

Peptide Specific MHC Transfer to T cells From the Immunological Synapse

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Several studies have shown that MHC molecules are transferred from antigen presenting cells (APC) to T cells both *in vitro* and *in vivo*. Using a fibroblast cell line expressing a novel I-Ek α B β (J chain loaded with covalently attached moth cytochrome C 88-103 (MCC) and GFP fused to the cytoplasmic tail, we have examined the transfer of specific MHC:peptide complexes to T cells during antigen recognition. The interaction of these fibroblast APC and peptide-specific T cell blasts leads to mature immunological synapse formation in a costimulation dependent manner (Wetzel *et al. J Immunol* 169:6092-6101 (2002)). With live cell fluorescence microscopy, we observe that T cells capture MHC:peptide complexes directly from the immunological synapse when they dissociate from APC. By flow cytometry, T cells with downmodulated TCR accumulate more MHC:GFP than T cells with higher levels of TCR expression. In co-culture experiments with MCC-specific T cells, T cells specific for another I-Ek restricted peptide (Hb) do not acquire GFP, suggesting that MHC transfer is peptide specific.

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