Dr. Sumra Wajid Abbasi

Tenured Associate Professor

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Profile

Dr. Sumra Wajid Abbasi is a distinguished researcher in bioinformatics and computational biology, specializing in molecular modeling, integrative data analytics, and biomedical applications. Her expertise includes protein modeling, molecular docking, computer-aided drug design, *in silico* vaccine development, and AI-driven predictive modeling. She has led multiple research projects and published over 78 peer-reviewed international papers, with a cumulative impact factor above 326 and more than 2,106 citations. Her academic work reflects a strong commitment to advancing data-driven biomedical research and translating computational approaches into meaningful scientific and clinical insights. Dr. Abbasi completed six-month research training at King's College London under the HEC-IRSIP scholarship. She is a Member of the HEC National Curriculum Review Committee, book editor of "Polymeric Scaffolds and Their Role in Biomedical Engineering", and topic editor for Frontiers in Immunology in the section "Computational Vaccine Development against Parasites." She also actively mentors postgraduate and graduate scholars.

Research Interest

Computer-Aided Drug Design, Virtual Screening & Molecular Simulation, Reverse Vaccinology, Antibiotic Resistance Mechanisms, AI in Drug Discovery

Selected Publications

Attique, L., Jamal, S. B., Gulistan, T., Haider, A., Amraiz, D., **Abbasi, S. W***., Ahmad, S., & Aljasir, M. A*. (2026). Multiepitope-Based Peptide Vaccine Against A35R Glycoprotein and E8L Membrane Protein of Monkeypox Virus Using an Immunoinformatics Approach. Biology, 15(7), 524. https://doi.org/10.3390/biology15070524

Ullah, A., Azam, S., Ahmad, S., Khan, I., Alammari, D. M., **Abassi, S. W**., Wei, D.-Q., Alshabrmi, F. M., Aljasir, M. A., & Alatawi, E. A. (2025). Towards precision epitopes based vaccine against Enterococcus faecalis by integrating vaccinomics, reverse vaccinology and biophysics approaches. Biochemistry and Biophysics Reports. https://doi.org/10.1016/j.bbrep.2025.102082

Ishtiaq, A., Mushtaq, I., Rehman, H., Mushtaq, I., Mushtaq, I., **Abbasi, S. W**., Liaqat, F., Rasheed, A., Ahmad, S., Akhtar, Z., & Murtaza, I. (2024). Tetra aniline-based polymers ameliorate BPA-induced cardiotoxicity in Sprague Dawley rats: In silico and in vivo analysis. Life Sciences, 358, 123104. https://doi.org/10.1016/j.lfs.2024.123104

Wasim, S., Nadeem, M., Alam, T., Rehman, A. U., **Abbasi, S. W**., Ahmad, S., Din, G., Khan, S., Badshah, M., Gul, S., Farman, M., & Shah, A. A. Biological Evaluation and Computational Studies of Methoxy-flavones from Newly Isolated Radioresistant Micromonospora aurantiaca Strain TMC-15. Appl Biochem Biotechnol 195, 4915–4935 (2023). https://doi.org/10.1007/s12010-023-04517-7

Ismail, S*., **Abbasi, S. W***., Yousaf, M., Ahmad, S., Muhammad, K., & Waheed, Y. (2022). Design of a multi-epitopes vaccine against hantaviruses: An immunoinformatics and molecular modelling approach. Vaccines, 10(3), 378. https://doi.org/10.3390/vaccines10030378

Grants/Awards/Achievements

- Antimicrobial Peptides from Marine Sponges against Multi Drug Resistant Bacteria. (NRPU, HEC, 7.59 M, as PI)
- *In Silico* Identification and Characterization of Bacterial and Fungal Peptide-Directed Ligands for Wound Healing. (IRF, NUMS, 1 M, as PI)
- Prototype Development of Molecular Markers for Diagnosis of Leishmaniasis through Whole Genome Sequencing (CL-BIOMARKER). (TIF,NUMS, 5M, as Co-PI)
- Harnessing Synthetic Microbiome based Transplant for Recovering Gut Dysbiosis: A Human Clinical Trial. (TIF,NUMS, 5M, as Co-PI)
- Recipient of the Higher Education Commission of Pakistan Indigenous Ph.D. Fellowship