Aqsa Farooq

Email: farooqaqsa174@gmail.com Phone: (+92) 3340063975

SUMMARY

Molecular Medicine postgraduate passionate about regenerative medicine and dedicated to advancing scientific research. Possesses a solid foundation in biological sciences, hands on expertise in a wide range of molecular biology techniques, and proven experience in academic research, data analysis, and scientific writing. Demonstrated ability to design and execute research projects, analyze experimental data, and prepare high quality reports and manuscripts. Highly motivated to apply my skills and knowledge to contribute to impactful scientific investigations that drive innovation in healthcare and biomedical sciences.

EDUCATION

- **Master of Science (MS) - Molecular Medicine**
  National University of Sciences and Technology *(NUST)*, Islamabad [2023 – 2025]
- **Bachelor of Science (BS) - Biology**
  International Islamic University, Islamabad [2019 – 2023]
- **Higher Secondary School Certificate (HSSC) - Pre Medical**
  Fauji Foundation College, Talagang [2016 – 2018]
- **Secondary School Certificate (SSC) - Science**
  Fauji Foundation School, Talagang [2014 – 2016]

RESEARCH EXPERIENCE

Research Assistant

Elucidation of Sirtuin Targets with Therapeutic potential in Diabetic Wound Healing

Department of Biomedicine | Atta-ur-Rahman School of Applied Biosciences (ASAB) | National University of Sciences and Technology (NUST), Islamabad [Nov 2024 – Nov 2025]

- Assisted in a funded research project investigating sirtuin-regulated molecular pathways involved in diabetic wound healing.
- Supported experimental design, data collection, and biological sample processing under principal investigator supervision.
- Performed molecular biology techniques, including RNA extraction, cDNA synthesis, and qPCR-based gene expression analysis.
- Assisted in protein analysis and interpretation of molecular findings related to wound repair mechanisms.
- Contributed to data organization, statistical analysis, and preparation of research reports.
- Maintained project documentation, experimental records, and timelines, supporting effective project management and compliance.

Postgraduate Research

The Combined Effects of Platelet Rich Plasma and Sirtuin Activator on Diabetic Wound Healing

Aging and Regenerative Medicine Lab | Department of Biomedicine | National University of Sciences and Technology (NUST), Islamabad [Aug 2024 – Sept 2025]

- Isolated Platelet rich plasma (PRP) from the whole blood.
- Established diabetic mice model followed by creation of full-thickness excisional wounds.
- Conducted topical therapeutic interventions using PRP and Lapachol, a sirtuin activating compound, on the diabetic wound and measured wound contraction.
- Performed microscopic analysis of histologically stained tissue sections from wound samples to evaluate epidermal regeneration and collagen deposition.
- Assessed mRNA expression of the key wound healing markers by using real-time quantitative PCR (qPCR).
- Evaluated protein expression of the wound healing biomarkers by western blot analysis.

Undergraduate Research

Comparative Analysis of Chemical and Green Synthesis of Selenium Nanoparticles

Nanotechnology Lab | Department of Biological Sciences | International Islamic University Islamabad [Jan 2023 – Aug 2023]

- Green synthesis of selenium nanoparticles using Sodium selenite and Aloe Vera leaf extract.
- Chemical synthesis of selenium nanoparticles using Sodium selenite, Ascorbic acid, and Chitosan.
- Characterization of selenium nanoparticles using UV Visible Spectroscopy, FTIR Spectroscopy, Scanning Electron Microscopy (SEM), and Energy Dispersive X-Ray Analysis (EDX).
- The antibacterial activity of the nanoparticles was tested against the Gram-negative and Gram-positive bacteria by agar well diffusion method.

CONFERENCES AND SEMINARS

• **Brain Wonders and Mysteries**	National University of Sciences and Technology, Islamabad	[Sep 26, 2024]
• **Quality Control in Labs**	National University of Sciences and Technology, Islamabad	[Nov 21, 2023]
• **Cell and Tissue Culture Techniques**	International Islamic University Islamabad	[Dec 15, 2022]
• **Cell and Tissue Culture Posters Presentation**	International Islamic University Islamabad	[Dec 14, 2022]
• **Bioethics and Biosafety Workshop**	International Islamic University Islamabad	[Dec 01, 2022]
• **Research Innovation and Entrepreneurship**	International Islamic University Islamabad	[Nov 24, 2021]
• **Breast Cancer Awareness Seminar**	International Islamic University Islamabad	[Nov 03, 2021]

CERTIFICATIONS

- Precision Medicine - University of Geneva [2024]
- The Science of Stem Cells - American Museum of Natural History [2024]
- Drug Development and Product Management - University of California San Diego [2024]
- Professional Skills for the Workplace - University of California, Davis [2024]
- Cancer Biology - Johns Hopkins University [2023]
- Innate Immunity and B-Cell Function - Rice University [2023]

- Introduction to Dental Medicine - University of Pennsylvania [2023]
- Introduction to Systems Biology - Icahn School of Medicine at Mount Sinai [2023]
- The Sustainable Development Goals - University of Copenhagen [2023]
- Transformation of the Global Food System - University of Copenhagen [2023]
- Understanding the Brain - University of Chicago [2023]
- Marine Biology - American Museum of Natural History [2023]
- Algae Biotechnology - University of California San Diego [2023]
- Antimicrobial resistance - Technical University of Denmark [2023]
- Covid-19: Tackling the novel coronavirus - London School of Hygiene & Topical Medicine [2020]

KEY SKILLS

- **Molecular Biology Techniques:** Western Blotting, Gel Electrophoresis, real time qPCR, DNA/RNA/Protein Extraction & Quantification, cDNA Synthesis, Primer Designing & Optimization, SDS-PAGE
- **Animal Handling and Surgical Techniques:** Mice Handling, Wound Model Creation, Delivering Treatments via Injection etc., Dissection, Postoperative Care and Monitoring
- **Microscopy Skills:** Histological Slide Preparation and Analysis (H&E and Masson's Trichrome Staining), Collagen Fiber Evaluation, Image Acquisition and Quantitative Analysis using ImageJ
- **Digital Skills:** Word, Excel, PowerPoint, Canva, BioRender, GraphPad, Jamovi etc.
- **Analytical Techniques:** SEM, FTIR, EDX, UV-Vis Spectroscopy
- **Diagnostic Skills:** Blood Glucose Monitoring, ABO Blood Typing
- **Cell and Tissue Culture Techniques:** Media Preparation, Plant Tissues and Explant Culturing
- **Bioinformatics Tools:** BLAST, NCBI, Ensembl, UniProt, Swiss-Model, I-TASSER, Chimera
- **Research & Analytical Skills:** Experimental Design and Execution, Data Collection, Data Validation, Data Interpretation, Gene Expression Analysis (qPCR), Statistical and Comparative Analysis of Biological Data

LANGUAGES

Native language(s): Urdu Other language(s): English

References available upon request