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# IN BRIEF

## T-CELL RESPONSES

### Limiting amounts of IL-7 do not control contraction of CD4$^+$ T cell responses.

Tripathi, P. *et al. J. Immunol.* **178**, 4027–4031 (2007)

Following T-cell clonal expansion, only a few effector T cells escape apoptotic death and become memory T cells. How this happens is unclear, although it is thought that the selective expression of interleukin-7 receptor-α (IL-7Rα; also known as CD127) on effector T cells could 'mark' them as long-lived memory cells, as IL-7 is a survival factor for memory T cells. Here, the authors assessed the role of IL-7 in the survival of effector T cells by tracking a CD4$^+$ T-cell response following virus infection. IL-7 prevented contraction of the antigen-specific CD4$^+$ T-cell response through induction of the anti-apoptotic molecule B-cell lymphoma 2 (BCL-2). Neutralizing BCL-2 or IL-7 *in vivo*, however, did not exacerbate the contraction. IL-7, therefore, is not the limiting factor that controls CD4$^+$ effector T-cell survival during contraction of the immune response.

## AUTOIMMUNITY

### Toll-like receptor 9-dependent activation by DNA-containing immune complexes is mediated by HMGB1 and RAGE.

Tian, J. *et al. Nature Immunol.* 8 April 2007 (doi:10.1038/ni1457)

DNA-containing immune complexes in the serum are associated with systemic autoimmune diseases, and it is thought that these complexes are immunostimulatory as a result of interactions with TLR9 (Toll-like receptor 9). However, TLR9 is expressed in the endoplasmic reticulum and endosomal compartments, and it is not clear how immune complexes access these compartments to mediate their effects. In this study, the authors report that HMGB1 (high-mobility group box protein 1) — a nuclear DNA-binding protein that is released from necrotic cells — binds to class A CpG-containing DNA complexes, resulting in interaction with the immunoglobulin-superfamily member RAGE (receptor for advanced glycation end-products). RAGE can then interact with TLR9 leading to recruitment of the TLR adaptor molecule MyD88 (myeloid differentiation primary-response gene 88) and activation of plasmacytoid dendritic cells and B cells.

## TOLERANCE

### Tracing the action of IL-2 in tolerance to islet-specific antigen.

Liston, A. *et al. Immunol. Cell Biol.* 20 March 2007 (doi:10.1038/sj.icb.7100049)

Genetic variants of interleukin-2 (IL-2) are associated with susceptibility to type 1 diabetes, but there are contradictory data on the role of IL-2 in tolerance, and it is not fully understood how IL-2 controls pancreatic islet-specific T cells. Liston and colleagues used an IL-2-deficient mouse model in which expression of the hen-egg lysozyme (HEL) transgene is controlled by the rat insulin promoter and in which HEL-specific T cells could be traced using a specific antibody. All mice developed diabetes. Thymic negative selection was normal, which indicates that disruption of clonal deletion of high-avidity diabetogenic T cells does not contribute to diabetes pathogenesis. By contrast, islet-specific forkhead box P3 (FOXP3)-expressing regulatory T cells failed to develop in these mice, which indicates that IL-2 inhibits diabetogenesis by supporting the development of regulatory T cells in the thymus.