




## University Faculty Details Proforma

Title	Dr.	First Name	Manish	Last Name	Kumar	Photograph
Designation		<b>Associate Professor</b>				
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<b>Educational Qualifications</b>						
Degree		Institution			Year	
Ph.D.		<b>CSIR-Institute of Microbial Technology, Chandigarh</b>			<b>2008</b>	
Advance Post Graduate Diploma in Bioinformatics		<b>Jawaharlal Nehru University, New Delhi</b>			<b>2003</b>	
PG		<b>Guru Nanak Dev University, Amritsar</b>			<b>2002</b>	
UG		<b>Gaya College, Gaya</b>			<b>1998</b>	
<b>Career Profile</b>						
<b>Post-doctoral Fellow, Department of Biology, McGill University, Montreal, Canada (Jan 2009-May 2010)</b>						
<b>Administrative Assignments</b>						
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<b>Areas of Interest / Specialization</b>						
<b>Use of Computational Biology, Bioinformatics, Next Generation Sequencing, Protein and Genome Sequence Analysis and Machine Learning Methods in:</b> <ul style="list-style-type: none"> <li>• Evolutionary analysis and classification of proteins.</li> <li>• Discerning large-scale evolutionary trends in genome evolution.</li> <li>• Prediction of novel activities and biological functions of proteins, and inference of organismal biology from comparative sequence and genome analysis.</li> <li>• Evolutionary Analysis of antimicrobial drug resistance.</li> </ul>						
<b>Subjects Taught</b>						

- Computational Methods In Biology
- Bioinformatics
- Research Methodology
- OMICS Biology
- Introductory Biology
- Programming and Data Analytics

#### Research Guidance

#### Publications Profile

##### **Supervision of Doctoral Thesis, under progress**

Govind Rao Dabburu, Since 2019

Manisha Aswal, Since 2018

Deeksha Pandey, Since 2016

Anjali Garg, Since 2015

##### **Supervision of awarded Doctoral Thesis**

Abhishikha Srivastava, (2013)

Bandana Kumari, (2012)

Ravindra Kumar, (2010)

##### **Supervision of awarded M. Phil dissertations**

Sohani Singh Jain (2012)

#### **Research papers published in Refereed/Peer Reviewed Journals**

##### **(# Corresponding Author, \* Equal Contribution)**

58. Akhtar, N., Vikas Kaushik, V., **Kumar, M.** and Mannan, M.A. (2021) In-silico Design of a Multivalent Epitope-Based Vaccine against *Candida auris*. **Microbial Pathogenesis**. 155:104879. doi: 10.1016/j.micpath.2021.104879. [PMID: 33848597] [IF: 2.914] [Citations: 0]

57. Singh, N.S., Singhal, N., **Kumar, M.**, and Viridi J.S. (2021). Exploring the genetic mechanisms underlying amoxicillin-clavulanate resistance in waterborne Escherichia coli. **Infection Genetics & Evolution**. 90:104767. doi: 10.1016/j.meegid.2021.104767. [PMID: 33581330]

56. Singh, NS, Singhal, N, **Kumar, M.**, and Viridi, J.S. (2021). High Prevalence of Drug Resistance and Class 1 Integrons in Escherichia coli Isolated From River Yamuna, India: A Serious Public Health Risk. **Frontiers in Microbiology**. 12:621564. doi: 10.3389/fmicb.2021.621564. [PMID: 33633708]

55. Singhal N, Sharma A, Aswal M, Singh N, **Kumar M**, Goel M. (2020) Identification of binding partners of CsaA - an archaeal chaperonic pro-teiin of *Picrophilus torridus*. (2020) **Protein and Peptide Letters**; . doi: 10.2174/0929866527999201126205131. [PMID: 3324110]

54. Singhal N, Pandey D, Singh NS, **Kumar M**, Viridi JS. (2020) Exploring the genetic determinants underlying the differential production of an inducible chromosomal cephalosporinase - BlaB in *Yersinia enterocolitica* biotypes 1A, 1B, 2 and 4. **Scientific Reports**. 23;10(1):10167. doi: 10.1038/s41598-020-67174-4. [PMID: 32576927]

