

## **Dr. Uzma Azeem Awan**

Associate Professor

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### **Profile**

Dr. Uzma Azeem Awan is an accomplished biotechnologist with expertise in nanomedicine, cancer nanotheranostics, and smart drug delivery systems. Dr. Awan has extensive experience in academic mentorship and biomedical research, with a strong focus on developing optically-triggered nano drug/gene delivery systems and innovative cancer management strategies. She has received advanced international research training at renowned institutions including Georgia Institute of Technology, USA and the University of Brighton (UK), She is actively engaged in the global scientific community, frequently presenting her findings at national and international conferences to advance the field of nanotechnology applications. Dr. Awan has led and contributed to significant research projects with extensive publication record in high-impact journals. Her research integrates biotechnology and nanomedicine to improve therapeutic outcomes through the design of advanced nanotheranostic platforms.

### **Research Interest**

Nanomedicine, Cancer Nanotheranostics, Stimuli-Responsive Drug and Gene Delivery, Photothermal Therapy.

### **Selected Publications**

**Awan, U. A.,** Raza, A., Ali, S., & El Sayed, M. (2025). COX-2 Gene Silencing by Laser-assisted Oligonucleotides release from Remote Optical Nano-Switches (LORONS) in Hepatocellular Carcinoma Cells. *Nanomedicine*.

**Awan, U. A.**, Raza, A., Ali, S., Saeed, R. F., & Akhtar, N. (2021). Doxorubicin-loaded gold nanorods: a multifunctional chemo-photothermal nanoplatform for cancer management. *Beilstein Journal of Nanotechnology*.

Rahman, M., Khan, J. A., Kanwal, U., **Awan, U. A.**, & Raza, A. (2021). Methotrexate-loaded PEGylated gold nanoparticles as hemocompatible and pH-responsive anticancer drug nanoconjugate. *Journal of Nanoparticle Research*.

**Awan, U. A.**, Ali, S., Rahman, M., Zia, N., Raza, A. (2018). Stable and reproducible synthesis of gold nanorods for biomedical applications: A comprehensive study. *IET Nanobiotechnology*.

Gulzar, N., Andleeb, S., Raza, A., Ali, S., ... **Awan, U. A.** (2023). Acute toxicity, anti-diabetic, and anti-cancerous potential of Trillium govanianum-conjugated silver nanoparticles in Balb/c mice. *Current Pharmaceutical Biotechnology*.

## **Grants/Awards/Achievements**

HEC-NRPU 2021: Reversal of Multidrug resistance by nano-carrier based chemo-photothermal and molecular targeted therapy (PI) — 9.1 million PKR.

NUMS-IRF 2021: Optical Triggered Nano Drug Delivery System for Combined Photothermal Ablation and Chemo Therapy against Hepatocellular Carcinoma in Mice (PI) — 0.6 million PKR (Completed).

HEC-NRPU 2020: Cyclosporine A Nanocrystals for the therapy of Colitis (Co-PI) — 9.2 million PKR (Completed).

Distinguished Speaker at 7th Edition of Advanced Materials Science World Congress, London, UK. (March 24-25, 2025).

HEC Travel Grant for Conference Series at Frontiers of Nanotechnology, United Kingdom (18-20 March 2019).

Recipient of the International Research Support Initiative Program (IRSIP) Scholarship, Higher Education Commission (HEC), Pakistan, 2016.