

AMRITA ARPITA PADHY

PhD Life Sciences
University of Hyderabad, Telangana
[Google Scholar](#); [LinkedIn](#)

CURRICULUM VITAE

📍 Hyderabad, INDIA, 500046
☎ (+91) 8280019248
✉ amritapadhy1001@gmail.com;
20laph01@uohyd.ac.in

CANDIDATE SUMMARY

PhD researcher specializing in ubiquitin biology and proteostasis with expertise in developing and screening engineered ubiquitin variants to identify the regulatory nodes within the ubiquitin-proteasome system for therapeutic applications. Skilled in molecular biology, protein biochemistry, and yeast biology with extensive experience in protein engineering, recombinant protein expression and purification, biochemical assays, molecular cloning, protein-protein interaction studies and computational protein analysis. Proven track record of independently driving research projects and communicating scientific findings through peer-reviewed publications and conferences at national and international forums. Eager to contribute to cutting-edge research in biotechnology or pharmaceutical R&D.

EDUCATIONAL BACKGROUND

- Nov '20- Aug '26 Doctor of Philosophy (**Ph.D.**); Department of Animal Biology, School of Life Sciences, University of Hyderabad (**PhD Coursework CGPA: 9.71/10**) (**Department Topper**)
- July '18- July '20 Master of Science (**MSc**) Life Sciences (Specialization in Molecular Medicine), Central University of Punjab, Bathinda (**CGPA: 7.51/10; 2nd Rank in Department**)
- July '15- July '18 Bachelor of Science (**B.Sc.**); Zoology (Honors), Khallikote Autonomous College, Berhampur University, Odisha, India (**72.8%**)

RESEARCH EXPERIENCE

- 2020-2026 Doctoral thesis, Prime Minister's Research Fellow (PMRF), Thesis: "*Understanding the Proteostasis Network using Dominant Negative Ubiquitin Variants*". Supervisor: **Dr Parul Mishra**, School of Life Sciences, University of Hyderabad
Thesis Summary: Employed inducible variant overexpression alongside functional wild-type ubiquitin to investigate the dominant mutant effects underlying its functions. The results show widespread prevalence of dominant mutations associated with altered polyubiquitination, underscoring their critical role in cellular ubiquitination and deubiquitination.
- 2018- 2020 Master's thesis: "*Effect of Doxorubicin/Etoposide on ND4 Gene Expression under Hypoxic and Normoxic Conditions in MDA-Mb 231 Cell lines*". Supervisor: **Prof Sandeep Singh**, Department of HGMM, CUPB, Bathinda
Thesis Summary: Evaluated the effect of anticancer drugs on the mitochondrial protein-coding gene ND4 in breast cancer cell lines, which showed a downregulating effect under hypoxic and normoxic conditions.

PUBLICATIONS

- **Padhy A. A.**, Yadav S., Sahoo S., Shivani K., Reddy L.B., Residue-specific dominant-negative mutant of ubiquitin reveals functional selectivity as Ubp14 deubiquitinase inhibitor. *bioRxiv* 2026.05.18.725830; doi: <https://doi.org/10.64898/2026.05.18.725830>
- **Padhy, A. A.**, Mavor, D., Sahoo, S., Bolon, D. N. A., & Mishra, P. (2023). Systematic Profiling of Dominant Ubiquitin Variants Reveals Key Functional Nodes Contributing to Evolutionary Selection. *Cell Reports*, 42(9), 113064.
- Sahoo, S., **Padhy, A. A.**, Shivani, K., Reddy, L.B., & Mishra, P. (2025) Ubiquitin Modifications on Aggregating Proteins in Neurodegeneration, *Essays in Biochemistry*, 69 (05), EBC20253046
- Sahoo, S., **Padhy, A. A.**, Kumari, V., & Mishra, P. (2022). Role of Ubiquitin–proteasome And Autophagy-lysosome Pathways in α -synuclein Aggregate Clearance. *Molecular Neurobiology*, 59(9), 5379-5407
- **Padhy, A. A***, Sahoo, S.*, Shivani, K., Kumari, V., & Mishra, P. (2022). Exploring Large-scale Protein Function Using Systematic Mutant Analysis. In *Advances In Protein Molecular and Structural Biology Methods* (Pp. 575-588). Academic Press.
- Shivani, K*, **Padhy, A. A***, Sahoo, S., Kumari, V., & Mishra, P. (2023). Spectroscopic Methods to Detect and Analyze Protein Oligomerization, Aggregation, And Fibrillation. In *Advanced Spectroscopic Methods To Study Biomolecular Structure And Dynamics* (Pp. 415-458). Academic Press.
- Sahoo, S*, **Padhy, A. A***, Kumari, V., Shivani, K., & Mishra, P. (2022). Therapeutic Potential of Leucine-rich Repeat Kinase 2 Inhibitors For Parkinson's Disease Treatment. In *Protein Kinase Inhibitors* (Pp. 623-655). Academic Press.
- Sahoo, S., Reddy L.B., **Padhy, A. A.**, & Mishra, P. (2025). Functional Protein Oligomers, *In The Three Functional States Of Proteins* (Pp 99-122). Academic Press.
- Sahoo, S., Shivani, K., **Padhy, A.A.**, Kumari, V., Mishra, P., (2023). Principles, Methods, And Applications of Protein Folding Inside Cells. In *Protein Folding Dynamics and Stability*. Springer Nature
- Reddy L.B., **Padhy A. A.**, Sahoo S., Shivani K., Sushma S.T.V.V., Mishra P., Methods to Study Protein Folding and Aggregation (2026) *Manuscript Submitted*

