

**Fall 2021 Amgen Seminar Series in Chemical Engineering**

**Thursday, November 18<sup>th</sup>, 2021**

**Virtual Seminar, 12:45 – 1:45 PM**

**Zoom Meeting: <https://uri-edu.zoom.us/j/95080747056>**



**Translational Nano-Medicine: Targeted Therapeutic Delivery for Pain, Cancer and Inflammatory Diseases**

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Tremendous advances in molecular and personalized medicine also present challenges for translation of innovative experimental approaches into clinically relevant strategies. To overcome some of these challenges, nanotechnology offers interesting solutions for disease prevention, diagnosis, and treatment. For many systemic diseases, overcoming biological barriers and target specific delivery are the key challenges. Additionally, newer generations of molecular therapies, such as gene therapy, oligonucleotides, and RNA interference (RNAi) require robust and highly specific intracellular delivery strategies for effective and clinically meaningful therapeutic outcomes. In this presentation, I will cover several of our approaches for development of multifunctional engineered nano-systems for targeted therapies in the treatment of cancer and inflammatory diseases. Specific examples will include: (1) CNS delivery of lipid modified analgesic peptide using oil-in-water nanoemulsion, (2) overcoming tumor multidrug resistance using a combinatorial-designed engineered nano-systems for RNAi and chemotherapy, and (3) genetic modulation of macrophage phenotype to promote anti-inflammatory effect in the treatment of rheumatoid arthritis. In each of the above examples, we focus on challenging medical problems with innovative solutions that use safe materials and scalable fabrication methods in order to facilitate clinical translation and improve patient outcomes.

**Bio:**

Dr. Mansoor Amiji is currently the University Distinguished Professor, Professor of Pharmaceutical Sciences (primary), and Professor of Chemical Engineering (secondary) at Northeastern University in Boston, MA. Dr. Amiji received his BS degree in pharmacy from Northeastern University in 1988 and a PhD in pharmaceutical sciences from Purdue University in 1992. Dr. Amiji's research is focused on development of biocompatible materials from natural and synthetic polymers, target-specific drug and gene delivery systems for cancer and infectious diseases, and nanotechnology applications for medical diagnosis, imaging, and therapy. Dr. Amiji teaches in the professional pharmacy program and in the graduate programs of Pharmaceutical Science, Chemical Engineering, and Bioengineering. He has edited ten books and has published over 50 book chapters and over 400 peer-reviewed articles. Dr. Amiji's Google Scholar H-index is 95 and Clarivate Analytics Highly Cited Researcher in Pharmacology & Toxicology. He has received several honors and awards including the American Association of Pharmaceutical Scientists (AAPS) Meritorious Manuscript Award, Controlled Release Society's (CRS) Nagai Award, and induction into the AAPS and CRS Fellowships. Dr. Amiji is also the recipient of the Distinguished Alumni Awards from both Northeastern University School of Pharmacy and Purdue University College of Pharmacy.

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