

CURRICULUM VITAE

Khyber Medical University, Peshawar

1. Personal Information

Name: Muhammad Samie

Designation: Assistant Professor

Department: Institute of Pharmaceutical Sciences, Khyber Medical University

Nationality: Pakistan

Gender: Male

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2. Professional Summary

- Pharmacist by profession, holding a Bachelor's degree in Pharmacy, MPhil, and PhD in Pharmaceutics.
- Currently working as a full-time Assistant Professor at the Institute of Pharmaceutical Sciences, Khyber Medical University, Peshawar.
- Research interests lie in drug delivery and tissue engineering; has published several research articles in high-impact journals, including four articles from his PhD thesis, a Pakistani patent, and a US patent (2022).
- Currently supervising MPhil students working on the fabrication of drug-loaded patches for oral ulcer treatment, burn wound healing, and skin regeneration.
- Seeking potential research collaborations to apply theoretical knowledge and practical skills toward developing materials that benefit both the scientific community and the general public through commercialization.

3. Academic Qualifications

Degree	Institution	Year
PhD, Pharmaceutics (EQF Level 8)	Department of Pharmacy, COMSATS University Islamabad, Abbottabad Campus	2015 – 2022
MPhil, Pharmaceutics (EQF Level 7)	Faculty of Pharmacy, University of Sargodha, Pakistan	2009 – 2011
Bachelor of Pharmacy (EQF Level 6)	Faculty of Pharmacy, Gomal University, Dera Ismail Khan, Pakistan	2002 – 2006

4. Professional Experience

Position	Organization	Duration
Assistant Professor	Institute of Pharmaceutical Sciences, Khyber Medical University, Peshawar, Pakistan	26 Jun 2023 – Present
Lecturer	Institute of Pharmaceutical Sciences, Khyber Medical University, Peshawar, Pakistan	21 Feb 2022 – 25 Jun 2023
Visiting Lecturer	Department of Pharmacy, COMSATS University Islamabad, Abbottabad, Pakistan	26 Sep 2019 – 14 Mar 2020
Visiting PhD Researcher	Lancaster University, Lancaster (Lancashire), United Kingdom	15 Nov 2018 – 30 Apr 2019
Research Assistant	Interdisciplinary Research Centre in Biomedical Materials (IRCBM), COMSATS University Islamabad, Lahore, Pakistan	27 Oct 2016 – 26 Oct 2018

5. Areas of Specialization / Research Interests

- Drug Delivery — sustained-release formulations, drug-loaded patches, and composite scaffolds.
- Tissue Engineering — osteochondral, cartilage, and bone regeneration using biopolymer/ceramic scaffolds.
- Wound Healing & Skin Regeneration — nanofibrous matrices and drug-loaded membranes for burn wounds and oral ulcers.
- Biomaterials — chitosan composites, electrospun fibers, and silk fibroin extraction and regeneration.

Research Skills & Techniques

- In vitro fabrication & characterization: Freeze drying, freeze gelation, and electrospinning; advanced use of SEM, FTIR, particle size analyzer, and mechanical tester; data analysis using ImageJ, Origin Pro, and GraphPad Prism-8.
- Ex vivo testing: Antimicrobial assays (disc diffusion and turbidimetric methods); cellular studies using NIH3T3, MC3T3 pre-osteoblast, and chondrocyte cell lines; gel electrophoresis, Nanodrop, and RT-PCR for RNA/DNA isolation, quantification, and amplification.
- In vivo testing: Rabbit and rat models for skin, bone, and cartilage regeneration studies; histological assays including H&E staining.

