

# NAVEEN RAJANA

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## EDUCATION

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### National Institute of Pharmaceutical Education and Research (NIPER) Hyderabad, Telangana

Doctoral fellow

August 2020 – November 2024

### Acharya Nagarjuna University, Guntur, Andhra Pradesh

Master of Pharmacy

August 2016 – September 2018

### Jawaharlal Nehru Technology University, Kakinada

Bachelor of Pharmacy

August 2011 – June 2015

## RESEARCH EXPERIENCE

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### National Institute of Pharmaceutical Education and Research (NIPER) Hyderabad, Telangana

Research Scholar (Ph.D.)

August 2020 – November 2024

Supervisor: Dr. Neelesh Kumar Mehra, Assistant Professor, NIPER-Hyderabad

- Research experience in the design, development, and evaluation of lipid-polymer hybrid nanoparticles for the treatment of Breast cancer and Uveitis.
- Conducted Design of Experiment-oriented development and validation of bioanalytical reverse-phase high-performance liquid chromatography method of Palbociclib in rat plasma and tissues and its application in pharmacokinetic and biodistribution studies.
- Studies the role of a self-nanoemulsifying drug delivery system for improved oral delivery and pharmacokinetics of Venetoclax.
- Investigated the role of Teriflunomide loaded polysaccharide hybridized protein nanoparticles on in-vitro monolayer and Spheroid breast cancer cell lines.
- Developed and evaluated Palbociclib loaded 4-carboxy phenyl boronic acid conjugated pH-sensitive chitosan lecithin nanoparticles in the management of breast cancer.
- Explored the anti-cancer efficacy of Palbociclib and Palbociclib-loaded nanoformulations in in-vitro monolayer and Spheroid cell culture.
- Research experience in HET-CAM analysis, Histopathology, Ex-vivo studies, In-vivo pharmacokinetics, Biodistribution studies, and In-vivo Breast cancer model development.

### Acharya Nagarjuna University, Guntur, Andhra Pradesh

Master of Pharmacy (M. Pharm), Pharmaceutics

August 2016 - September 2018

Supervisor: Dr. Rohini Pilli, Associate Professor, University College of Pharmaceutical Sciences, Acharya Nagarjuna University, Guntur, Andhra Pradesh

- Conducted research on a self-nanoemulsifying drug delivery system for improved oral delivery of Atorvastatin.
- Completed dissertation work entitled “Design, Development, and Evaluation of self-nanoemulsifying drug delivery system for improved oral delivery of Atorvastatin”.

## SELECTED HONOURS, AWARDS, AND FELLOWSHIP

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- Awarded a travel grant from SERB under the International Travel Scheme to attend the **14th European Breast Cancer Conference** held in Milan, Italy.
- Received a student travel grant from IEEE to attend and present my research work at IEEE NANO-2024, held in Gijon, Spain
- Awarded with **Young Researcher Award** in Oral presentation by the Society of Young Biomedical Scientists (SYBS).
- Qualified NIPER-JEE-2020 (AIR-4) and awarded a fellowship for Ph.D. by the Department of Pharmaceutics, Ministry of Chemical and Fertilizers, Govt. OF India.

