabha Atomic Research Centre, Mumbai (May 4, 2017) Initiator tRNA levels regulate ribosome maturation and the fidelity of protein synthesis.
77. **Yale University, Department of Molecular Biophysics and Biochemistry, New Haven, CT, USA (March 29, 2017) Initiator tRNA levels regulate ribosome maturation, and the fidelity of protein synthesis.*
78. **Massachusetts Institute of Technology, Biology Department, Cambridge, MA, USA (March 27, 2017) Initiator levels regulate ribosome maturation and fidelity of protein synthesis.*
79. **Stanford University School of Medicine, Stanford, CA, USA (March 17, 2017) Initiator tRNA levels regulate ribosome maturation, and the fidelity of protein synthesis.*
80. Meeting on Molecular Microbiology, CDFD, Hyderabad (Feb. 10-11, 2017) Role of the pioneering round of initiation in ribosome maturation.
81. *3rd International Conference on Chromosome Stability, KTDC Samudra Convention Centre, Trivandrum (Dec. 15-18, 2016) Two unusual members of the uracil DNA glycosylase family.*
82. **Murdoch University, Perth, Australia (Nov. 28, 2016) An evolutionarily conserved element in initiator tRNAs prompts ultimate steps in ribosome maturation.*
83. XL All India Cell Biology Conference at Jiwaji University, Gwalior (Nov. 17-20, 2016) An evolutionarily conserved element in initiator tRNAs prompts ultimate steps in ribosome maturation.
84. **Department of Applied Biotechnology and Food Sciences, Budapest University of Technology and Economics, Budapest, Hungary (July 4, 2016) Maintenance of genomic integrity in mycobacteria.*
85. **Microbiological Society of Korea (MSK) held at Kimdaejung Convention Center, Gwangju, Republic of Korea (April 20-22, 2016) DNA repair in mycobacteria.*
86. **Korea Research Institute of Bioscience & Biotechnology, Daejeon, South Korea (April 17, 2016) DNA repair in mycobacteria.*
87. Manipal University, Mangalore (March 3, 2016) Two highly conserved features of eubacterial initiator tRNAs license them to pass through distinct checkpoints in translation initiation (Prof. J. V. Bhat Endowment Oration 2016).

88. Life Sciences Symposium at the Presidency University, Kolkata (Feb. 23, 2016) Two highly conserved features of eubacterial initiator tRNAs license them to pass through distinct checkpoints in translation initiation.
89. 8th RNA Group Meeting, CSIR-CCMB, Hyderabad (Jan. 8-10, 2016) Two highly conserved features of eubacterial initiator tRNAs license them to pass through distinct checkpoints in translation initiation.
90. **Uppsala University, Uppsala, Sweden (Oct. 22, 2015) Two highly conserved features of eubacterial initiator tRNAs license them to pass through distinct checkpoints in translation initiation.*
91. **University of Vienna, Vienna, Austria (Oct. 20, 2015) Two highly conserved features of eubacterial initiator tRNAs license them to pass through distinct checkpoints in translation initiation.*
92. Indian Institute of Technology, Kanpur, India (Oct. 8, 2015) Two highly conserved features of eubacterial initiator tRNAs license them to pass through distinct checkpoints in translation initiation.
93. **Murdoch University, Perth, Australia (August 10, 2015) Mechanism of initiation of protein synthesis in Escherichia coli: Roles of the two highly conserved features of the formylation, and the three consecutive G-C base pairs in the anticodon stem of the initiator tRNAs.*
94. Indian Institute of Science Education Research, Mohali (July 17, 2015) Is initiation of protein synthesis in *Escherichia coli* an exclusive property of the initiator tRNA?
95. *BBRC Symposium, Trends in Biochemistry and Biophysics held at National Centre for Biological Sciences, Bangalore (May 18, 2015) Mechanism of tRNA selection in the ribosomal P-site and potential to generate proteome diversity in Escherichia coli.*
96. National Centre for Cell Sciences, Pune (May 7, 2015) Initiation of translation in *Escherichia coli* by tRNAs lacking vital structural features needed for ribosomal P-site binding.
97. *International conference on "Antimicrobial Resistance, Novel Drug Discovery and Development: Challenges and Opportunities" held at India Habitat Centre. Lodhi Road, New Delhi (March 2-3, 2015) Mechanism of the initiator tRNA binding to the ribosomal P-site.*
98. *2nd International meeting on Chromosome Stability held at Jawaharlal Nehru Centre for Advanced Scientific Research, Bangalore (Dec. 14-18, 2014) Mechanisms of DNA damage repair in mycobacteria.*
99. *International symposium and workshop on proteomics present and future held at CSIR-Centre for Cellular and Molecular Biology, Hyderabad (Nov. 22-25, 2014) Mechanism of tRNA selection in the ribosomal P-site and potential to generate proteome diversity in Escherichia coli.*
100. SBC(I) meeting of local chapter of Coastal Karnataka (3rd Annual Meeting), Mangalore at Manipal University, Mangalore (Oct. 25, 2014) Mechanism of the initiator tRNA selection in the ribosomal P-site in *Escherichia coli*.
101. CSIR-Institute of Genomics and Integrative Biology, Delhi (Sept. 29, 2014) Initiation of translation in *Escherichia coli* by tRNAs lacking vital structural features needed for ribosomal P-site binding.
102. **25th tRNA Conference held in Kyllini, Greece (Sept. 21-25, 2014) An extended Shine-Dalgarno sequence in mRNA functionally bypasses a vital defect in initiator tRNA.*