**#53.** Garg. A., Singhal, N., and **Kumar, M.** Discerning novel drug targets for treating *Mycobacterium avium* ss. *paratuberculosis* associated autoimmune disorders: an in silico approach. **Briefings in Bioinformatics**. doi: 10.1093/bib/bbaa195. [PMID: 32895696]

**#52.** Garg. A., Singhal, N., Kumar, R., and **Kumar, M.** (2020). mRNALoc: a novel machine-learning based in-silico tool to predict mRNA subcellular localization. **Nucleic Acids Research**. 48(W1):W239-W243. doi: 10.1093/nar/gkaa385. [PMID: 32421834]

**#51.** Pandey, D., Kumari, B., Singhal, N., and **Kumar, M.** (2020). BacEffluxPred: A two-tier system to predict and categorize bacterial efflux mediated antibiotic resistance proteins. **Scientific Reports**. 10(1):9287. doi: 10.1038/s41598-020-65981-3. [PMID: 32518231]

50. Singhal, N., Sharma, A., Kumari, S., Garg, A., Rai, R., Singh, N., **Kumar, M.**, and Goel, M. (2020) Biophysical and biochemical characterization of nascent polypeptide associated complex of *Picrophilus torridus* and elucidation of its interacting partners. *Frontiers in Microbiology*, section Biology of Archaea. 11:915. [PMID: 32528429]
49. Singhal N, Sharma D, **Kumar M**, Bisht D, Viridi JS. (2020). Comparative Proteomics of Commensal and Pathogenic Strains of *Escherichia coli*. *Protein and Peptide Letters*. doi: 10.2174/0929866527666200517104154. [PMID: 32416668]
- #48. Aswal, M\*, Garg, A\*, Singhal, N., and **Kumar, M.** (2020). Comparative in-silico proteomic analysis discerns potential granuloma proteins of *Yersinia pseudotuberculosis*. *Scientific Reports*. 10(1):3036. doi: 10.1038/s41598-020-59924-1. [PMID: 32080254]
47. Sharma, D., Garg, A., **Kumar, M.**, Khan, A.U. (2019). Down-Regulation of Flagellar, Fimbriae, and Pili Proteins in Carbapenem-Resistant *Klebsiella pneumoniae* (NDM-4) Clinical Isolates: A Novel Linkage to Drug Resistance. *Frontiers in Microbiology*, section Antimicrobial Resistance As a Global Public Health Problem: How Can We Address It? [PMID: 31921045]
- #46. Singhal N, Maurya AK, Mohanty S, **Kumar M**, Viridi JS. (2019) Evaluation of bile salt hydrolases, cholesterol-lowering capabilities and probiotic potential of *Enterococcus faecium* isolated from rhizosphere. *Frontiers in Microbiology*, section Food Microbiology. 10:1567. [PMID: 31379762]
45. Singhal N, Maurya AK, Singh NS, **Kumar M**, Viridi JS. (2019) Antimicrobial resistance and its relationship with biofilm production and virulence-related factors in *Yersinia enterocolitica* biotype 1A. *Heliyon*. 5(5):e01777. [PMID: 31193467]
44. Sharma, D., Garg, A., **Kumar, M.**, Khan, A.U. (2019). Proteome profiling of carbapenem-resistant *K. pneumoniae* clinical isolate (NDM-4): Exploring the mechanism of resistance and potential drug targets. *J Proteomics*. 200:102-110. [PMID: 30953729]
- #43. Singhal, N., Pandey, D., **Kumar, M.** and Viridi, J. S. (2019) Molecular analysis of ampR and ampD to understand variability in inducible expression of “BlaB-like” cephalosporinase in *Yersinia enterocolitica* biotype 1A. *Gene*. 704:25-30. [PMID 30980942]
- #42. Singhal, N., Pandey, D., Singh, N.S., **Kumar, M.** and Viridi, J. S. (2019). ampD homologs in biotypes of *Yersinia enterocolitica*: Implications in regulation of chromosomal AmpC-type cephalosporinases. *Infection, Genetics and Evolution*. 69:211-215. [PMID 30710654]
- #41. Singhal, N., Pandey, D., **Kumar, M.** and Viridi, J. S. (2019). Molecular Characteristics of “BlaB-like” Chromosomal Inducible Cephalosporinase of *Yersinia enterocolitica* Biotype 1A Strains. *Microbial Drug Resistance*. [PMID 30817214]
- #40. Kumari, B., Kumar, R. and **Kumar, M.** (2019). Identifying residues that determine palmitoylation using association rule mining. *Bioinformatics*. [PMID 30649192]
- #39. Kumari, B., Kumar, R. and **Kumar, M.** (2018). Comparative functional analysis of proteins containing low-complexity predicted amyloid regions. *PeerJ*. 6:e5823. [PMID 30397544]
- #38. Garg A, Kumari B, Singhal N, **Kumar M.** (2018) Using molecular-mimicry-inducing pathways of pathogens as novel drug targets. *Drug Discovery Today*. 30256-3. [PMID: 30366058]
- #37. Srivastava, A\*, Kumar, R\*, and **Kumar, M.** (2018) BlaPred: predicting and classifying beta-lactamase using a 3-tier prediction system via Chou's general PseAAC. *Journal of Theoretical Biology*. 457:29-36. [PMID: 30138632]
- #36. Kumari, B., Kumar, R. and **Kumar, M.** (2018). Prediction of rare palmitoylation events in proteins. *Journal of Computational Biology*. Sep;25(9):997-1008. doi: 10.1089/cmb.2017.0069. [PMID 29963911]
- #35. Garg, A., Kumari, B., and **Kumar, M.** **Emerging Role of HSP70 in Human Diseases.** Heat Shock Proteins, Vol. 14, Alexzander A. A. Asea and Punit Kaur (Eds): HSP70 in Human Diseases and Disorders.

