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INTRODUCTION

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Many of our ideas and experiments on lymphocyte interactions are predicated on a sharp delineation between T cells and B cells. There are a number of indications, including a striking one to be presented in this symposium, that this conceptual distinction may have been made too strongly. This is not to say that the distinction is not still a useful one, but to say that we must be wary of too rigid a dependence on an absolute distinction. In the very limited time allotted to a co-chairman, I can point out five recent examples of previously unsuspected common properties of T and B cells.

Fc receptors which bind antibody-antigen complexes and aggregated IgG were long thought to be an exclusive B cell marker. They are now found on a considerable percentage of peripheral T cells and even on some thymocytes (shown by a number of laboratories, including R. Stout in ours).

The enzyme, terminal deoxynucleotidyltransferase, again thought to be found only in the thymus and immature T cells has now been found in all of three plasmacytomas tested.[1] It is not reported in normal spleen or lymph node cells.

An antigen has been found in the mouse to be shared by about 50% of thymocytes and at least some plasmacytomas and antibody forming cells.[2,3] It is not present on most lymphocytes.

Thymocytes and some T cell lymphomas, although they produce much less Ig than B cells, have almost the same amounts of Ig mRNA.[4] These messengers are translated in Xenopus laevis oocytes.

Lastly is the finding of large amounts of donor allotype produced soon after transfer of rather few (10^6 - 10^7) thymocytes into irradiated congenic recipients differing genetically only near the heavy chain allotype loci. These data will be presented by Lee Herzenberg and Mel Bosma in this session. If the immunoglobulin (Ig) is produced by descendants of thymocytes, as we believe most likely, then the most basic distinction between T and B cells will have broken down.

References:

1. Penit, C., Paraf, A. and Chapeville, F. 1974, Nature 249, 755.
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3. Stout, R. and Herzenberg, L.A., unpublished.
4. Stevens, R., Weber, H., Kessler, S., and Ashman, R., in preparation.