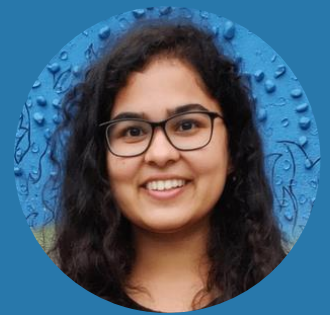


Shailya Verma

Research Scholar (Int. Ph.D)



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National Centre for Biological Sciences
Tata Institute of Fundamental Research
UAS-GKVK Campus, Bellary Road
Bangalore 560065, INDIA



Work Experience / Internship



National Centre for Biological Sciences |
Research Scholar | Integrated PhD | Aug 2018-
Present

Key Research Areas

- Understanding the sequence and structure of various Toll/interleukin-1 (IL-1) receptor (TIR) domains containing proteins.
- Studying the structural effect of mutations with the help of modeling, molecular dynamics simulation, protein residue network analysis.
- Structure based drug designing through virtual screening pipeline and in vitro experimental validation.

Bhabha Atomic Research Centre |
(SRFP) INSA-IASc-NASI | June 2017- July



Key Research Areas

- Structure based drug design using Ribosome as a target.

ANDC, Delhi University | Summer Elite
Project |

June 2016- July 2016



Key Research Areas

- Studied Interaction of Plasmodium vivax Duffy Binding Protein (PvDBP) with its host receptors the Duffy Antigen (Fy) on RBC Surface using Bioinformatics Tools



Education

• Integrated PhD, Biological Sciences
NCBS - TIFR |2018 - Present

• B.Sc. (Hons.), Biomedical Sciences
ANDC, Delhi University| 2015 - 2018

• Sunbeam School
CBSE| 2009-2014



Awards and Achievements

- Selected under **top 6** in the Pharmaceutical Science category for **Sunpharma Science Scholar Award 2023**
- Organized National Post doc symposium (NPDP) 2023 as a **lead organizer** at Ashoka University, in collaboration with NCBS
- Selected as **speaker** for NCBS annual talk 2023 (Patterns of Biology)
- Selected for European Conference on Computational Biology held in Barcelona, Spain 2022 with the prestigious **DBT-CTEP travel grant**.
- **Best poster award** in NCBS annual talk 2022 (Facets of Biology).
- **Volunteered for COVID-19** testing at inStem - NCBS testing facility (2020).
- Secured **AIR 82 in CSIR-UGC-NET**, 2019.
- Granted **DAE - TIFR GS fellowship** for pursuing Integrated PhD (2018- 2024).
- Biomedical science **department topper** for three consecutive years (2016, 2017, 2018)
- Selected for **Ideathon, Nobel Prize Series** in Ahmedabad, Gujarat - **2017**



Language

- English & Hindi



Publications

- **Verma S**, Sowdhamini R. A genome-wide search of Toll/Interleukin-1 receptor (TIR) domain-containing adapter molecule (TICAM) and their evolutionary divergence from other TIR domain containing proteins. Biol Direct. 2022 Sep 2;17(1):24. doi: 10.1186/s13062-022-00335-9. PMID: 36056415; PMCID: PMC9440496.
- Bhattacharyya T, Ghosh A, **Verma S**, Raghu P, Sowdhamini R. Structural rationale to understand the effect of disease-associated mutations on Myotubularin. Curr Res Struct Biol. 2023 Mar 22;5:100100. doi: 10.1016/j.crstbi.2023.100100. PMID: 37101954; PMCID: PMC10123148.
- **Verma S**, Reddy P, Sowdhamini R. Integrated approaches for the recognition of small molecule inhibitors for Toll-like receptor 4. Comput Struct Biotechnol J. 2023 Jul 22;21:3680-3689. doi: 10.1016/j.csbj.2023.07.026. PMID: 37576745; PMCID: PMC10412839.
- **Verma S**, Menon R, Sowdhamini R. Structural insights into the role of deleterious mutations at the dimeric interface of Toll-like receptor interferon- β related adaptor protein. Proteins. Published online May 30, 2024. doi:10.1002/prot.26707
- **Verma S**, Sharma A, Pathak A, Menon R, and Sowdhamini R. Evolution of protein families, Encyclopedia of Bioinformatics and Computational Biology, 2nd Edition (Ed. Shoba Ranganathan), Elsevier Press (accepted) -*Book Chapter*
- **Verma, S**, Sowdhamini, R. Sequence and structural analysis of adaptors of Toll-like receptor 4 sheds light on the evolutionary trajectory and functional emergence, bioRxiv, 2024, doi: 10.1101/2024.07.30.605793
- Sharma A, CR Chandrashekar, **Verma S**, Krishna S, Sowdhamini R, Development of a Machine learning model to forecast potential variable residues within pathogenically and therapeutically important proteins in RNA pandemics (Manuscript under preparation)
- Mam B, **Verma S**, Sowdhamini R, Virtual Screening in OBPs to identify natural repellents and metabolite partners (Manuscript under preparation)



References

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|----------------------------------|----------|--|----------------|
| • Prof. R. Sowdhamini | (NCBS) | mini@ncbs.res.in | +91-8023666250 |
| • Dr. Vinothkumar Kutti Ragunath | (NCBS) | vkumar@ncbs.res.in | +91-8061948060 |
| • Dr. Praveen Kumar Vemula | (inStem) | praveenv@instem.res.in | +91-8023666395 |
| • Dr. Arvind Ramanathan | (inStem) | arvind@instem.res.in | +91-8061948101 |



Skills and Competency

• Bioinformatics

- Phylogenetics, Sequence based evolutionary analysis, Mutational studies, Protein Modeling, Molecular Docking, Virtual screening, Molecular Dynamics simulations, Protein residue network analysis

• Biochemistry

- Cloning, Protein expression and purification, Western blotting, Chromatography, Site directed Mutagenesis, Isothermal Calorimetry

• Cell Biology

-Tissue culture handling, Cell based reported assay, Cell viability assay, Polymerase chain reaction