- #34. Srivastava, A. and **Kumar, M. (2018)** Prediction of Zinc Binding Sites in Proteins using Sequence Derived Information. *Journal of Bimolecular Structure & Dynamics* Jan 15:1-11. doi: 10.1080/07391102.2017.1417910. [PMID: 29241411]
- #33. Garg, A., Kumari, B., Kumar, R. and **Kumar, M. (2017)** miPepBase: A database of experimentally verified peptides involved in molecular mimicry. *Frontiers in Microbiology, section Microbial Immunology* 8:2053. doi: 10.3389/fmicb.2017.02053. [PMID: 29109711]
- #32. Kumar, R., Kumari, B. and **Kumar, M. (2017)** Proteome-wide prediction and annotation of mitochondrial and sub-mitochondrial proteins by incorporating domain information. *Mitochondrion* pii: S1567-7249(17)30032-6. doi: 10.1016/j.mito.2017.10.004. [PMID: 29032233]
- #31. Kumar, R., Kumari, B. and **Kumar, M. (2017)** Prediction of endoplasmic reticulum resident proteins using fragmented amino acid composition and support vector machine. *Peer J.* 5:e3561. [PMID: 28890846]
30. Singhal, N., **Kumar, M.** and Viridi, J.S. MALDI-TOP MS in clinical parasitology: applications, constrains and prospects. *Parasitology.* 2016;143(12):1491-500. [PMID: 27387025]
- #29. Kumar, R., Kumari, B. and **Kumar, M. (2016).** PredHSP: Sequence Based Proteome-Wide Heat Shock Protein Prediction and Classification Tool to Unlock the Stress Biology. *PLoS One.* 11(5):e0155872. [PMID: 27195495]
28. Rani, S., Srivastava, A., **Kumar, M.** and Goel, M. (2016). CrAgDb – A database of annotated chaperone repertoire in archaeal genomes. *FEMS Microbiology Letters.* 363(6). [PMID: 26862144].
27. Singhal, N., **Kumar, M.** and Viridi, J.S. (2016). Resistance to amoxicillin-clavulanate and its relation to virulence-related factors in *Yersinia enterocolitica* biovar 1A. *Indian Journal of Medical Microbiology.* 34(1):8 [PMID: 26776125]
26. Singhal N, **Kumar M,** Kanaujia PK and Viridi JS. MALDI-TOF mass spectrometry: An emerging technology for microbial identification and diagnosis. *Frontiers in Microbiology.* 2015 Aug 5;6:791. [PMID: 26300860].
25. Singhal N, Srivastava A, **Kumar M,** Viridi JS. Structural Variabilities in  $\beta$ -Lactamase (blaA) of Different Biovars of *Yersinia enterocolitica*: Implications for  $\beta$ -Lactam Antibiotic and  $\beta$ -Lactamase Inhibitor Susceptibilities. *PLoS One.* 2015 10(4):e0123564. [PMID: 25919756].
- #24. Kumar, R\*, Srivastava A\*, Kumari B and **Kumar M.** Prediction of Beta-lactamase and its Class by Chou's Pseudo-amino Acid Composition and Support Vector Machine. *Journal of Theoretical Biology.* 2015 Jan 21;365:96-103. [PMID: 25454009].
- #23. Kumari B, Kumar R and **Kumar M.** Low complexity and disordered regions of proteins have different structural and amino acid preferences. *Molecular Biosystems.* 2015 Feb;11(2):585-94. [PMID: 25468592].
- #22. Srivastava A, Singhal N, Goel M, Viridi JS and **Kumar M.** CBMAR: A Comprehensive Beta-Lactamase Molecular Annotation Resource. *Database.* 2014 Dec 3;2014:bau111. [PMID: 25475113].
- #21. Kumar R\*, Kumari B\*, Srivastava A and **Kumar M.** NRfamPred: A proteome-scale two level method for prediction of nuclear receptor proteins and their sub-families. *Scientific Reports.* 4:6810. [PMID: 25351274].
20. Singhal N, **Kumar M,** Viridi JS. Molecular Analysis of  $\beta$ -Lactamase Genes to Understand their Differential Expression in Strains of *Yersinia enterocolitica* Biotype 1A. *Scientific Reports* 2014 4:5270. [PMID: 24920253]
- #19. Kumar R, Jain S, Kumari B, **Kumar M.** Protein Sub-Nuclear Localization Prediction Using SVM and Pfam Domain Information. *PLoS One.* 2014; 9(6):e98345. [PMID: 24897370]
- #18. Srivastava A, Singhal N, Goel M, Viridi JS, **Kumar M.** Identification of family specific fingerprints in  $\beta$ -lactamase families. *The Scientific World Journal.* 2014;2014:980572. [PMID: 24678282]
- #17. Kumari B, Kumar R, **Kumar M.** PalmPred: an SVM based palmitoylation prediction method using sequence profile information. *PLoS One.* 2014 ;9(2):e89246. [PMID: 24586628]

