

## Research Work Title

## The Development of Nanocarriers for Targeted Drug Delivery



Researcher | Muhammad Raza Shah

Country | The Islamic Republic of Pakistan

Field | Biocompatible Materials

Scientific Affiliation | International Centre for Chemical and Biological Sciences, Pakistan

## Abstract

Professor Muhammad Raza Shah's area of study focuses on using biocompatible materials at the nanoscale for drug delivery purposes. The main aim is to improve the efficacy of therapeutic treatments and enhance biosensing capabilities. He actively involved in the development of nanocarriers specifically designed for targeted drug delivery. The ultimate objective is to reduce the side effects of active pharmaceutical ingredients throughout the treatment procedure. Professor Shah has achieved remarkable success in this field by utilizing various efficient nanocarriers such as polymeric nanocarriers, superparamagnetic nanoparticles, and lipid nanoparticles. Through these advancements, he has effectively utilized the size, shape, surface characteristics, and surface charge of custom-designed nanomedicines to enhance their efficacy and reverse resistance to drugs already available in the market. Additionally, Professor Shah has conducted extensive research on new drug candidates at the nanoscale to evaluate their therapeutic effectiveness and safety and published his research in various scientific journals. Furthermore, he has made significant contributions to the development of nano biosensors. These biosensors have proven instrumental in the molecular detection of biomarkers associated with disease diagnosis, reducing product contamination, and monitoring toxic analytes in blood samples.

Professor Muhammad Raza Shah has an impressive portfolio of over 460 research publications, showcasing his expertise and dedication to advancing the field of drug delivery using nanotechnology. In addition to his extensive research contributions, he has also been granted three patents in the United States for his innovative work. Professor Shah has extensive experience in conducting clinical trials. He has successfully managed 21 Phase-1 clinical trials (BE-PK) and served as the principal investigator for 05 phase-II clinical trials in the pharmaceutical filed. Additionally, he played a pivotal role in leading the Phase 1 clinical trial for the Sinopharm's company COVID-19 vaccine in Pakistan.

