

Nanotechnology and Biophotonic approaches in Diagnostics and Therapeutics (Dr. Sharad Gupta's BPBE research group

BioPhysics and **Biomedical Engineering (BPBE)** research group is an interdisciplinary group in the Centre for BioSciences and Biomedical Engineering, at Indian Institute of technology, Indore. The major areas of research in BPBE research group is focused at developing novel nanoparticles for therapy and diagnosis, development of biophotonics tools, and biomaterials for regenerative medicine and therapy.

The success of cancer treatment is completely dependent on disease stage of the diagnosis "Earlier the diagnosis, higher the success rate". Fluorescence imaging is one of the techniques which can diagnose cancer at earlier stage with high precision. However, it is needed to transport diagnostics agents to the specific location or diseased cells for better contrast and deep tissue imaging. In the recent years, several nanoparticles have been synthesized for targeted delivery of contrast and therapeutic agents but they have limitations of bio-degradability and long term toxicity in the body. Therefore, our lab is focused at developing biocompatible and biodegradable nanoparticles for targeted delivery of diagnostic and therapeutic agents. A particular important aspect of this group is to early stage disease diagnosis for improving its success rate.

Near Infrared Imaging
Cancer
Nanoparticles
Biophysics and Biomedical Engineering
Research Group
BioSciences and Biomedical Engineering
Indian Institute of Technology Indore
Chemotherapy
Nanobiotechnology
Amino Acid Therapy
Delivery
Theranostics
BioPhotronics
Targeted delivery System
Biodegradable
Technology