

NIR FRIEDMAN

Randomly made yet ordered: new perspectives on T cell repertoires

.....
ABSTRACT:

The adaptive immune system relies on randomness, in generating a diverse set of lymphocyte receptors through random DNA rearrangements. Randomness is also manifested in studies which show heterogeneity of lymphocyte responses, even within clonal populations of cells. This heterogeneity is believed to stem from stochastic processes, and may provide optimal performance under complex and unpredictable conditions. We investigate the interplay between randomness and order in two cases: studying the structure of the T cell receptor repertoire, using high-throughput sequencing, and monitoring the process of CD4 T cell differentiation dynamically, using live cell imaging. We show how in both cases ordered structures emerge from underlying random processes.

.....