16. Singhal N, Sharma P, **Kumar M**, Joshi B, Bisht D. Analysis of intracellular expressed proteins of Mycobacterium tuberculosis clinical isolates. *Proteome Science*. 2012; 10(1): 14. [PMID: 22375954]
15. Harbi D, Parthiban M, Gendoo DM, Ehsani S, **Kumar M**, Schmitt-Ulms G, Sowdhamini R, Harrison PM. PrionHome: a database of prions and other sequences relevant to prion phenomena. *PLoS One*. 2012;7(2):e31785. [PMID: 22363733]
14. Harbi D, **Kumar M** and Harrison P. LPS-Annotate: Complete annotation of compositionally biased regions in the protein knowledge base. *Database*. 2011 (doi: 10.1093/database/baq031). [PMID: 21216786]
13. **Kumar M**, Gromiha MM, Raghava GPS. SVM based Prediction of RNA-binding Proteins using Binding Residues and Evolutionary Information. *Journal of Molecular Recognition*. 2011, 24: 303. [PMID: 20677174]
12. Harrison P, Khachane A and **Kumar M**. Genomic assessment of the evolution of the prion protein gene family in vertebrates. *Genomics*. 2010;95:268. [PMID:20206252]
11. Rashid M, Singla D, Sharma A, **Kumar M** and Raghava GPS. HMRbase: A database of hormones and their receptors. *BMC Genomics*. 2009;10:307. [PMID: 19589147]
10. Arora PK, **Kumar M**, Chauhan A, Raghava GPS, Jain RK. OxDBase: a database of oxygenases involved in biodegradation. *BMC Res Notes*. 2009;2:67. [PMID: 19405962]
9. Ahmed F, **Kumar M**, and Raghava GPS. Prediction of polyadenylation signals in human DNA sequences using nucleotide frequencies. *In Silico Biology*, 2009,9:7. [PMID: 19795571]
8. **Kumar M**, Raghava GPS. Prediction of nuclear proteins using SVM and HMM models. *BMC Bioinformatics*. 2009;10:22. [PMID: 19152693]
7. Kalita MK, Nandal UK, Pattnaik A, Sivalingam A, Ramasamy G, **Kumar M**, Raghava GPS, Gupta D. CyclinPred: A SVM-Based Method for Predicting Cyclin Protein Sequences. *PLoS ONE*. 2008 Jul 2;3(7):e2605. [PMID: 18596929]
6. **Kumar M**, Thakur V, Raghava GPS. COPid: Composition Based Protein Identification. *In silico Biology* 2008;8(2):121-8. [PMID: 18928200]
5. **Kumar M**, Gromiha MM, Raghava GPS. Identification of DNA-binding proteins using support vector machines and evolutionary profiles. *BMC Bioinformatics*. 2007 Nov 27;8(1):463. [PMID: 17932917]
4. **Kumar M**, Gromiha MM, Raghava GPS. Prediction of RNA binding sites in a protein using SVM and PSSM profile. *Proteins* 2008 Apr;71(1):189-94. [PMID: 17932917]
3. Mishra NK, **Kumar M**, Raghava GPS. Support vector machine based prediction of glutathione S-transferase proteins. *Protein & Peptide Letters*. 2007;14(6):575-80. [PMID: 17627599]
2. **Kumar M**, Verma R, Raghava GPS. Prediction of mitochondrial proteins using support vector machine and hidden Markov model. *Journal of Biological Chemistry*. 2006 Mar 3;281(9):5357-63. [PMID: 16339140]
1. **Kumar M**, Bhasin M, Natt NK, Raghava GPS. BhairPred: prediction of beta-hairpins in a protein from multiple alignment information using ANN and SVM techniques. *Nucleic Acids Research*. 2005 Jul 1;33:W154-9. [PMID: 15988830]

