

# Human red blood cells have an enhancing effect on the relative expansion of CD8+ T lymphocytes in vitro.

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## Abstract

The present study was designed to analyse the effect of red blood cells on T-cell proliferation and expansion. A comparative study was done in peripheral blood cell cultures stimulated with phytohemagglutinin, with or without red blood cells. The presence of red blood cells had a consistent enhancing effect on T lymphocyte proliferation, as determined by an increase in both the mitotic index and thymidine uptake. Phenotypic characterization of T cell blasts by flow cytometry revealed that, in the presence of red blood cells, expanding cells were preferentially CD8+ cells. Accordingly, proliferation of CD8+ lymphocytes from two patients with CD8+ hyperlymphocytosis was dependent on the presence of red blood cells. In contrast, proliferation of CD4+ lymphocytes from two patients with CD4+ hyperlymphocytosis was strongly inhibited by the presence of red blood cells. This is the first reported evidence that human red blood cells have an enhancing effect on the expansion of CD8+ lymphocytes in vitro.