Singapore
Immunology Network

SIgN

SIgN VIRTUAL SEMINAR

ZHAO Xiang
Postdoctoral Scholar
Molecular and Cellular Physiology,
Stanford Medicine

Tuning T cell receptor sensitivity through catch bond engineering

Adoptive cell therapy using engineered T cell receptors (TCRs) is a promising approach for targeting cancer antigens, but tumor-reactive TCRs are often weakly responsive to their target ligands, peptide–major histocompatibility complexes (pMHCs). Affinity-matured TCRs can enhance the efficacy of TCR–T cell therapy but can also cross-react with off-target antigens, resulting in organ immunopathology. We developed an alternative strategy to isolate TCR mutants that exhibited high activation signals coupled with low-affinity pMHC binding through the acquisition of catch bonds. Engineered analogs of a tumor antigen MAGE-A3–specific TCR maintained physiological affinities while exhibiting enhanced target killing potency and undetectable cross-reactivity, compared with a high-affinity clinically tested TCR that exhibited lethal cross-reactivity with a cardiac antigen. Catch bond engineering is a biophysically based strategy to tune high-sensitivity TCRs for T cell therapy with reduced potential for adverse cross-reactivity.

7th July 2022 (Thursday)
10AM – 11AM (Singapore Time)
Join Zoom: LINK or Scan QR Code
Meeting ID: 979 2348 1422
Passcode: 653555

Seminar is open for all to attend.

Registration not required.