

Abhishek Pawar, PhD

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Education

Bharati Vidyapeeth Deemed To be University (Maharashtra, India)

PhD candidate; Senior Research Fellow by SARTHI (2017 – 2023)

- Design and Development of Mitochondria Targeting Drug Delivery System for Cancer.
- Main research project: Identified various mitochondria targeting strategies and by using DQAsome-based nanocarriers of the mitochondria targeting function the Docetaxel as chemotherapeutic, prepared novel nanoformulation and studied for its mitochondria targeting anticancer efficiency.
- I used a multi-platform screening approach including a Triple-negative breast cancer cell line and Balb/c SCID mice Xenografts model for in vitro and in vivo antitumor efficacy screening respectively.
- To Study the mitochondria targeting efficiency, different cell-based assays like cytotoxicity, Cellular uptake, apoptosis, Mitochondrial Colocalisation, and caspase 3 & 9 activity.
- For the in vivo study of the Balb/c SCID mice Xenografts were used and analyzed for different parameters like tumor volume, survival rate, and tumor inhibition rate.
- Additional collaborative projects have been completed and published

Bharati Vidyapeeth Deemed To be University (Maharashtra, India)

M.Pharm candidate (2012-2014)

- Designing of Macrophage specific antiretroviral drug delivery system using nanoliposome loaded Resealed Erythrocyte carrier.
- Main Research Project: Design of nanoliposome using antiretroviral drug; Lamivudine; optimization loading of nanoliposomes in resealed erythrocytes by dialysis method and studied for loading efficiency, osmotic fragility, hemolysis, and studied for Hematological parameters with stability.

Bharati Vidyapeeth Deemed To be University (Maharashtra, India)

B.Pharm candidate (2009-2012)

Technical Skills and Competences

- Design of Nanoformulations: selection of various lipids and surfactants, optimization of nanoformulation by using different techniques and concerning its Physicochemical properties like size and zeta measurement, loading and entrapment efficiency, drug loading characterization, release of drug in different buffer systems.
- Cell-based assays: 96 -well format MTS assay to measure cell proliferation and IC50 of drugs; biochemical analyses of tumorigenesis mechanisms or sensitivity/resistance to drugs; flow cytometry analysis of cell cycle/apoptosis, cellular uptake, apoptosis and cytotoxicity
- Imaging: fluorescence and confocal microscopy
- IT and bioinformatic tools: MS Office, Adobe suite and other conventional software; technical software for design of experiments like DOE, Minitab, adobe photoshop, Statistical analysis

using Graphpad, Biorender, Biovia for structure interpretation, NMR interpretation and reactions

- HPLC, LCMS, and spectrophotometric analysis of drug, extraction of drug from plasma
 - In vivo techniques: use, handling, and breeding of mouse models; administration of compounds
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Additional Skills

- Business and industrial experience: Industrial collaboration with Emcure pharma , mainly dealt with the Formulation officer Dr, Shinde and Dr.Santosh Patil from Sahyadri Hospital ; managed research budget obtained from external funding for carrying out the comparative study of generic and branded antibiotic formulations.
 - Leadership and Management: Planned, led and managed my own research projects; guided M.pharm students and was involved in their day -to -day supervision ; developed problem solving ability (experiments trouble -shooting)
 - Independence: full responsibility to lead my research projects ; identified new avenues for research, designed the projects and wrote the proposals independently; secured competitive funding to support my own projects; developed experimental assays that were new for the lab
 - Teamwork : Successful internal and external collaborations led to several publications, both during my PhD ; I enjoy meeting with colleagues for progress reports and share feedbacks about each other's research; taught/learnt new techniques to/from colleagues and collaborators; established and completed fruitful collaborations
 - Communication: Delivered oral presentations at many international conferences, some with up to hundreds of delegates; wrote scientific publications, PhD thesis, fellowships and grant applications; video - and teleconferencing; volunteered at international conference events like 'SFEC-2021, polymer-2017 and QIP Program -2019 and developed ability to communicate.
 - Creative thinking: Succeeded at identifying and 'selling ' cutting-edge ideas and research avenues to funding bodies, awarded with personal fellowships ; independently designed experiments and research methods; for Study of Generic and Branded Antibiotic formulations
 - Networking: Frequent attendance to conferences; initiative in making connections with potential collaborators; participated in big collaborative networks (e.g. Avishkar-2014)
 - Attention to detail: accurate record keeping of experiments; use of checklists to organize my work and make sure that it is completed promptly
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Fellowships and Awards

