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T-lymphocyte recognition and response to antigen [Abstract only.]

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Recognition by T lymphocytes of specific antigens in association with self class II antigens leads to expression of the genes coding for the growth and differentiation factor I1-2 and the I1-2 receptor. Studies with monoclonal antibodies have identified at least three T-cell surface molecules which, when stimulated, induce the expression of I1-2 and I1-2 receptor. These are the T-cell antigen receptor (TCR), the CD3 antigen and the CD2 antigen. TCR and CD3 are associated non-covalently on the cell surface. The probable function of CD3 is to act as a signal transducer. There is no compelling evidence in support of CD2 being associated with the TCR-CD3 complex, but it is evident that the two entities are coupled functionally.

The cell-adhesion molecule LFA-3 is the natural ligand of the CD2 antigen. LFA-3 is especially well expressed on antigen-presenting cells and it appears that the interaction of CD2 with LFA-3 plays a crucial role in the interaction of T cells with antigen-presenting cells. The roles of the T-lymphocyte surface CD4 antigen, as well as all the above molecules in the recognition and response of T cells to specific antigens, will be discussed.