

# CARNEGIE MELLON UNIVERSITY

## BME 2022 SPRING SEMINAR SERIES

### Immune Modulatory Biomaterials for Cell-Based Therapeutics



#### PRESENTED BY

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#### SCHEDULE

**HOA 160**

**Thursday,  
March 17, 2022  
(10:15AM-11:15AM)**

Immune cell recognition of implanted biomedical devices initiate a cascade of inflammatory events that result in collagenous encapsulation of implanted materials which leads to device failure. These adverse outcomes emphasize the critical need for biomaterials that do not elicit foreign body responses. One prime example for the use of this technology towards the development of immunoisolation strategies to engineer implantable cell-based biologic delivering factories. These systems termed “living therapeutics” is comprised of polymer encapsulated engineered cells that produce and secrete of biologic (hormones, enzymes, cytokines, and antibodies) of interest with sense and respond capabilities to match physiological needs for therapies. We have developed this technology towards to treatment of a number of diseases. Here, I will highlight our advances towards the treatments of: 1) Type1 Diabetes by delivering glucose responsive insulin producing cells, and 2) Peritoneal cancer through immunotherapy.

