NIHARIKA MODI

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OBJECTIVE

A class topper in bachelor's and gold medalist in master's with a patent in Computational Biology and Bioinformatics, Artificial Intelligence/Machine Learning, and Nanotechnology and research experience in Biotechnology, Microbiology. As an educator, I focus on turning complex ideas into clear, practical learning. I design inclusive, case-based classes that link classroom concepts to everyday problems, mentor student projects, and create straightforward lab and analysis activities. My goal is for students to build confidence, think critically, and understand how their learning applies in real settings.

PROFESSIONAL EXPERIENCE

Assistant Professor **Sept 2025 - Present**
Dept. of Pharmaceutical Biotechnology
Shri Ram College of Pharmacy, Banmore, Madhva Pradesh

ACADEMIC QUALIFICATION

Master of Pharmacy in Pharmaceutical Biotechnology **July 2021 - May 2023**
JSS Academy of Higher Education and Research, Mysuru, India **GPA: 9.65/10 (Gold Medalist)**
Relevant Courses: *Bioinformatics and Computational Biotechnology, Biostatistics, Microbial and Cellular Biology, Bioprocess Engineering and Technology, Immunotechnology, Protein Engineering*

Bachelor of Pharmacy **July 2017 - June 2021**
ITM University, Gwalior, India **GPA: 8.21/10**
Relevant Courses: *Computer Applications in Pharmacy, Pharmaceutics, Pharmacology, Pharmaceutical Analysis, Pharmacy Practice, Pharmacognosy, Pharmaceutical Biotechnology, Pharmaceutical Microbiology, Biochemistry*

AREAS OF INTEREST

Neurodegenerative diseases, Drug Discovery Research, Stem Cell Technology, Molecular Biology, Bioinformatics, Drug Discovery, Genomics, Pharmacovigilance, Regulatory Affairs

SKILLS

- Hands-on training in maintenance of mammalian tissue culture and performing anti-cancer screening assays.
- Advanced Molecular Biology skills, including DNA, RNA, and Protein Isolation, SDS-PAGE, and blotting techniques.
- Sound knowledge of Microbiology and related work such as screening for anti-microbial activity, antibiotic susceptibility tests, and detection of resistance.
- Proficient in the handling of various instruments like PCR, RT-PCR, Cell Analyzer, Inverted Microscope, Fluorescence Microscope, and UV Spectrophotometer.
- Skilled in using software like Discovery Studio, PyRx, Auto Dock Tools, and Molecular Dynamics.
- Skillfulness in Pharmacovigilance, Patient Safety, Adverse Event Reporting, Drug Safety Common Technical Document.

PATENTS AND PUBLICATIONS

- Tripathi, N.K., Modi, N., et al. (2024). AI-Based Apparatus for Nano-Sized Protein Separator (Design No. 407643-001). **The Patent Office, Government of India**, issued on **05/04/2024**.
- Modi, N., et al. (2024). Exploring the Mechanism of Action of Bromocriptine Derivatives in Parkinson's Disease. NATURALISTA CAMPANO, Volume 28 (Issue No. 1), 3229. (URL)
- Deta, S.I., Modi, N., et al. (2024). *In-silico* Molecular docking studies on the phytoconstituents from plant leaves of *Azadirachta indica*. Afr.J.Bio.Sc., Volume 6 (Issue Si4), 504. (URL)

- Sunitha, T., Modi, N., et al. (2024). Exploring Indole-3-Carbinol (I3C) And 3,3-Diindolylmethane: Promising Leukemia Therapeutic Agents And Cancer Chemo-prevention Strategies. Biochem. Cell. Arch., Volume 24 (Issue No. 1), 595. (URL)
- Johnson, A.B., Modi, N., et al. (2023). Particles in Progress: Unveiling the Emerging Influence of Nanoplastics on Parkinson's Pathology and Neurodegeneration. YMER, Volume 22 (Issue No. 12), 811. (URL)
- Rajagopal, K., Modi, N., et al. (2023). . Archives of Razi Institute, Volume 78 (Issue No. 5), 1603. (URL)

CONFERENCES

- Secured **first place** for presenting a poster on *An Explorative Study on 5-MeO-DMT Analogues as an Antidepressant,* JSS College of Pharmacy, 2021.
- Recognized for excellence in presenting the research paper titled 'Use of rTMS in Depression' at ITM University, Gwalior, on October 13, 2018.
- Participated in a workshop on *Monoclonal Antibodies* and as a delegate in the webinar on State-of-The-Art Molecular Modelling Tools - BIOVIA Drug Discovery Suite, 2018.

