Estrogen receptor

Estrogen receptors are a group of proteins found inside cells. They are receptors that are activated by the hormone estrogen (17β-estradiol).

The protective effect of estrogen on the central nervous system via the estrogen receptor (ER) has been reported in a number of studies. For example, the use of the ERα ligand, also termed E2, in the treatment of experimental autoimmune encephalomyelitis may reduce the severity of this condition [1].

E2 may also reduce ATP-mediated calcium influx into the primary sensory neurons of mice

Furthermore, E2 may reduce apoptosis in rat astrocytoma cells via the ER

Classes

ER, which is a member of the nuclear hormone family of intracellular receptors

see Estrogen receptor alpha

G protein coupled estrogen receptor (GPER) (GPR30), which is a member of the rhodopsin-like family of G protein-coupled receptors.

Functions

Once activated by estrogen, the ER is able to translocate into the nucleus and bind to DNA to regulate the activity of different genes (i.e. it is a DNA-binding transcription factor). However, it also has additional functions independent of DNA binding.

1)
Elloso MM, Phiel K, Henderson RA, et al. Suppression of experimental autoimmune encephalomyelitis using estrogen receptor-selective ligands. J Endocrinol. 2005;185:243–252. doi: 10.1677/joe.1.06063.