*103. *Uppsala University, Uppsala (Sept. 18, 2014) Is initiation of protein synthesis an exclusive property of the initiator tRNAs?*

*104. *Murdoch University, Perth, Australia (May 12, 2014) Mechanism of the initiator tRNA binding to the ribosomal P-site.*

105. 7th RNA Group Meeting, CSIR-Indian Institute of Chemical Biology, Kolkata (March 6-8, 2014) Initiator tRNA selection at the ribosomal P-site in *Escherichia coli*.

106. University of Kalyani, Kalyani (March 6, 2014) Mechanism of protein synthesis in eubacteria.

107. M. S. University, Vadodara (Dec. 23, 2013) Mechanism of the initiator tRNA selection in the ribosomal P-site in *Escherichia coli*.

108. SBC(I) 82nd Annual General Body Meeting (Dec. 2-5, 2013) Mechanism of initiator tRNA selection in the ribosomal P-site in *Escherichia coli*.

109. SBC(I) local chapter of Mumbai meeting at Advanced Centre for Treatment, Research & Education in Cancer, Mumbai (November 8, 2013) Mechanism of the initiator tRNA selection in the ribosomal P-site in *Escherichia coli*.

110. SBC(I) meeting of local chapter of Coastal Karnataka, Mangalore at Manipal University, Mangalore (Oct. 26, 2013) Mechanism of the initiator tRNA selection in the ribosomal P-site in *Escherichia coli*.

*111. *Uppsala University, Uppsala, Sweden (Sept. 13, 2013) DNA repair in mycobacteria.*

*112. *EMBO Conference on Protein Synthesis and Translational Control, Heidelberg (Sept 8-12, 2013) Mechanism of the initiator tRNA selection in the ribosomal P-site in Escherichia coli.*

113. Seminar Workshop on Microbial Biology organized by CDFD, Hyderabad (Dec. 11-14, 2012) Mechanism of the initiator tRNA binding to the ribosomal P-site in *Escherichia coli*.

114. Biology 2012 and beyond, Centre for Cellular and Molecular Biology, Hyderabad, (Nov. 25-27, 2012) How many initiator tRNA genes does *Escherichia coli* need?

115. 53rd Annual Association of Microbiologists of India, KIIT University, Bhubaneshwar (Nov. 22-25, 2012) Unconventional initiator tRNAs sustain *Escherichia coli*.

116. XXXVI All India Cell Biology Conference & International Symposium on 'Stress Adaptive Response and Genome Integrity', BARC, Mumbai (Oct. 17-19, 2012) How many initiator tRNA genes does *Escherichia coli* need?

*117. *Tartu University, Tartu, Estonia (Sept. 24, 2012) How much initiator tRNA does Escherichia coli need?*

*118. *4th Genome Dynamics in Neuroscience Meeting (GDN4) Oslo, Norway (Sept. 19 to 22, 2012) DNA repair in mycobacteria.*

*119. *The Korea–India Symposium on Functional Analysis and Proteomes (III), Korea Research Institute of Bioscience and Biotechnology (KRIBB), Daejon, Korea (Sept. 3, 2012) How many initiator tRNA genes does Escherichia coli need?*

120. National Institute of Oceanography, Goa (Aug. 2, 2012) Mechanism of initiator tRNA selection on the ribosomal P-site and fidelity of translation initiation in *Escherichia coli*.

121. Plenary talk at the 6th RNA Group Meeting of India at Indian Institute of Science, Bangalore (July 30-31, 2012) Role of cellular abundance of initiator tRNA in regulation of initiation in *Escherichia coli*.

