Usama Sardar

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EDUCATION

University of Peshawar (UOP), Peshawar, Pakistan
Bachelor in Zoology   2018 – 2022

Specialization: Parasitology

Major Courses: Cell And Molecular Biology, Ecology, Developmental Biology, Biochemistry, Genetics, Microbiology, Biotechnology, Physiology, Bioinformatics, Parasitology, Biostatistics, Evolution

BS Research Projects:
- Poliovirus prevalence and its impact on public health
- Life cycle and host interaction of Helminth Parasites in fish species "Schizothorax Plagiostomus"

PROFESSIONAL EXPERIENCE

Cancer Therapeutic Lab, LUMS, Lahore, Pakistan
Research Associate   July 2023 - present
- Developing strategies to overcome cancer drug resistance and assess drug synergy in cancer cell lines

Data Analytics Lab, LUMS, Lahore, Pakistan
Research Assistant   Sept 2022 - July 2023
- Developing a computer-aided pipeline to design antibodies for a targeted antigen
- Developed a method to estimate brain age using MRI features in neuroimaging
- Developed methods for protein sequence analysis of SARS-CoV-2 spike protein variants
- **Co-authored** NIH (under review) and LUMS FIF (granted) proposals for Antibody Design and RDIA proposal for MRI Brain Age Estimation (under review)

Department of Life Sciences, LUMS, Lahore, Pakistan
Teaching Assistant
- BIO 101: Introductory Biology   Fall 2022
- BIO 216: Molecular Biology   Fall 2023
- BIO 313: Cell Biology   Fall 2023

PUBLICATIONS

1. **U. Sardar**, S. Ali, M. S. Ayub, M. Shoaib, K. Bashir, I. Khan, and M. Patterson, "Sequence-based nanobody-antigen binding prediction," in The 19th International Symposium on Bioinformatics Research and Applications (ISBRA), 2023, pp. 227–240. doi: https://doi.org/10.1007/978-981-99-7074-2_18.

2. S. Ali, **U. Sardar**, M. Patterson, and I. Khan, "Biosequence2vec: Efficient embedding generation for biological sequences," in The 27th Pacific-Asia Conference on Knowledge Discovery and Data Mining (PAKDD), 2023, pp. 173–185. doi: https://doi.org/10.1007/978-3-031-33377-4_14

3. M. Ahmed, **U. Sardar**, S. Ali, S. Alam, M. Patterson, and I. Khan, "Robust brain age estima- tion via regression models and mri-derived features," in The 15th International Conference on Computational Collective Intelligence (ICCCI), 2023, pp. 661–674. doi: https://doi.org/10.1007/978-3-031-41774-0_52

4. S. Ali, **U. Sardar**, I. Khan, and M. Patterson, "Efficient Sequence Embedding for SARS-CoV-2 Variants Classification ," in The 19th International Symposium on Bioinformatics Research and Applications (ISBRA), 2023, vol 14248. doi: https://doi.org/10.1007/978-981-99-7074-2_2.

5. **Usama Sardar**, Salman Fozail, and Amir Faisal. "Combinatorial/Synergistic effect of Inhibitors in Breast Cancer cell lines such as Triple-Negative Breast Cancer (TNBC) cells." Under preparation

CERTIFICATIONS

- Tropical Parasitology: Protozoans, Worms, Vectors and Human Diseases, Duke University, USA [link]
- Bacteria and Chronic Infections, University of Copenhagen, Denmark. [link]
- Health After Cancer: Cancer Survivorship for Primary Care, Stanford University, USA [link]
- Introduction to Breast Cancer, Yale University, USA [link]
- Thoracic Oncology, University of Michigan, USA [link]

HANDS-ON WORKSHOPS AND TRAINING

- Hands-on workshops and training on cell culture techniques   Dec 11-13, 2023
- Structural Biology approaches in drug discovery and vaccine research   Mar 13-14,2023
- International Biophysics workshop on nanoscale materials and biological physics   Mar 20-21,2023
- UNDP workshop of generation of ideas for social entrepreneurship   Sep 11-12,2022

WEBINAR

- Attend live webinar of orthogonal loss-of-function methods to study regulators of DNA damage response

VOLUNTEER EXPERIENCE

- Fundraising for needy and poor people
- Wildlife conservation
- Blood head at Blood Donation Society of Peshawar, Pakistan

SKILLS

Molecular Biology Techniques
PCR | Gel Electrophoresis | DNA/RNA extraction quantification | Cell Culture | Centrifugation | Western Blot
ELISA | Primary and Secondary Screening

Computational Biology Techniques
Prediction of Protein Structure and Function | Data Analysis of Biological Data | Biomedical Image Analysis
Phylogenetic Tree Construction | Computer Simulation | Biopython | Protein Sequence and Structural Alignment

Technical Skills
C++ | LATEX | Word | Microsoft | HTML | Excel | Technical Writing | Data Collection
Interpersonal and Public Speaking skills | Monitoring and Oraganizing Skills | Skills for Conducting a Survey

REFERENCES

Dr. Amir Faisal | Research Supervisor
Associate Professor, Department of Life Sciences, LUMS
Email: amir.faisal@lums.edu.pk | Website

Dr. Murray Patterson | Research Supervisor
Assistant Professor, Department of Computer Science, Georgia State University (USA)
Email: mpatterson30@gsu.edu | Website

Dr. Muhammad Shoaib | Research Supervisor
Associate Professor, Department of Life Sciences, LUMS
Email: mshoaib@lums.edu.pk | Website

Dr. Sobia Wahid | Research Supervisor
Assistant Professor, Department of Zoology, University of Peshawar
Email: sobiawahid@uop.edu.pkk | Website