Nuclear receptor

Class of proteins found within cells that are responsible for sensing steroid and thyroid hormones and certain other molecules. In response, these receptors work with other proteins to regulate the expression of specific genes, thereby controlling the development, homeostasis, and metabolism of the organism.

Nuclear receptors have the ability to directly bind to DNA and regulate the expression of adjacent genes, hence these receptors are classified as transcription factors.

The regulation of gene expression by nuclear receptors generally only happens when a ligand — a molecule that affects the receptor's behavior — is present. More specifically, ligand binding to a nuclear receptor results in a conformational change in the receptor, which, in turn, activates the receptor, resulting in up- or down-regulation of gene expression.

A unique property of nuclear receptors that differentiates them from other classes of receptors is their ability to directly interact with and control the expression of genomic DNA. As a consequence, nuclear receptors play key roles in both embryonic development and adult homeostasis. As discussed below, nuclear receptors may be classified according to either mechanism or homology.

Nuclear receptor corepressors

Nuclear receptor corepressors.