SANTA CRUZ BIOTECHNOLOGY, INC.

p-ERα (Tyr 537): sc-32827

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

Estrogen receptor α (ERα, ER, ESR, ESRA, Era, NR3A1, estrogen receptor 1) is a ligand-activated transcription factor composed of several domains important for hormone binding, DNA binding and activation of transcription. Alternative splicing results in several ERα mRNA transcripts, which differ primarily in their 5' untranslated regions. ERα undergoes phosphorylation in response to estradiol binding. Human ERα is predominately phosphorylated on Ser 118 and, to a lesser extent, on Ser 104 and Ser 106. In response to activation of the mitogen-activated protein kinase pathway, phosphorylation occurs on Ser 118 and Ser 167. These serine residues are all located within the activation function 1 region of the N-terminal domain of ERα. In contrast, activation of protein kinase A increases the phosphorylation of Ser 236, which is located in the DNA-binding domain. Src kinase-dependent Tyr 537 phosphorylation may enhance estrogen binding to ERα. Mutation of Tyr 537 of the human ERα produces receptors having a range of constitutive activity.

REFERENCES

1. Arnold, S.F., et al. 1995. Phosphorylation of Tyrosine 537 on the human estrogen receptor is required for binding to an estrogen response element. J. Biol. Chem. 270: 30205-30212.
2. Weis, K.E., et al. 1996. Constitutively active human estrogen receptors containing amino acid substitutions for Tyrosine 537 in the receptor protein. Mol. Endocrinol. 10: 1388-1398.
3. Arnold, S.F., et al. 1997. Estradiol-binding mechanism and binding capacity of the human estrogen receptor is regulated by tyrosine phosphorylation. Mol. Endocrinol. 11: 48-53.
4. Joel, P.B., et al. 1998. pp90 Rsk-1 regulates estrogen receptor-mediated transcription through phosphorylation of Ser 167. Mol. Cell. Biol. 18: 1978-1984.
5. Yudt, M.R., et al. 1999. Function of estrogen receptor Tyrosine 537 in hormone binding, DNA binding, and transactivation. Biochemistry 38: 14146-14156.
6. Zhong, L., et al. 2002. Mutations of Tyrosine 537 in the human estrogen receptor α selectively alter the receptor's affinity for estradiol and the kinetics of the interaction. Biochemistry 41: 4209-4217.
7. Lannigan, D.A. 2003. Estrogen receptor phosphorylation. Steroids 68: 1-9.
8. Simoncini, T., et al. 2004. Genomic and non-genomic effects of estrogens on endothelial cells. Steroids 69: 537-542.

CHROMOSOMAL LOCATION

Genetic locus: ESR1 (human) mapping to 6q25.1; Esr1 (mouse) mapping to 10 A1.

SOURCE

p-ERα (Tyr 537) is a rabbit polyclonal antibody raised against a short amino acid sequence containing Tyr 537 phosphorylated ERα of human origin.

RESEARCH USE

For research use only, not for use in diagnostic procedures.

PRODUCT

Each vial contains 200 µg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-32827 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

p-ERα (Tyr 537) is recommended for detection of Tyr 537 phosphorylated ERα of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000); may cross-react with Tyr 488 phosphorylated ERβ.

p-ERα (Tyr 537) is also recommended for detection of correspondingly phosphorylated ERα in additional species, including equine, canine, bovine, porcine and avian.

Suitable for use as control antibody for ERα siRNA (h): sc-29305, ERα siRNA (m): sc-29306, ERα shRNA Plasmid (h): sc-29305-SH, ERα shRNA Plasmid (m): sc-29306-SH, ERα shRNA (h) Lentiviral Particles: sc-29305-V and ERα shRNA (m) Lentiviral Particles: sc-29306-V.

Molecular Weight of p-ERα long isoform: 66 kDa.

Molecular Weight of p-ERα short isoform: 54 kDa.

Molecular Weight of ER46: 48 kDa.

Molecular Weight of ER36: 36 kDa.

Positive Controls: MCF7 whole cell lysate: sc-2206.

RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use goat anti-rabbit IgG-HRP: sc-2004 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible goat anti-rabbit IgG-HRP: sc-2030 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto B Blocking Reagent: sc-2335 (use 50 mM NaF, sc-24988, as diluent), Western Blotting Luminol Reagent: sc-2048 and Lambda Phosphatase: sc-200312A. 2) Immunofluorescence: use goat anti-rabbit IgG-FITC: sc-2012 (dilution range: 1:100-1:400) or goat anti-rabbit IgG-TR: sc-2780 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

SELECT PRODUCT CITATIONS

1. Richardson, A.E., et al. 2011. Insulin-like growth factor-2 (IGF-2) activates estrogen receptor-α and -β via the IGF-1 and the Insulin receptors in breast cancer cells. Growth Factors 29: 82-93.

STORAGE

Store at 4° C, **DO NOT FREEZE**. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.