...enotypic Analysis Of Thymic Low Density Adherent Cells From Murine Bone Marrow Chimeras - Influence On Thymocyte Differentiation

Wambua., P. P

Abstract:

Previous studies from this laboratory demonstrated a malfunction of the thymus of C3H mice to induce normal level of thymocyte differentiation. Thymocytes developed in the C3H thymus showed depressed proliferative responses to stimulation with anti-CD3 antibody compared with those developed in the other strains. This study was conducted to analyze immunological functions of the thymic stromal cell population in the C3H mice. Using allogeneic bone marrow (BM) chimeras established by reciprocal combination of AKR and C3H mice as donor or recipient, antigen presenting cell (APC) function of low density adherent cells (LDAC) in the thymus was analyzed. The thymic LDAC from C3H mice or [AKRï ï C3H] BM chimeras where AKR were BM donors and C3H were recipients contained high proportion of Mac-1+ cells as compared to AKR mice or [C3Hï ï AKR] chimeras. The proportion of Mac-1+ cells paralleled the IL-1 secreting ability of the LDAC. Thus, the higher proportion of Mac-1+ cell in the thymus may be responsible for low accessory function observed in C3H thymuses. However, when APC function was analyzed using various T cell hybridomas or a T cell line, the APC functions did not necessarily correlate to the proportions of Mac-1+ cells and amounts of IL-1 produced by the LDAC. When proliferative responses of thymocytes to anti-CD3 stimulation were analyzed in the presence of prostaglandins, PGE-2 inhibited more profoundly the responses of [AKRï ï C3H] and normal C3H mice than those of [C3Hï ï AKR] and normal AKR mice. Furthermore, a prostaglandin inhibitor, indomethacin, reversed the depressed responses of the former thymocytes which had developed in the C3H thymus. These findings suggest that the hyporesponsiveness of thymocytes from [AKRï ï C3H] chimeras to anti-CD3 stimulation may be attributable to their increased sensitivity to prostaglandin produced by LDAC.