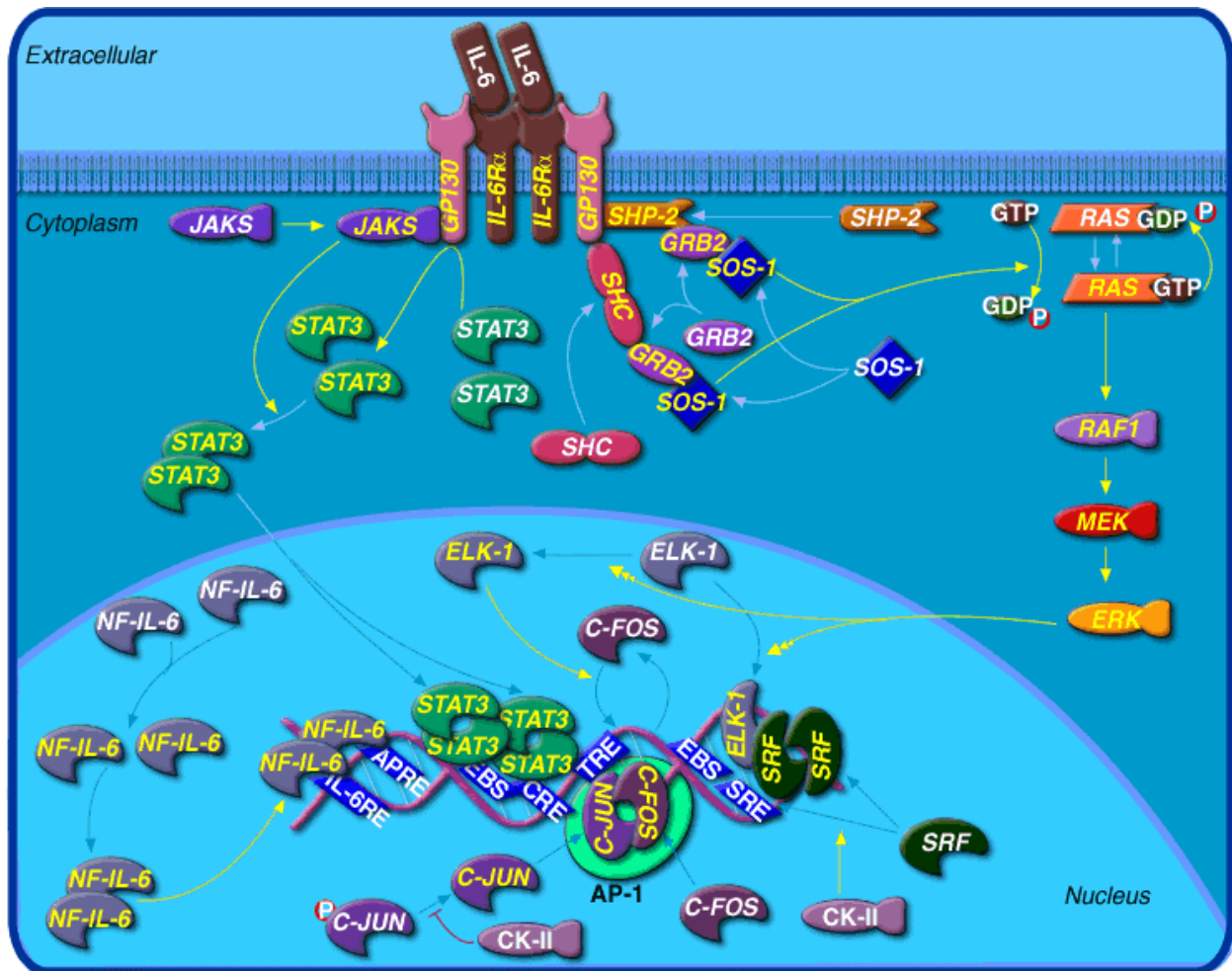


IL-6 Inflammation



Interleukin-6 (IL-6) is a cytokine that provokes a broad range of cellular and physiological responses. In addition to playing a role in inflammation and hematopoiesis, IL-6 is involved in other processes such as neuronal differentiation and bone loss. To produce these effects IL-6 signals through a receptor composed of two different subunits, an alpha subunit that produces ligand specificity and gp130, a receptor subunit shared in common with other cytokines in the IL-6 family. Binding of IL-6 to its receptor initiates cellular events including activation of JAK kinases and activation of ras-mediated signaling. Activated JAK kinases phosphorylate and activate STAT transcription factors, particularly STAT3, that move into the nucleus to activate transcription of genes containing STAT3 response elements. The ras-mediated pathway, acting through Shc, Grb-2 and Sos-1 upstream and activating Map kinases downstream, activates transcription factors such as ELK-1 and NF-IL-6 (C/EBP-beta) that can act through their own cognate response elements in the genome. These factors and other transcription factors like AP-1 and SRF (serum response factor) that respond to many different signaling pathways come together to regulate a variety of complex promoters and enhancers that respond to IL-6 and other signaling factors.