- **Rajana N**, Chary PS, Bhavana V, Deshmukh R, Dukka K, Sharma A, Mehra NK. Targeted delivery and apoptosis induction of CDK-4/6 inhibitor loaded folic acid decorated lipid-polymer hybrid nanoparticles in breast cancer cells. *International Journal of Pharmaceutics*. 2024;651:123787. **DOI:** 10.1016/j.ijpharm.2024.123787.
- **Rajana N**, Pooja YS, Bhavana V, Chary PS, Dukka K, Deshmukh R, Mehra NK. Design of experiment-oriented development and validation of novel bioanalytical reverse phase high-performance liquid chromatography method of palbociclib in rat plasma and tissues, and its application in pharmacokinetic studies. *Biomedical Chromatography*. 2024;38(4):e5815. **DOI:** 10.1002/bmc.5815
- **Rajana N**, Chary PS, Pooja YS, Bhavana V, Singh H, Guru SK, Singh SB, Mehra NK. Quality by design approach-based fabrication and evaluation of self-nanoemulsifying drug delivery system for improved delivery of venetoclax. *Drug Delivery and Translational Research*. 2024;14(5):1277-300. **DOI:** 10.1007/s13346-023-01462-0.
- Pooja YS, **Rajana N**, Yadav R, Narahariseti LT, Godugu C, Mehra NK. Design, development, and evaluation of CDK-4/6 inhibitor loaded 4-carboxy phenyl boronic acid conjugated pH-sensitive chitosan lecithin nanoparticles in the management of breast cancer. *International Journal of Biological Macromolecules*. 2024;258:128821. **DOI:** 10.1016/j.ijbiomac.2023.128821
- Valamla B, Charry S, **Rajana N**, Urati A, Devabattula G, Sau S, Godugu C, Kalia NP, Mehra NK. Multifunctional Wound Curation Dressing Material FemuFrost— An Antioxidant-Loaded Nanoemulsion Frosted Patch of Poly (vinyl alcohol) and Hyaluronic Acid. *ACS Applied Bio Materials*. 2024;7(2):1028-40. **DOI:** 10.1021/acsabm.3c00996.
- Chary PS, Bansode A, **Rajana N**, Bhavana V, Singothu S, Sharma A, Guru SK, Bhandari V, Mehra NK. Enhancing breast cancer treatment: Comprehensive study of gefitinib-loaded poloxamer 407/TPGS mixed micelles through design, development, in-silico modelling, In-Vitro testing, and Ex-Vivo characterization. *International Journal of Pharmaceutics*. 2024;657:124109. **DOI:** 10.1016/j.ijpharm.2024.124109.
- Kaviarasi B, **Rajana N**, Pooja YS, Rajalakshmi AN, Singh SB, Mehra NK. Investigating the effectiveness of difluprednate-loaded core-shell lipid-polymeric hybrid nanoparticles for ocular delivery. *International Journal of Pharmaceutics*. 2023 Jun 10;640:123006. **DOI:** 10.1016/j.ijpharm.2023.123006. **(Equally Contributed)**
- Bhavana V, Chary PS, **Rajana N**, Devabattula G, Sau S, Godugu C, Kalia NP, Singh SB, Mehra NK. Multimodal lemongrass oil based topical nanoemulgel ingrained with ferulic acid for wound healing activity. *Journal of Molecular Liquids*. 2023;389:122870. **DOI:** 10.1016/j.molliq.2023.122870.
- Nair VS, Srivastava V, Bhavana V, Yadav R, **Rajana N**, Singh SB, Mehra NK. Exploring Penetration Ability of Carbonic Anhydrase Inhibitor-Loaded Ultradeformable Bilosome for Effective Ocular Application. *AAPS PharmSciTech*. 2023;24(6):157. **DOI:** 10.1208/s12249-023-02617-5.
- Kharat P, Chary PS, Bhavana V, **Rajana N**, Devabattula G, Godugu C, Singh SB, Mehra NK. Thymoquinone-Loaded Essential Oil-Based Emulgel as an Armament for Anti-psoriatic Activity. *AAPS PharmSciTech*. 2022;24(1):26. **DOI:** 10.1208/s12249-022-02482-8.
- Chary PS, **Rajana N**, Devabattula G, Bhavana V, Singh H, Godugu C, Guru SK, Singh SB, Mehra NK. Design, fabrication and evaluation of stabilized polymeric mixed micelles for effective management in cancer therapy. *Pharmaceutical Research*. 2022;39(11):2761-80. **DOI:** 10.1007/s11095-022-03395-8.
- Kumar A, Valamla B, Thakor P, Chary PS, **Rajana N**, Mehra NK. Development and evaluation of nanocrystals loaded hydrogel for topical application. *Journal of Drug Delivery Science and Technology*. 2022;74:103503. **DOI:** 10.1016/j.jddst.2022.103503.