## Conference Organization/ Presentations

### Organizer

1. 3<sup>rd</sup> Summer School on Bioinformatics: 26 May - 6 June 2014. Department of Biophysics, University of Delhi South Campus, New Delhi.
2. 2<sup>nd</sup> Summer School on Bioinformatics: 27 May - 7 June 2013. Department of Biophysics, University of Delhi South Campus, New Delhi.

3. 1<sup>st</sup> Summer School on Bioinformatics: 28 May - 8 June 2012. Department of Biophysics, University of Delhi South Campus, New Delhi.

#### ***Participation as Paper/Poster Presenter***

1. CBMAR: A holistic and multidimensional database of Beta-lactamases. 27th-29th Nov 2015. Pondicherry, India
2. Exhaustive Assessment of the Evolution of the Vertebrate Prion Protein Gene Family. PrP Canada 2010: On The Horizon. March 8-10, 2010. Ottawa, Ontario, Canada.
3. Mitpred 2.0: An Improved Method of Mitochondrial Protein Prediction. 7th Swiss Proteomics Society Congress (SPS07: Pushing the limits), 3rd-5th December, 2007. Lausanne, Switzerland.
4. Kernel based machine learning (SVM) for predicting cyclins. 5th International Conference on Bioinformatics 18th-20th December 2006. New Delhi- India.

