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**The Interleukin-2 Receptor: Studies en Route to a Structure.** D.J. Stauber, P.A. Horton, I.A. Wilson, The Scripps Research Institute, La Jolla, CA 92037.

Interleukin-2 (IL-2), a class I cytokine, functions as a growth factor in the immune system. Specifically, IL-2 causes proliferation and cytokine production in T-cells, proliferation and antibody production in B-cells, and activation of the cytotoxic activity in NK cells. IL-2 signaling occurs through a ligand-induced activation of the IL-2 receptor. This receptor contains three chains, ( $\alpha$ ,  $\beta$ ,  $\gamma$ ) which combine to form a high-affinity signaling complex. Interestingly, the  $\gamma$ -chain is shared between many different cytokine receptors. Expression and purification of the extracellular domains of the  $\alpha$ -,  $\beta$ -, and  $\gamma$ -chains has been performed and optimized. The cell surface receptor has been reassembled in solution and crystallization optimization is currently underway. The IL-2 receptor is in many ways the prototypic interleukin receptor, especially for those which use the common  $\gamma$ -chain. Because of its broad immunological signaling properties, IL-2 provides opportunities for clinical applications in organ transplantation, cancer and HIV therapeutics. The structure of this complex will provide insight into the recognition, assembly, and signaling properties of the IL-2 receptor and will provide details necessary to further analyze the IL-2 system. By understanding these details, we may be able to further probe the interaction of IL-2 with its receptor and ultimately design artificial ligands to modulate protein function and activity.

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