Department of
Chemical and Environmental Engineering

2015—2016 Seminar Series

Friday, May 13, 2016

9:30-10:30am

Winston Chung Hall 205/206

Yvonne Chen

Chemical and Biomolecular Engineering

University of California, Los Angeles

ENGINEERING SMARTER AND STRONGER T CELLS FOR CANCER IMMUNOTHERAPY

T cells expressing chimeric antigen receptors (CARs) specific for the B-cell marker CD19 have shown impressive results in the treatment of B-cell malignancies. However, CD19 CAR-T cell therapy remains the only robustly effective T-cell immunotherapy to date. My laboratory is pursuing several strategies to engineer T cells with stronger anti-tumor functions and greater robustness against evasive mechanisms employed by cancer cells. I will discuss the development of multi-input CARs to prevent mutational escape by tumor cells, the design of synthetic circuits to counter immunosuppression in the tumor microenvironment, and the engineering of cytotoxic protein to interrogate intracellular tumor markers. These strategies combine to address critical limitations facing adoptive T-cell therapy, providing potential treatment options for diseases that are otherwise incurable with current technology.

Biosketch: Dr. Yvonne Chen earned her B.S. in Chemical Engineering from Stanford University and her Ph.D. in Chemical Engineering from the California Institute of Technology. She received postdoctoral training at the Center for Childhood Cancer Research within the Seattle Children's Research Institute as well as the Department of Systems Biology at Harvard Medical School. Dr. Chen was a Junior Fellow in the Harvard Society of Fellows and a recipient of the 2012 NIH Director's Early Independence Award prior to joining the Department of Chemical and Biomolecular Engineering at the University of California, Los Angeles in 2013. More recently, she has been the recipient of the Hellman Fellowship (2014), the 2015 ACGT Young Investigator Award in Cell and Gene Therapy for Cancer, and the NSF CAREER Award.

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