#### ***Invited Talk***

1. One week online faculty development programme on the topic "Protein-Receptor Binding Chemistry" organized by Dr. Vikram Sarabhai Institute of Cell and Molecular Biology, The M S University of Baroda, Gujarat (17-22 May, 2021). Title of the Talk: An In-silico approach of exploring antibiotic resistance (May 18, 2021, 60 min)
2. Faculty Induction Programme – IV Organized by UGC-Human Resource Development Centre, Jawaharlal Nehru University, New Delhi (01-27 Feb, 2021). Title of the Talk: Applications of machine learning and data-science in modern biology (Feb 10, 2021, 90 min)
3. Online summer training program on Research Methodology for undergraduate students, Shivaji College (University of Delhi), New Delhi (18-30 July, 2020). Title of Talk: Meta-analysis: Predicting future using the past (July 25, 2020, 45 min)
4. Faculty Development Program on Omics approaches in the identification of the disease, Lovely Professional University, Jalandhar (25 Jan, 2020). Title of talk: Omics approaches in the identification of the disease (Jan 25, 2020, 180 min)
5. Faculty Development Program on Biomathematics, Shivaji College (University of Delhi), New Delhi (1-7 Aug, 2019). Title of Talk: Combating infectious diseases by bioinformatics approaches (Aug 3, 2019, 90 min)
6. Faculty Development Program on Biomathematics, Shivaji College (University of Delhi), New Delhi (1-7 Aug, 2019). Title of Talk: Machine Learning: Introduction and Prediction Strategies (Aug 3, 2019, 90 min)
7. Current Trend in Genomics and Proteomic pertaining to Biological Science, Interdisciplinary Biotechnology Unit Aligarh Muslim University, Aligarh-202002 (India) (05-07 Nov, 2019). Title of Talk: Integrated multi-omics approach of studying microbial pathogenesis (Nov 6, 2019, 25 min)
8. 6th World Congress on NanoMedical Sciences, Vigyan Bhawan, New Delhi (7-10 Jan, 2019). Title of Talk: Combating infectious disease by computational biology (Jan 8, 2019)
9. National Workshop on Computation for Biomedicine and Healthcare, Indraprastha Institute of Information Technology, New Delhi (Dec 10-14, 2018). Title of Talk: Data Driven Approach for Health Research (Dec 12, 2018)
10. National Workshop on Data Curation and Database Development, National Institute of Plant Genome Research, New Delhi (Dec 11-12, 2018). Title of Talk: New Trends in Data Curation and Databases (Dec 11, 2018)
11. National Symposium on Database Development and Biocuration, University of Delhi South Campus (April 6-7, 2018). Title of Talk: Role of manual and automatic curation in modern biological research (April 6, 2018).
12. 2nd International Caparica Conference in Antibiotic Resistance at Cost de Caparica, Portugal (12-15 June 2017). Title of Talk: Development of knowledge base of Beta-lactamases for mining their functional characters and reaction dynamics (15 June 2017).

13. Emerging Trends in Bioinformatics & Health Informatics at Indian Institute of Information Technology, New Delhi on 16-May-2017. Title of Talk: Understanding antibiotic resistance with in-silico tools (16-May-2017).
14. Recent Trends in Bioinformatics during 07-08 March 2017. Department of Biotechnology, Guru Nanak Dev University, Amritsar (Punjab), India. Title of Talk: Use of Next Generation Sequencing in Modern Biological Research (08 March 2017)
15. Introduction to Perl programming language for biologists during 7-13 November 2016. Pt. J. N. M. Medical College, Raipur (C.G.), India.
16. Bioinformatics databases for the analysis and study of antimicrobial resistance. (In Antibiotic Resistance: A Major Global Threat. Annual Microbiology Festival "Microquest-16" of Bhaskaracharya College of applied sciences.) 16th March 2016.
17. Using Bioinformatics and Proteomics to Understand Microbial Antibiotics Resistance. (In National workshop on Bioinformatics-based Genomic & Proteomic Data Analysis in Microbial Domain) March 04-09, 2016. National Bureau of Agriculturally Important Microorganisms. Indian Council of Agricultural Research, Govt. of India Mau (Uttar Pradesh) 275103, India
18. Computational Approach to Understand Proteomes and Antibiotics Resistance (In 5th National Science Day Symposium 27-28 Feb, 2015. University of Delhi South Campus, New Delhi)
19. Combating Infectious Disease by Bioinformatics Approach. (In International Conference IC LIFE 2014 IIIT Noida 29-30 August 2014 (Session Chair).
20. Protein Sequence-Structure-Function Relationship. Protein sequence-structure-function relationship. (In 3rd National Science Day Symposium 27-28 Feb, 2013. University of Delhi South Campus, New Delhi).
21. Next Generation Sequencing: A new challenge for both biology and computer science. (In Workshop on High Performance Computing at Inter University Accelerator Center, Aruna Asaf Ali Marg, New Delhi. 25 May 2011)
22. Discovering new members of prion gene family. (In 1st National Science Day Symposium 28 Feb, 2011. University of Delhi South Campus, New Delhi).
23. A quest to predict protein function. (Indian Institute of Chemical Biology, Kolkata. 27 Nov 2009).

