SIgN SEMINAR
Hosted by Dr Chong Shu Zhen

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Resolving circulating and tissue-resident memory T cells using high-dimensional protein screens

Memory T cells are essential gatekeepers ensuring host protection against microbial and cancerous threats. Paradigmatically, memory CD8$^+$ T cells can be broadly divided into circulating (T_{CIRCM}) and tissue-resident memory T (T_{RM}) cell populations based on their trafficking properties. Despite well-defined migratory and transcriptional differences between these T cell subsets, the phenotypic and functional delineation of T_{CIRCM} and T_{RM} cells, particularly across tissues, remains elusive. Here, we utilised a comprehensive screening platform of cell surface molecules combined with a machine learning prediction pipeline (InfinityFlow) to profile the expression of >250 protein markers in T_{CIRCM} and T_{RM} cells across multiple anatomical sites. High-dimensional analysis provided detailed phenotypic definition and revealed unappreciated heterogeneity within and between T_{CIRCM} and T_{RM} cell lineages in distinct tissue microenvironments. Importantly, we devised strategies that allowed for the selective ablation of distinct T cell subsets and identified stable markers allowing disentanglement of T_{CIRCM} and T_{RM} cells and the characterisation of their effector profiles during inflammation. Together, these data and analytical framework provide an in-depth resource to enable the identification, phenotypic interrogation, and functional classification of memory T cells at steady-state and in disease contexts.
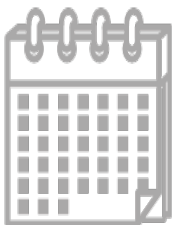
3rd October 2022 (Monday)
10 AM – 11 AM (Singapore Time)
SIgN Seminar Room, Immunos, Level 4

8A Biomedical Grove, Immunos, #04-06, Singapore 138648

Seminar is open for all to attend.

Registration is not required.