Targeted drug delivery using nano-carriers: ongoing strategies and challenges

Debabrata (Dev) Mukhopadhyay, Ph.D.
Mary Lowell Leary Professor
Departments of Biochemistry and Molecular Biology
and Physiology and Biomedical Engineering and Cancer Biology
Mayo Clinic College of Medicine and Science
Jacksonville, Florida

Abstract: One of the key challenges in cancer therapy is the toxicity and poor bioavailability of the anticancer drugs. It is already proven by different groups including ours that proper nanocarriers can play pivotal roles by delivering drugs in a targeted fashion to the malignant cells or tumor microenvironment that will reduce the systemic toxicity and better efficacy and overall therapeutic outcomes in different pre-clinical models and some human studies. To preserve the current symposium's theme, the presentation will focus to update some published work by our group as well as some unpublished results that will describe stepwise development of different nanoparticle-based targeted delivery methods in different cancer models and will discuss the current challenges in clinical practices of those approaches and predictive strategies to overcome.