- 2018 -2023 Chief minister Research Fellowship under Chhatrapati Shahu Maharaj Research, Training and Human Development Institute SARTHI (5 years); Wrote the research proposal independently.
- 2015 Awarded First Prize at State level poster Presentation organized by "Avishkar" conference organized by Maharashtra University of Health Sciences (MUHS) university on "Designing of Macrophage specific antiretroviral drug delivery system using nanoliposome loaded carrier Erythrocyte
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Selected Presentations

During my career, I have participated and presented my selected work to a variety of international scientific conferences, some with up to hundreds of participants. A selection is reported here:

- 2024 Poster Presentation of research work “Mitochondria-Targeted Docetaxel loaded DQAsomes for the treatment of multi drug resistant breast tumor: *in vitro* and *in vivo* studies” at the 22th International e-symposium on “Advances in Technology and Business Potential of New Drug Delivery System” in **Controlled Release Society (CRS)**
- 2022 Poster Presentation of research work “Design and Development of Novel Docetaxel –Loaded DQAsomes for Inducing Apoptosis and Anti-Cancer Effect on The Breast Cancer Cells, An In Vitro Study” at the 20th International e-symposium on “Advances in Technology and Business Potential of New Drug Delivery System” in **Controlled Release Society (CRS)**
- 2022 Poster Presentation of research work “Green synthesis of polyacrylamide grafted Neem Gum for gastro retentive floating drug delivery of Ciprofloxacin Hydrochloride: In vitro and in vivo evaluation” at the National Symposium on “ Translation Research and Future Pharmaceuticals” at JSS College of Pharmacy, Ooty-

List of publications

- Abhishek Pawar, Sharvil Patil , Ravindra Kamble, Mitochondria-targeted docetaxel loaded DQAsomes for the treatment of multi-drug resistant breast tumor: In vitro and in vivo studies, Journal of Drug Delivery Science and Technology, Volume 92, 2024, 105277, <https://doi.org/10.1016/j.jddst.2023.105277>. (Impact Factor 5.0)
- Abhishek Pawar, Ravindra Kamble, Design, and development of novel docetaxel loaded DQAsomes for inducing apoptosis and anti-cancer effect on the breast cancer cells, an in vitro study, Journal of Drug Delivery Science and Technology, Volume 73,2022, 103461, ISSN 1773-2247, <https://doi.org/10.1016/j.jddst.2022.103461>. (Impact Factor 5.0)
- Triveni Patil, Abhishek Pawar, Swati Korake, Rajesh Patil, Atmaram Pawar and Ravindra Kamble; Green synthesis of polyacrylamide grafted Neem Gum for gastro retentive floating drug delivery of Ciprofloxacin Hydrochloride: In vitro and in vivo evaluation. Journal of Drug Delivery Science and Technology. Volume 72, June 2022, 103417. DOI: <http://dx.doi.org/10.2139/ssrn.3971416>. (Impact Factor 5.0)
- Pawar A, Korake S, Pawar A, Kamble R. Delocalized Lipophilic Cation Triphenyl phosphonium: Promising Molecule for Mitochondria Targeting. Curr Drug Deliv. 2022 May 25. doi:10.2174/1567201819666220525092527. Pub ahead of print. PMID: 35619273. (Impact Factor 3.5)
- Pawar Abhishek; Korake Swati; Gajbhiye Kavita R. Dequalinium-Derived Nanoconstructs: A Promising Vehicle for Mitochondrial Targeting. Current Drug Delivery, Volume 18, Number 8, 2021, pp. 1056-1063(8). DOI: <https://doi.org/10.2174/1567201818999210120201252> (Impact Factor 3.5)
- Korake S, Pawar A, Surywanshi S, Bothiraja C, Pawar A, “High-performance liquid chromatography for the simultaneous estimation of Cefoperazone and Sulbactam in rat plasma and its importance in therapeutic drug monitoring”. Int J Pharm Pharm Sci, Vol 12, Issue 10, 2020, 92-97. DOI: <http://dx.doi.org/10.22159/ijpps.2020v12i10.38638>.
- R Kamble, M Kulkarni, A Pawar, K Dhekale Poly (lactic-co-glycolic acid)-polyethylene glycol copolymer for long-acting injectable: Synthesis, characterization, and in-vivo study. Thai Journal of Pharmaceutical Sciences (TJPS),2020. 44(1).

Referees

- **Prof Dr. Atmaram Pawar**(In-charge Principal); Poona College of Pharmacy, Pune, India
Email: atmaram.pawar@bharativedyapeeth.edu
 - **Prof Dr. Varsha Pokharkar**(Professor); Poona College of Pharmacy, Pune, India
Email: varsha.pokharkar@bharativedyapeeth.edu
 - **Dr Ravindra Kamble (PhD Research Guide)**;Associate Professor; Poona College of Pharmacy, Pune, India
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