**Retinoic acid signaling in thymocytes regulates T cell development**

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The Vitamin A derivative retinoic acid (RA) has emerged as an important regulator of peripheral T cell responses. However, whether there is endogenous retinoic acid receptor (RAR) signaling in developing thymocytes and the potential impact of such signals in thymocyte development remains unclear. Here, using a RA sensitive reporter mouse model, we demonstrate that endogenous RAR responses are induced in CD69+CD4+CD8lo and CD69+CD4+CD8+ thymocytes undergoing positive selection and lineage commitment, and continue to be present in both CD4+ and CD8+ single positive (SP) cells, with RA signaling further enhanced in recently generated CD69+ CD4+ SP cells. To address the potential biological significance of RA signaling in developing thymocytes, we evaluated T cell development in *CD4Cre-dnRAR* mice, where RA signaling is blocked in thymocytes from the CD4+CD8+ double positive (DP) stage onwards due to expression of a dominant-negative form of RAR Interestingly, these mice displayed a marked reduction in all thymocyte subsets, with the exception of CD8+ SP cells but including ETP and DN2-4 subsets, suggesting that blocked RA signaling in DP thymocytes and their progeny indirectly impacts on thymocyte precursor entry and/or survival. Furthermore, *CD4Cre-dnRAR* mice showed a 4-fold reduction in CD4+/CD8+ SP ratio that was mainly due to enhanced accumulation of mature CD8+ SP cells, indicating that RA signaling may be directly involved in regulating thymic retention and/or post-selection expansion of this cell subset. Collectively, our data suggest a direct role for RA signaling in regulating thymocyte homeostasis and T cell development.