



BIOENGINEERING SEMINAR

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Seminar Hall, MRDG

Disease-responsive biomaterials to prevent autoimmune diseases

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Abstract: Developing next-generation of biomaterials to solve huge unmet clinical needs is a fascinating field. The nanomedicine paradigm in chemistry and biology has matured scientifically over the past few decades to a point of sophistication where one can begin to exploit its numerous attributes in medicine. In what follows we will take a brief look at current approaches about nanotechnology based therapeutics and with examples taken from our own work to examine how nanomaterials and biomaterials have developed to prevent contact dermatitis, aka metal induced skin allergy and prevent rejection episodes in transplanted organs. During this presentation we will mainly discuss about two specific examples; first, we will discuss about developing nanoparticles based propylactic creams to prevent metal, nickel in specific, induced skin allergies. The second example, developing disease-directed drug release to prevent vascularized composite allografts in limb transplantation. Locally injectable hydrogels release drugs in response to the immune-response in transplanted limbs and enhances graft survival while eliminating the systemic side-effects.

About the speaker:

Praveen Vemula is a faculty at inStem, Bangalore, and he is a co-founder of three companies based in France, USA and India. He holds 17 issued or pending patents/technology disclosures, in which multiple patents have been licensed to biotech companies. Praveen obtained masters (M.Sc., Org. Chem.) degree from Osmania University, Hyderabad and Ph.D. from Indian Institute of Science, Bangalore in Organic Chemistry (2005). Subsequently he carried out over two years of postdoctoral research at the City College of New York and over four years at Harvard-MIT Division of Health Sciences and Technology in Harvard Medical School in affiliation with Brigham and Women's Hospital. In 2009, he has been selected as one of the thirteen fellows in the USA for the prestigious entrepreneur fellowship from the Ewing Marion Kauffman Foundation, where he received exposure to entrepreneurial education and closely worked with the foundation to commercialize the biomedical technologies. His research has been recognized/highlighted in the national & the international press and electronic media.