Keynote Lecture

“Design, Engineer, and Build: Genetically Enhanced Immunotherapies”

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Abstract
Since the 1990’s, we have conducted clinical trials of gene modified T cells. Gene editing has created T cells resistant to HIV infection. Chimeric antigen receptor (CAR) T cells targeting CD19 on B cells leukemias and lymphomas have induced durable complete responses in patients who are relapsed or refractory to all other available treatments. New designs for genetically modified T cells include switches and potency enhancements that will be required for targeting solid tumors. In one such approach, multiplex gene editing was accompanied by lentiviral transduction of a T Cell Receptor against the cancer antigen NY-ESO-1. The first use of CRISPR in the US in humans demonstrated that multiplex human genome engineering is safe and feasible. Translation of these technologies from research bench to clinical application requires knowledge of the critical quality attributes of the engineered cell product and acceptable limits. The road forward for wide patient access to engineered cellular therapies depends not only on scientific progress in targeting, gene modification and cellular manipulation methods, but also on meeting automation, engineering, clinical site onboarding, and health policy challenges.

Tuesday, May 19, 2021
5:00 – 5:45 p.m.
(This lecture is open to the University and its Affiliates)

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