SIgN Immunology Seminar



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Lessons from heterogeneity in the immune system

Host
Prof Laurent Renia
Singapore Immunology Network, A*Star

Date
Thursday
19 November 2015

Time
11am – 12pm

Venue
SIgN Seminar Room
Immunos Building
Level 4
Biopolis

Many biological traits or phenotypes show quantitative variation in natural populations of organisms as well as of cells, and are the result of complex interactions of inheritance and environment in both. In the immune system, genes and environments both change rapidly and interact closely, creating many potentially interesting heterogeneities. I will use data from a couple of areas to explain our interest in the sources and consequences of immune heterogeneity. In the biology of lymphocytes, we find that apparently unimodally distributed heterogeneity among both CD4 and CD8 T cells, which we simplistically expected to be due to intrinsic noise, is modulated by cell-extrinsic microenvironmental cues in vivo and correlates with major functional variation. We find that such heterogeneity in responding T cell populations is also likely to be a determinant of the familiar dose-response relationships in T cell responses. Finally, these mouse data-based ideas of heterogeneity connect interestingly with some evidence in human biology that indicate interesting possibilities in both developmental and functional inter-individual variations in the human immune system.