

Detection of Ligands for the $\gamma\delta$ T Cell Receptor. Christina L. Roark, M. Kemal Aydintug, Milton Saffrey, Xiang Yin, J.M. Wands, Youn-Soo Hahn, Willi K. Born, and Rebecca L. O'Brien. Integrated Dept. of Immunology, National Jewish Medical and Research Center, and the University of Colorado Health Sciences Center, Denver, Colorado 80206

The $\gamma\delta$ T lymphocytes constitute a relatively rare type of T cell in mice and humans whose function appears to be distinct from that of other lymphocytes, the $\alpha\beta$ T cells and B cells. The functional role of the $\gamma\delta$ T cells remains ill-defined, in part because the natural ligands recognized by $\gamma\delta$ T cell receptors (TCRs) are still largely unknown. Identification of these ligands has been hampered by the fact that immunization does not normally result in antigen-specific $\gamma\delta$ T cell responses. We show here that a recombinant soluble $\gamma\delta$ T cell receptor whose ligand is already known can be used to specifically detect ligand-expressing cells. The ability of this $\gamma\delta$ TCR to bind these cells while in monomeric form also provides evidence that the $\gamma\delta$ TCR is more antibody-like than are $\alpha\beta$ TCRs. Extending this approach, we have detected and begun analysis of a putative natural ligand for a mouse invariant $\gamma\delta$ T cell receptor whose identity is currently unknown. We also present evidence that the ligands of several different $\gamma\delta$ TCRs may be co-expressed on the same cells.