MAX DELBRÜCK COLLOQUIUM

Clonal and cellular dynamics of the antibody response

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The average affinity of specific antibodies increases dramatically over the course of an immune response. This increase is the result of a Darwinian process in which B lymphocytes undergo iterative cycles of random hypermutation of their immunoglobulin genes, followed by selective proliferation of clones bearing affinity-enhancing mutations. This evolutionary process takes place in highly dynamic microanatomical structures known as germinal centers, which arise within secondary lymphoid organs upon infection or immunization. Our work combines intravital multiphoton microscopy with mouse genetics to study how the dynamics of B and T lymphocytes within germinal centers shapes the evolution of the high-affinity antibodies that are crucial to protection from infectious disease.

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