



Contribution ID: 38

Type: Poster

Evolutionary paths in affinity maturation

The humoral response to an infection relies on the process of affinity maturation. In order to develop antibodies with good binding properties, B cells gather in germinal centers where they proliferate and acquire mutations. The best mutants are selected to further proliferate. This evolutionary process is fueled by somatic hypermutations (SHM) which occur at a very high frequency. We propose a repertoire-wide approach to study the properties of mutations on evolutionary trees. We find that the mutation rate is position-dependent and that subsequent mutations colocalize. Our results help to understand the mutational landscape of SHM and assert the relevance of a phylogenetic approach.

Summary

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Session Classification: Session 8