ACADEMIC PROJECTS

An Explorative Study On Levodopa Analogues As An Anti-Parkinsonism-*In-Silico* And *In-Vitro* Studies, JSS College of Pharmacy, Ooty, JSSAHER **Oct. 2022 - May 2023**

- **Independently designed**, synthesized, and performed ***in-vitro*** studies of **Levodopa** analogues discovering its **anti-parkinsonian** potential against the D2 receptor, a potential target for anti-parkinsonian activity.
- Synthesized and characterized **2 compounds out of 10,000** analogues through **IR**, **Mass,** and **NMR Spectroscopy**, followed by their ***in-vitro*** studies (MTT, Lactate dehydrogenase, and DPPH assays) and PCR.
- Studies concluded that further refining of synthesized drugs could be **promising D2 receptor agonists** for **Parkinson's disease treatment**. Prospects of ***in-vivo*** studies of the synthesized compounds could be a **possible candidate** for **Parkinson's disease**.

S1P, T-Cell Receptor and Adenosine-2 Receptor in Psoriasis, ITM University, Gwalior **Jan - May 2021**

- **Independently investigated** the intricate **interactions** among **Sphingosine-1-Phosphate** (S1P), the **T-cell Receptor** (TCR), and the **Adenosine-2 Receptor** (A2AR) regarding **psoriasis pathogenesis** and its impact on therapeutic interventions.
- Analyzed existing studies and clinical data focused on the **roles** of **S1P**, **T-cell receptor**, and **Adenosine-2 Receptor** in **psoriasis**.
- Performed ***in-vitro*** and ***in-vivo*** experiments, **genetic profiling**, and immunological assessments.
- Studies found **intricate interactions** between **S1P**, **T-cell Receptor signaling**, and **Adenosine-2 Receptor** in **psoriasis**, indicating **potential therapeutic targets**.

INTERNSHIPS AND TRAINING

Internship, Biotecnika Info Labs Pvt. Ltd., Online **3 Months**

- Conducted virtual screening and analysis of analogues for potential Alzheimer's treatment using AI/ML tools.
- Performed virtual Screening of novel druggable compounds using AI/ML based tools. Developed and screened a library of modified analogues, focusing on binding affinity and interaction with Alzheimer's disease-related proteins. Identified key compounds with strong binding affinities, promising further *in-vitro* and *in-vivo* testing.
- **Tech Stack:** Marvin Sketch, Schrödinger Suite, Python (RDKit, Scikit-learn, TensorFlow).

Trainings

- "Molecular Dynamics Simulation in QM/MM calculation" training in the month of February 2024 [1-02-2024 to 28-02-2024]
- Computer-Aided Drug Design (CADD) Hands-On-Training from the Centre for Advanced Computational Chemistry Studies, New Delhi from 14th-20th Jan 2023.

CERTIFICATIONS/WORKSHOPS/ADDITIONAL COURSES

- Statistics for Genomic Data Science, Johns Hopkins University (Coursera), May 17, 2024.
- Command Line Tools for Genomic Data Science, Johns Hopkins University (Coursera), May 16, 2024.
- Bioconductor for Genomic Data Science, Johns Hopkins University (Coursera), May 15, 2024.

- Algorithms for DNA Sequencing, Johns Hopkins University (Coursera), May 3, 2024.
- Python for Genomic Data Science, Johns Hopkins University (Coursera), April 18, 2024.
- Introduction to Genomic Technologies, Johns Hopkins University (Coursera), March 8, 2024.

ACHIEVEMENTS

- Awarded Sri Bhojraj Panjoomal Gold Medal for Proficiency in M.Pharm. Pharmaceutical Biotechnology.
- Conferred with Gold Medal - Mrs. Kantha H Sadhwani Award for Best Outgoing Student in M Pharm Pharmaceutical Biotechnology Specialization (AY: 2022-23).
- Received TATA Trust Scholarship of **Rs. 1,02,400** and **Rs. 75,200** for the A.Y. 2021-2022 and 2022-2023.
- Awarded Indian Pharmaceutical Association – Nilgiris Local Branch Silver Medal for securing 'First Rank' in the I M.Pharmacy examinations held at JSS Academy of Higher Education and Research, 2021-2022.