

Estrogen receptors (ER) are members of nuclear receptor family, which mediate distinct physiological functions after binding a steroid ligand. Apart from that they play a role in many diseases including breast cancer. ER is among proteins routinely evaluated in clinical practice and on the basis of ER expression, patients are treated by endocrine therapy. There are different opinions of the role of ER in cancer cells, but in the future, detection of ER and treatment by ER- and ER-selective ligands could contribute to improvement of cancer therapy. Isoforms, mutations and posttranslational modifications of ER present other important factors, which can influence estrogen signalization and endocrine therapy efficiency and deciphering of their importance for cancer cells could bring better understanding of ER signalization and improvement of the therapy.