*Denotes equal authorship

SCIENTIFIC AND TECHNICAL SKILLS

Molecular Biology	Molecular Cloning and Plasmid Construction, Site Directed Mutagenesis, Primer Design and PCR, DNA Isolation, Agarose Gel Electrophoresis, Bacterial and Yeast Transformation, Genetic Manipulation
Protein Biochemistry and Biophysical Characterization	Recombinant protein expression (bacterial system), Protein purification using Affinity chromatography, Protein quantification using Bradford and BCA assay, Enzyme activity and inhibition assays, Co-Immunoprecipitation, SDS-PAGE and Western Blotting, CD Spectroscopy
Cell Based Screening	Flow Cytometry, Confocal Microscopy, Yeast-based growth assays
Computational and Data Analysis Tools	PyMOL and Chimera (Protein structure visualization, modification and structural alignment) FoldX (interaction energy analysis), GraphPad prism, Adobe Illustrator, Image J, FlowJo

MENTORING EXPERIENCE

Post-graduate Students (Master's Thesis)	Ms Suman (2021), Ms. Mayukha Bommaraju (2022), Ms. Prithvi Hegde (2023)
Graduate Students (Summer Internship)	Mrs. Vandana (2024), Ms. Arohee Shinde (2026)
Post-graduate Students (Practicals)	Immunology practical, 3 rd year Integrated MSc, Dept. of Systems and Computational biology (2021-2023); Molecular Biology practical, 1 st year MSc, Dept. of Animal Biology (2024-2026)

TEACHING EXPERIENCE

- **National Programme on Technology Enhanced Learning (NPTEL)** Teaching Assistant for the course **Animal Physiology** (2022-2023)
 - NPTEL Teaching Assistant for the course **Maternal Infant Young Child Nutrition** (2024-2025)
 - NPTEL Teaching Assistant for the course **Industrial Biotechnology** (2026)
 - Online Tutor for the subject **Community Health** at **Sashi Bhusan Rath Government Autonomous Women's College, Berhampur**- B.Sc. 1st & 2nd year students (2025)
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AWARDS & ACHIEVEMENTS

- **Best Oral Talk Award** at SBC(I) 94th Annual Meeting, International Conference on Biological Communications in Disease and Development at University of Hyderabad (Dec 2025)
- **Best Poster Award** at the HySci Conference held at IIT Hyderabad (April 2024)
- Prime Minister's Research Fellow (**PMRF**) for Doctoral studies (India's most prestigious and competitive graduate fellowship, which requires external and internal teaching deliverables and a rigorous annual review) (2021-2025)
- Highest score in **Ph.D. coursework** in the Department of Animal Biology (2021)
- Qualified **GATE 2021** in Life Sciences, AIR 512 (2021)
- **PG-Merit and Senior Merit Scholarship**, Government of Odisha (2018-2020; 2015-2017)
- **Best Poster Award** (Topic- Indian Traditional Medicine in Cancer Therapy and Prevention), Event on World Cancer Day, Central University of Punjab, Bathinda (Feb 2019)

POSTER PRESENTATIONS & CONFERENCES

- Molecular Biophysics Unit 50 Symposium, **IISc Bangalore**, 23rd to 25th Jan 2023
- The Prime Minister's Research Fellowship Annual Symposium 2023, **IIT Madras**, 17th-18th Feb, 2023
- EMBO Workshop, Proteostasis- 'Translation to Degradation' **Ericeira, Portugal, Europe**, 17th to 21st Nov 2023
- HySci 2024 conference at **IIT Hyderabad**, 20th April 2024
- SBC(I) 94th Annual Meeting, International Conference on Biological Communications in Disease and Development at **University of Hyderabad**, December 17-19, 2025

WORK EXPERIENCE

- Subject Matter Expert, Biology and Anatomy Physiology, **Chegg India** (2020-2023)
- Subject Matter Expert Biology (LLM & AI trainer), **Soul AI** (2025)

EXTRA-CURRICULAR SKILLS

- Hindustani Vocal, Sangeet Visharad (Graduate), Pracheen Kala Kendra, Chandigarh (2020)
- Odissi Dance, Sangeet Visharad (Graduate), Pracheen Kala Kendra, Chandigarh (2016)
- Odissi Vocal, Sangeet Visharad (Graduate), Pracheen Kala Kendra, Chandigarh (2015)

DECLARATION

I, Amrita Arpita Padhy, hereby declare that the information provided above is true to the best of my knowledge.

Amrita Arpita Padhy.