GALLOGLY COLLEGE OF ENGINEERING
STEPHENSON SCHOOL OF BIOMEDICAL ENGINEERING
The UNIVERSITY *of* OKLAHOMA

Seminar Series 2025-2026

WHEN 'NANO' MEETS BIO

Priyabrata Mukherjee, Ph.D.
Professor of Pathology
OU Health Campus

Friday, November 21, 2025 | 11:00 a.m.

Gallogly Hall, Room 126

ABSTRACT

In recent years, significant effort has been devoted to develop nanotechnology for the delivery of small molecular weight drugs, as well as macromolecules such as proteins, peptides, or genes into cells and tissue. Targeted nanoparticle-mediated drug delivery may be used to direct the particles to specific tissues (minimizing toxicity), improve oral bioavailability, sustain drug/gene effect in the target tissue, solubilize drugs for intravascular delivery, and/or improve the stability of therapeutic agents against enzymatic degradation. Despite the fantastic potential for nanoparticle use in medicine, fundamental studies to understand the molecular interactions of nanoparticles with the biological systems remain largely unexplored. In this lecture, I will discuss how engineered nanoparticles could be exploited as tools to probe cellular process and identify targets responsible tumor growth and therapy resistance.

BIO

Mukherjee is currently a Professor of Pathology and Peggy and Charles Stephenson Endowed Chair in Laboratory Cancer Research. Mukherjee is an elected fellow of the Royal Society of Chemistry (RSC, 2018), American Institute of Medical and Biological Engineering (AIMBE, 2018), National Academy of Inventors (NAI, 2019), American Association for the Advancement of Science (AAAS, 2021), Controlled Release Society (CRS, 2024). Mukherjee received his elementary and high school education from the village school followed by completing a Bachelor in Science (BSC, 1992) with chemistry honors and Master in Science (M.Sc, 1994) with organic chemistry specialization at the University of Burdwan. Mukherjee received his PhD from the University of Poona (2001) followed by postdoctoral study in the Department of Chemistry at Texas Christian University (Mentor: Jeffrey L Coffer) and in the Department of Surgery and Tissues Engineering at the Children's Hospital Boston (Mentor: Anthony Atala). Mukherjee then joined Mayo Clinic in Rochester, MN and rose to the rank of Associate Professor of Biomedical Engineering.