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The effect of interleukin (IL)-2 on some functions of polymorphonuclear neutrophils (PMN)

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The aim of the study was to test the effect of interleukin 2 (IL-2), a typical T-cell-derived cytokine, on isolated PMN as well as on PMN in whole blood. PMN express β chain and the α chain of the IL-2 receptor, which are considered to be of low affinity for IL-2. In accordance with the literature and with the assumed low affinity, no dramatic effects of IL-2 on the classical PMN functions, such as superoxide production, phagocytosis or survival under culture conditions were noted. However, marked effetcs on the surface receptor pattern was seen: up regulation of CD14, the so-called LPS-receptor CD14, and of CD64, the high affinity receptos for IgG. Moreover, a preservation of the activation-induced loss of the adhesion molecules CD11b/CD18 and CD62L was seen. Moreover, by cytofluorometry and RT-PCR an induction on PMN of MHC class expression and also expression of CD83 was seen, due to *de novo* protein synthesis. These data are of particular interest, because they indicated a transdifferentiation of PMN to cells with characteristics of professional antigen presenting cells. Indeed, PMN stimulated by IL-2 were able to present superantigens to T-cells and to induce T-cell proliferation. In conclusion, these data provide evidence as a cross-talk between PMN and T-cells: a T-cell derived cytokine converts PMN to cells with the propensity to activate T-cells in turn. This again can be interpreted as a mean to enhance the specific T-cell mediated immune response and places the PMN amongst the immunregulatory cells.