

Dr. Fazli Subhan (PhD)

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Profile

Dr. Fazli Subhan is a molecular microbiologist and immunologist with expertise in biomaterials, nanobiotechnology, and regenerative medicine. He earned his PhD in Microbiology and Immunology from Pusan National University, South Korea, with a focus on immune cell and molecular biology. Dr. Subhan has over 8 years of academic and research experience, including his role as Assistant Professor at Hazara University and his current position as Associate Professor at the National University of Medical Sciences (NUMS), Pakistan. His research centers on the development of bio-functional nanocomposites for wound healing, tissue regeneration, and cosmeceutical applications. He has made significant contributions in transforming biological waste into high-value bioactive materials, particularly fish waste into collagen peptides for biomedical use. His work also explores advanced 3D cancer organoid systems for studying cancer stem cells and drug screening. Dr. Subhan has been actively involved in multiple funded research projects and has contributed to several international patents in biomaterials and 3D cell culture technologies. His interdisciplinary research integrates biomaterials engineering, microbiome modulation, and tissue engineering to address challenges in healthcare and biotechnology.

Research Interest

Biomaterials and Nanobiotechnology, Regenerative Medicine, 3D Cell Culture and Organoids, Cancer Biology, Cosmeceuticals, Microbiome Modulation and Application for infection control.

Selected Publications / Patents

Yoon, S., Kwak, J. Y., Jin, S. W., Jeong, Y. H., Kim, C. G., Choi, D. J., Kang, H. Y., **Subhan, F.**, & Ikram, M. (2016). Biomimetic support for three-dimensional cell culturing, method for manufacturing same, and use thereof. International Patent (WO/2016/010377).

Yoon, S., **Subhan, F.**, et al. (2014). Method for the preparation of agarose-collagen-alginate hydrogel-based scaffolds for 3D cell cultures and use thereof. South Korea Patent (10-2014-0089858).

Yoon, S., Kwak, J. Y., Jin, S. W., Jeong, Y. H., Kim, C. G., Choi, D. J., Kang, H. Y., & **Subhan, F.** (2019). Biomimetic support for three-dimensional cell culturing. US Patent 10,227,560.

Subhan, F., & Tauseef, I. (2022). Bio-fabrication of BC-FCP composite preparation and application for skin wound healing and regeneration. Patent Application No. 366/2022.

Haider, A., Naeed, M., **Subhan, F.**, Khan, R., Umar, A., & Shahzaib (2025). Cellulose-based scaffold bandage with silver and clindamycin for infection control and wound healing. Patent Application No. 722/2025.

Subhan, F.; Kainat Bashir; Haider A (2026). Formulation and Application of Sustainable Bio-Ceulose Faicial Mask Sheet Containing Bioactive Compounds. Patent Application No. 96/2026.

Subhan, F. (2026). Trade Mark (Name and logo for cosmetic product) registry, “**Biotech Elegance**” Trade Mark Application No. 866173.

Awards / Achievements / Grants

Immune defence augmentation effect of fish collagen peptides on human skin microbiome (PSF-funded project, PKR 7.1 million, 2024–2026).

Fabrication of fermented fish waste–bacterial cellulose hybrid scaffold for biomedical applications (HEC-funded, PKR 0.5 million, 2017–2018).

Construction of 3D cell culture biomodel for skin regeneration (HEC-funded, PKR 3.5 million, 2018–2019).

Development of bio-composite membrane for skincare and anti-pollution applications (NUMS IRF-funded, PKR 0.78 million, 2021–2022).

Development of antibiotic-nanoparticles-polymeric wound dressing (NUMS TIP-funded, PKR 2.6 million, 2022–2023).

Recipient of Research and Teaching Excellence Award 2023–2024, National University of Medical Sciences (NUMS), Rawalpindi. (Appreciation money and award letter).