6. Publications

Summary

Total Publications: 12 (5 as first/principal author, 7 as co-author)

First / Principal Author

- Drug/Bioactive eluting chitosan composite foams for osteochondral tissue engineering. <https://doi.org/10.1016/j.ijbiomac.2022.12.293>
- Electrospun antibacterial composites for cartilage tissue engineering. <https://doi.org/10.1002/mabi.202200219>
- Fabrication of dual drug loaded bilayered chitosan based composite scaffolds as osteochondral substitutes and evaluation of in vitro cell response using the MC3T3 pre-osteoblast cell line. <https://doi.org/10.1007/s10570-019-02915-x>
- Aqueous Solution of a Basic Ionic Liquid: A Perspective Solvent for Extraction and Regeneration of Silk Powder from Bombyx Mori Silk Cocoons. <https://doi.org/10.1007/s10924-019-01634-5>

- Design, Formulation and In-vitro Evaluation of Sustained Release Tablet Formulations of Levosulpiride. <https://doi.org/10.4274/tjps.29200>

Co-Author

- Advanced 3D biomimetic scaffolds with bioactive glass and bone-conditioned medium for enhanced osteogenesis. <https://doi.org/10.1016/j.bioadv.2025.214282>
- Arabinoxylan-incorporated poly (ϵ -caprolactone) nanofiber matrix promote fibroblast cells adhesion and proliferation. <https://doi.org/10.1007/s12668-025-01924-4>
- Curcumin-loaded nanofibrous matrix accelerates fibroblast cell proliferation and enhances wound healing via GSK3- β inhibition. <https://doi.org/10.3390/jcs7080343>
- Tideglusib-incorporated nanofibrous scaffolds potentially induce odontogenic differentiation. <https://doi.org/10.1177/088532822311904>
- Bi-layered α -tocopherol acetate loaded membranes for potential wound healing and skin regeneration. <https://doi.org/10.1016/j.msec.2019.03.080>
- Synthesis and Biological Evaluation of Amoxicillin Loaded Hybrid Material Composite Spheres Against Methicillin-Resistant Staphylococcus aureus. <https://doi.org/10.2174/1389201021666201221143537>
- Formulation and evaluation of a bilayer tablet comprising of diclofenac potassium as orodispersible layer and diclofenac sodium as sustained release core. <https://doi.org/10.12991/marupj.323595>

7. Patents

- Method for extraction of powdered silk fibroin from Bombyx Mori cocoons using aqueous solution of basic ionic liquid. US Patent No. US11512109B2. <https://patents.google.com/patent/US11512109B2/en>
- A method for extraction of powdered silk fibroin from Bombyx Mori cocoons using aqueous solution of basic ionic liquids. Pakistan Patent No. 143493.

8. Research Grants & Projects

Project Title	Role	Funding Agency	Amount
Optimization and Characterization of Biogenic Gold Nanoparticles: Study of its Cytotoxic and Anticancer Behavior	Principal Investigator	COMSATS University Islamabad, Pakistan	0.3 Million PKR
Freeze-dried Biopolymer/Ceramic Scaffolds for Bone Regeneration	Research Associate	Higher Education Commission, Pakistan (NRPU, Grant No. 4099)	Not specified
Surface Modified Drug Loaded Silk-Fibroin Mats for Wound Healing Application	Principal Investigator	Khyber Medical University, Peshawar, Pakistan	0.5 Million PKR

9. Book Chapter

- Ionic liquids as a green solvent for drugs or as an active pharmaceutical ingredient. In: Green Sustainable Process for Chemical and Environmental Engineering and Science: Green Solvents for Biocatalysis. Elsevier Inc., 2021, pp. 193–209.

10. Student Supervision

- Currently supervising MPhil students working on the fabrication of drug-loaded patches for oral ulcer treatment, burn wound healing, and skin regeneration.

11. Achievements & Awards

- Awarded a 6-month fellowship for PhD scholars under the International Research Support Initiative Program (IRSIP) by the Higher Education Commission, Pakistan, for placement at Lancaster University, United Kingdom (2018).
- Holder of a US Patent (2022) and a Pakistani Patent for silk fibroin extraction methodology.

12. References

Dr. John G. Hardy

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Prof. Dr. Ather Farooq Khan

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Prof. Dr. Nawshad Muhammad

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