## PATENTS

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- **Naveen Rajana**, Yeruva Sri Pooja, Padakanti Sandeep Chary, Hoshiyar Singh, Santhosh Kumar Guru, Neelesh Kumar Mehra. Pharmaceutical Composition of BCL-2 Inhibitor Loaded Self-Nanoemulsifying Drug Delivery Systems for Management of Breast Cancer. **Indian patent. 202341027783.**
- Vaibhavi Srivastava, Vishnumaya S Nair, Valamla Bhavana, Rati Yadav, **Naveen Rajana**, Shashi Bala Singh, Neelesh Kumar Mehra. Enhanced Permeation and Pharmaceutical composition of Carbonic Anhydrase Inhibitor loaded Ultra-deformable Bile Salts Stabilized Vesicular System. **Indian patent. 202341004305.**

## CONFERENCES

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- Presented a poster on “Investigating the Effectiveness of CDK 4/6 Inhibitor Loaded Ligand Conjugated Stimuli Responsive Hybrid Nanoparticles for the Treatment of Breast Cancer” at the **14<sup>th</sup> European Breast Cancer Conference** held on 20-22<sup>nd</sup> March 2024 in Milan, Italy.
- Awarded with **Young Researcher Award** in the Young Researcher award at NBRCOM 2023 organized by the Society of Young Biomedical Scientists (SYBS) on 8-9<sup>th</sup> December 2023.
- Contribution and certification as a volunteer in “Hands-on Practice with Advance Techniques and Instruments for Nanotechnology Based Drug Delivery” at NIPER Hyderabad on 10-12<sup>th</sup> January 2024.
- Co-ordinated workshop on “Hands-on Experience on Instruments and Techniques for 3D Printer, Cell-culture and Nanotechnology Based Drug Delivery” at NIPER Hyderabad on 5-7<sup>th</sup> April 2023
- Participated in the 20th BIOASIA 2023 CONFERENCE held at Hyderabad ICC, India.

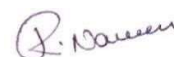
## SCIENTIFIC SKILLS and TECHNICAL EXPOSURE

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- Fabrication and Evaluation of Ligand-conjugated hybrid nanoparticles, Polymeric nanoparticles, Protein nanoparticles, Lipid-based formulations (liposomes, transferosomes, bilosomes, and nanoemulsions), and Nanocrystals.
- Well-versed in softwares like Design of Experiments (DoE), GraphPad Prism, Image J, Origin Pro, Phoenix WinNonlin, and MS Office
- Hands-on experience in Scanning electron microscope (SEM), freeze dryer, microfluidizer, extrusion-spheronizer, texture analyzer, rheometer, microscopic techniques (polarized microscopy, hot stage microscopy), hot melt extrusion (HME), differential scanning calorimetry (DSC), Fourier Transform Infrared (FTIR) Nuclear Magnetic Resonance (NMR) spectroscopy, High-Performance Liquid Chromatography (HPLC) and Liquid Chromatography- Mass spectroscopy (LC-MS).
- Cell culture techniques like cell viability assay, live-dead cell staining, DCFDA assay, JC-1 Mitochondrial membrane assay, nuclear staining (DAPI), Qualitative apoptosis assay, Annexin V- FITC staining for apoptosis, Cell cycle analysis, Clonogenic assay, Cellular migration assay, and Spheroid culture.
- Animal handling (Rat and Mice), disease model development, various routes of drug administration (Oral, Intravenous, Intraperitoneal, and intramuscular), blood collection techniques, and histopathology.
- Hands-on experience in multi-color flow cytometry, flow-based immuno-phenotyping, confocal microscopy, fluorescence microscope, multi-mode Reader, Microtome, and Cryotome.

## Declaration

I hereby declare that the above information is true to the best of my knowledge.



**Naveen Rajana**