SANTA CRUZ BIOTECHNOLOGY, INC.

TRα1/α2 (3C185): sc-73213

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

Thyroid hormone nuclear receptors (TRs) are ligand-dependent transcription factors which regulate and control many metabolic and developmental processes. There are two genes encoding TRs identified to date, TRα and TRβ. TRs bind to thyroid hormone response elements (TREs) with half-site binding motifs in the orientation of palindromes, direct repeats or inverted palindromes. The affinities of binding are both variable and influenced differentially by 3,5,3'-triiodo-L-thyronine (T3). Transcriptional regulation by TRs is also modulated by heterodimerization with TR nuclear accessory proteins, the most extensively characterized of which are the retinoid X receptors (RXRα, RXRβ and RXRγ). The TRα isoform TRα1 can display both a nuclear and undefined cytoplasmic location, and is the only TR that is imported into the mitochondrial matrix. TRα2 is a C-terminal variant of TRα1 that does not bind thyroid hormones (THs) and weakly binds DNA. TRα2 acts as a dominant negative antagonist of TH signalling.

REFERENCES

1. Näär, A., et al. 1991. The orientation and spacing of core DNA-binding motifs dictate selective transcriptional responses to three nuclear receptors. Cell 65: 1267-1271.
2. Meier, C.A., et al. 1993. Interaction of human β1 thyroid hormone receptor and its mutants with DNA and retinoid X receptor β. T3 response element-dependent dominant negative potency. J. Clin. Invest. 92: 1986-1993.
3. Zhang, X.K., et al. 1993. Hetero- and homodimeric receptors in thyroid hormone and vitamin A action. Receptor 3: 183-191.
4. Bhat, M.K., et al. 1994. Phosphorylation enhances the target gene sequence-dependent dimerization of thyroid hormone receptor with retinoid X receptor. Proc. Natl. Acad. Sci. USA 91: 7927-7931.
5. Sugawara, A., et al. 1994. Phosphorylation selectively increases triiodothyronine receptor homodimer binding to DNA. J. Biol. Chem. 269: 433-437.

CHROMOSOMAL LOCATION

Genetic locus: THRA (human) mapping to 17q21.1.

SOURCE

TRα1/α2 (3C185) is a mouse monoclonal antibody raised against an N-terminal peptide of TRα1 of human origin.

PRODUCT

Each vial contains IgG_1 in 100 µl of 10 mM HEPES and 150 mM NaCl with < 0.1% sodium azide, 1% stabilizer protein and 25% glycerol.

STORAGE

For immediate and continuous use, store at 4° C for up to one month. For sporadic use, freeze in working aliquots in order to avoid repeated freeze/thaw cycles. If turbidity is evident upon prolonged storage, clarify solution by centrifugation.

APPLICATIONS

TRα1/α2 (3C185) is recommended for detection of TRα1/α2 of human origin by Western Blotting (starting dilution to be determined by researcher, dilution range 1:100-1:5000), immunoprecipitation [1-2 µl per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution to be determined by researcher, dilution range 1:50-1:2500) and immunohistochemistry (including paraffin-embedded sections) (starting dilution to be determined by researcher, dilution range 1:50-1:2500).

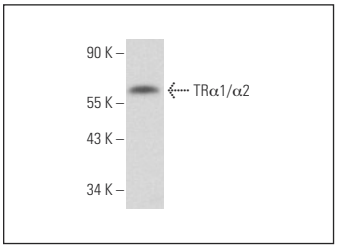
Suitable for use as control antibody for TRα siRNA (h): sc-36707, TRα shRNA Plasmid (h): sc-36707-SH and TRα shRNA (h) Lentiviral Particles: sc-36707-V.

Molecular Weight of TRα1: 47 kDa.

Molecular Weight of TRα2: 55 kDa.

Positive Controls: Hep G2 nuclear extract: sc-364819, C32 whole cell lysate: sc-2205 or C32 nuclear extract: sc-2136.

DATA



TRα1/α2 (3C185): sc-73213. Western blot analysis of TRα1/α2 expression in Hep G2 nuclear extract.

SELECT PRODUCT CITATIONS

1. Illés, P., et al. 2015. Development and characterization of a human reporter cell line for the assessment of thyroid receptor transcriptional activity: a case of organotin endocrine disruptors. J. Agric. Food Chem. 63: 7074-7083.

RESEARCH USE

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

PROTOCOLS

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