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# IN BRIEF

## IMMUNOLOGICAL SYNAPSES

### Opposing effects of PKCθ and WASp on symmetry breaking and relocation of the immunological synapse.

Sims, T. N. *et al. Cell* **129**, 773–785 (2007)

The formation of an immunological synapse is essential for T-cell priming but how it is stabilized in naive T cells is not known. The immunological synapse is a radially symmetrical structure composed of supramolecular activation clusters (SMACs). Sims *et al.* show that protein kinase Cθ (PKCθ) localizes to the peripheral SMAC (pSMAC) and promotes periodic breaks in pSMAC symmetry, which lead to the relocation of the immunological synapse during the early phases of antigen recognition. Wiscott–Aldrich syndrome protein (WASP) is then required for reforming the immunological synapse after relocation. Interestingly, T cells that relocate their immunological synapse during this early phase produced more interleukin-2. So, this paper provides new insights into the dynamics of immunological-synapse formation in naive T cells and shows that PKCθ and WASP have opposing effects on immunological-synapse stability.

## T-CELL MEMORY

### Lymphoid reservoirs of antigen-specific memory T helper cells.

Fazilleau, N. *et al. Nature Immunol.* 27 May 2007 (doi:10.1038/ni1472)

How vaccines control the development of protective immune responses remains poorly understood. Here, Fazilleau *et al.* show that reservoirs of antigen-specific T cells persist in the lymph nodes that drain the site of vaccination, where they regulate antigen-specific B-cell immunity. Follicular B-helper T cells ($T_{FH}$ cells), which are a specialized T-cell subset that promotes plasma-cell development, were shown to preferentially expand in the draining lymph nodes after subcutaneous vaccination of mice. These cells expressed T-cell receptors of high affinity for the vaccine antigen and the co-stimulatory molecules necessary for providing B-cell help. Retention of these cells in the draining lymph nodes was suggested to result from the persistence of antigen and continued expression of the adhesion molecule CD69. Importantly, $T_{FH}$ cells supported the local induction of antigen-specific B cells in the draining lymph nodes, where they persisted to form a memory B-cell reservoir.

## NEONATAL IMMUNITY

### Antigen-specific immune responses to influenza vaccine *in utero*.

Rastogi, D. *et al. J. Clin. Invest.* **117**, 1637–1646 (2007)

Whether a neonate can mount immune responses to antigens or allergens to which the mother is exposed during pregnancy has been an issue of controversy. This paper provides evidence indicating that sensitization to antigens can indeed occur *in utero*. After immunization of pregnant women with a vaccine against influenza virus, the authors could detect vaccine-specific T cells in cord blood. This was not a result of contamination by maternal cells because even vaccine-specific T cells restricted by paternally inherited HLA alleles were detected in the cord blood. Virus-specific IgM and IgG antibodies were also present in cord-blood specimens. Intriguingly, the presence of cord blood IgM was sometimes independent of a vaccine-specific IgM response in the mother. Whether these specific fetal immune responses provide sufficient protection from secondary exposure to the virus is unknown.