122. Madurai Kamaraj University, Madurai (July 15, 2012) How many initiator tRNA genes does *Escherichia coli* need?
123. Madurai Kamaraj University, Madurai (July 15, 2012) Mechanism of initiator tRNA selection on the ribosomal P-site and fidelity of translation initiation in *Escherichia coli*.
124. *Plenary talk at International conference on Regulatory Network Architecture in Bacteria, SASTRA University, Thanjavur (March 10-12, 2012) How many initiator tRNA genes does Escherichia coli need?*
125. National Science day lecture at the Davangere University, Davangere, Karnataka, India (Feb. 28, 2012) Mechanism of protein synthesis in bacteria.
126. 15th Transcription meeting organized by TIFR, The Club Mahabaleshwar (Jan. 22-24, 2012) How many initiator tRNA genes does *Escherichia coli* need?
127. 69th CSIR Foundation day lecture at Indian Institute of Chemical Biology, Kolkata (Sept. 26, 2011) Mechanism of initiator tRNA selection on the ribosomal P-site and fidelity of translation initiation in *Escherichia coli*.
128. **Uppsala University, Uppsala, Sweden (Sept. 5, 2011) Mechanism of initiator tRNA selection on the ribosomal P-site and fidelity of translation initiation in Escherichia coli.*
129. *Indo-US Science and Technology Forum meeting on Base Excision DNA Repair, Brain Function and Aging, Novotel Hyderabad Convention Centre, Hyderabad (Jan. 9-12, 2011) DNA repair in mycobacteria.*
130. Frontiers in Modern Biology Symposium, Indian Institute of Science Education and Research, Kolkata (Feb. 26-27, 2011) Mechanism of initiator tRNA selection on the ribosomal P-site and fidelity of translation initiation in *Escherichia coli*.
131. 14th Transcription Assembly meeting, Centre for DNA Fingerprinting and Diagnostics, Hyderabad (Jan. 20-22, 2011) Importance of rRNA methylations and the initiator tRNA abundance in maintenance of fidelity of translation initiation in *Escherichia coli*.
132. *French-Indian Inter-Academic Symposium on Infectious Disease, National Institute of Immunology, New Delhi (Nov. 30 - Dec. 3, 2010) DNA repair in mycobacteria.*
133. Jawaharlal Nehru Centre for Advanced Scientific Research, Bangalore (Nov. 15, 2010) Mechanism of the initiator tRNA selection in the ribosomal P-site in *Escherichia coli*.
134. *Indo-French symposium on Host pathogen interaction in respiratory disease (HOPE IN RED), Bangalore (Oct. 11-13, 2010) DNA repair in mycobacteria.*
135. **Structure Biology Group, MRC laboratory of Molecular Biology, Cambridge, UK (Sept. 22, 2010) Mechanism of Protein Synthesis in Escherichia coli.*
136. **Ribosome 2010, Orvieto, Italy (May 3-6, 2010) Initiation with an elongator tRNA: Crucial contributions of rRNA methylations and the initiator tRNA abundance in maintenance of the fidelity of initiation in Escherichia coli.*
137. 13th Transcription Assembly meeting, J.N.U., New Delhi (Feb. 26-27, 2010) A new connection between transcription and translation: Crucial contributions of rRNA methylations and the initiator tRNA abundance in maintenance of the fidelity of initiation in *Escherichia coli*.
138. *Indo-Brazilian symposium, Kolkata (Dec. 10-11, 2009) DNA repair in mycobacteria.*
139. National symposium on molecular cell biology, Shivaji College, University of Delhi (Nov. 24-25, 2009) Mechanism of the initiator tRNA selection on the ribosomal P-site in *Escherichia coli*.

*140. *Biology of gene deleted M. tuberculosis strains: immunological marker profiling, Karolinska Institute, Stockholm, Sweden (Nov. 17-20, 2009) DNA repair in mycobacteria.*

141. Keynote lecture on 'Opportunities for Discovery Research in India at the 4th Annual Drug Discovery and Clinical Development in India - Scientific and Regulatory Advances Across Borders Conference, New Delhi (Nov. 15-18, 2009).

142. 78th Annual General Body Meeting of the Society of Biological Chemists (I), Pune (Oct. 30-Nov. 1, 2009) DNA repair in mycobacteria.

*143. *University of Uppsala, Uppsala, Sweden (Sept. 15, 2009) Mechanism of the initiator tRNA selection on the ribosomal P-site in Escherichia coli.*

*144. *University of Uppsala, Uppsala, Sweden (Sept. 14, 2009) Is the role of ribosome recycling factor in Escherichia coli limited to recycling the post-termination complexes?*