### **Research Projects (Major Grants/Research Collaboration)**

#### **As PI:**

1. Using dengue virus mimicry protein as a novel drug target. [Funding Agency: ICMR]
2. In-silico analysis and functional characterization of intergenic regions of ESKAPE pathogens to develop novel drug targets. [Funding Agency: ICMR]
3. In-silico protein sequence analysis and function prediction. [Funding Agency: DST]
4. Analysis of protein sequence analysis, structure and function relationship using computational tools and developing new tools to predict protein function. [Funding Agency: UGC]

#### **As Co-PI:**

1. Genome mining of *Pichia pastoris* for the development of yeast cell surface display technology using its native cell wall anchoring proteins: bioprocess optimization and its biotechnological applications. [Funding Agency: DST]
2. Unfolded protein response: Achilles heels of fungal pathogenesis. [Funding Agency: DST]
3. Comparative Genomics of  $\beta$ -lactamase (Bla) Genes to identify target sequences for B-lactamase inhibitors. [Funding Agency: ICMR]

### **Awards and Distinctions**

1. 2014: **Long Term HRD Fellowship in Foreign Institute** from Department of Health Research, Government of India, New Delhi (not availed).

2. 2014- till date: **Editorial Board Member 'Scientific Reports'** of Nature Publishing Group.
3. 2007: **Travel award** to attend 2007 congress of the Swiss Proteomics Society held at Lausanne, Switzerland.
4. 2005-2008: **Senior Research Fellowship**, Council of Scientific and Industrial Research, Govt. of India.
5. 2003-2005: **Junior Research Fellowship**, Council of Scientific and Industrial Research, Govt. of India.
6. 2002-2003: **Scholarship from the Department of Biotechnology**, Govt. of India, to pursue Advanced Diploma (PG) in Bioinformatics from Jawaharlal Nehru University, New Delhi (India).
7. 2000-2002: **Scholarship from the Department of Biotechnology**, Government of India, to earn Masters of Science in Biotechnology from Guru Nanak Dev University, Amritsar (INDIA).

#### **Association With Professional Bodies**

1. Member of Antimicrobial Resistance Databases expert group of Joint Research Centre (JRC) of the European Commission.
2. 2014 to till date: Editorial Board Member of 'Scientific Reports', Nature Publishing Group.
3. 2018 to till date: Review Editor in Bioinformatics and Computational Biology, part of the journal(s) Frontiers in Genetics, Plant Science and Bioengineering and Biotechnology.

#### **Other Activities**

4. 09-07-2010 – 31-03-2018: Resident Tutor, Saramati PG Men's Hostel, University of Delhi South Campus.
5. 01-06-2010 – till date: Member, Departmental Research Committee of Department of Biophysics, University of Delhi South Campus.
6. 08-10-2013 – 07-10-2015: Member, Board of Research Studies, Faculty of Interdisciplinary and Applied Sciences, University of Delhi South Campus.
7. 04-04-2014 – 03-04-2017: Member, Faculty, Faculty of Interdisciplinary and Applied Sciences, University of Delhi South Campus.

*Manish Kumar*

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**20-Jul-2021**