SANTA CRUZ BIOTECHNOLOGY, INC.

p-ERα (Ser 167): sc-12955

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. pp90Rsk-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.

SOURCE

p-ERα (Ser 167) is available as either goat (sc-12955) or rabbit (sc-12955-R) polyclonal affinity purified antibody raised against a short amino acid sequence containing phosphorylated Ser 167 of 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-12955 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

p-ERα (Ser 167) is recommended for detection of Ser 167 phosphorylated ERα of 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).

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

Molecular Weight of p-ERα: 66 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: for goat primary antibody (sc-12955): use donkey anti-goat IgG-HRP: sc-2020 (range: 1:2000-1:100,000) or Cruz Marker™ compatible donkey anti-goat IgG-HRP: sc-2033 (range: 1:2000-1:5000), for rabbit primary antibody (sc-12955-R): use goat anti-rabbit IgG-HRP: sc-2004 (range: 1:2000-1:100,000) or Cruz Marker™ compatible goat anti-rabbit IgG-HRP: sc-2030 (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) and Western Blotting Luminol Reagent: sc-2048. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml).

SELECT PRODUCT CITATIONS

1. Masri, S., et al. 2008. Genome-wide analysis of aromatase inhibitor-resistant, tamoxifen-resistant, and long-term estrogen-deprived cells reveals a role for estrogen receptor. Cancer Res. 68: 4910-4918.

STORAGE

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

PROTOCOLS

See our web site at www.scbt.com or our catalog for detailed protocols and support products.