

## UC SAN DIEGO NANOENGINEERING SEMINAR

Thursday, October 25, 2018

Seminar Presentation: 11:00am – 12:00pm

**ASML Conference Center SME 248**

“Molecular Engineering of Materials for Manufacturing Immune Cells”

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**Abstract:** T-cells are the critical effectors and regulators of adaptive immunity that confer protection against external pathogens and internal cellular dysfunction. Understanding how materials can be organized to function as chemical and molecular regulators may provide a means to abrogate multiple disorders of a range of diseases ranging from congenital immunodeficiency to the autoimmune and impaired immune surveillance disorders that accumulate with age. In this seminar, I will highlight concepts design of biomaterials as a means to provide lineage-specific instruction to promote the regeneration of T-cells from hematopoietic precursors. Materials design grounded in biological phenomena will be explored and the impact on regulation of cell behavior for building immunity will be discussed.

**Biosketch:** Dr. Nisarg Shah is an Assistant Professor in the Department of Nanoengineering at UC San Diego. His work focuses on the design and synthesis of materials that regulate the fate of cells resident in tissues by providing cell-instructive cues to control spatiotemporal cellular behavior. Dr. Shah was previously a Cancer Research Institute Postdoctoral Fellow at the Wyss Institute and the School of Engineering and Applied Sciences at Harvard University and obtained his doctoral degree in Chemical Engineering from MIT. Dr. Shah has received the Materials Research Society Graduate Student Silver Award, the Collegiate Inventors Competition Silver Medal, the American Chemical Society Graduate Polymer Research Award and the Biomedical Engineering Society Graduate Design and Research Award.