Negative selection, not receptor editing, is a physiological response of autoreactive thymocytes.

Abstract:
Antigen receptor editing—a process of secondary rearrangements of antigen receptor genes in autoreactive lymphocytes—is a well-established tolerance mechanism in B cells, whereas its role in T cells remains controversial. Here, we investigated this issue using a novel Tcra knock-in locus, which ensured appropriate timing of TCRβ expression and allowed secondary rearrangements. Under these conditions the only response to self-antigen that could be unambiguously identified was negative selection of CD4/CD8 double positive thymocytes. No evidence could be obtained for antigen-induced TCR editing, whereas replacement of the transgenic TCRβ chain by ongoing gene rearrangement occurred in some cells irrespective of the presence or absence of self-antigen.