SANTA CRUZ BIOTECHNOLOGY, INC.

TRα1/β1 (C3): sc-32754

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. The TRβ isoform TRβ1 forms a complex with the PI 3-kinase p85α subunit and plays an important role in the T3-induced activation of Akt in pancreatic β cells.

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. Lazar, M.A. 1993. Thyroid hormone receptors: multiple forms, multiple possibilities. Endocr. Rev. 14: 184-193.
3. Meier, C.A., et al. 1993. Interaction of human TRβ1 and its mutants with DNA and RXRβ. T3 response element-dependent dominant negative potency. J. Clin. Invest. 92: 1986-1993.
4. Zhang, X.K., et al. 1993. Hetero- and homodimeric receptors in thyroid hormone and vitamin A action. Receptor 3: 183-191.
5. 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.
6. 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, THRB (human) mapping to 3p24.2.

SOURCE

TRα1/β1 (C3) is a mouse monoclonal antibody raised against the ligand binding domain of the thyroid hormone receptor α1 of human origin.

PRODUCT

Each vial contains 200 µg IgG_1 kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin. Also available as TransCruz reagent for Gel Supershift and ChIP applications, sc-32754 X, 200 µg/0.1 ml.

STORAGE

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

APPLICATIONS

TRα1/β1 (C3) is recommended for detection of TRα1 and TRβ1 of human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000) and immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)].

TRα1/β1 (C3) X TransCruz antibody is recommended for Gel Supershift and ChIP applications.

Molecular Weight of TRα1: 47 kDa.

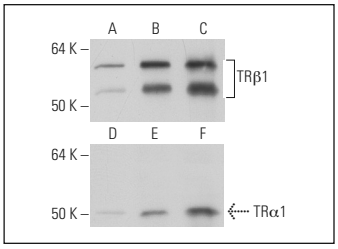
Molecular Weight of TRβ1: 58 kDa.

Positive Controls: C32 whole cell lysate: sc-2205.

RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml).

DATA



TRα1/β1 (C3): sc-32754. Western blot analysis of *in vitro* synthesized human TRβ1 (**A**-**C**) and TRα1 (**D**-**F**) prepared from TNT T7 programmed lysates. 1 µl (**A**,**D**), 3 µl (**B**,**E**) and 6 µl (**C**,**F**).

SELECT PRODUCT CITATIONS

1. Huang, W., et al. 2010. qHTS for inhibitors of the interaction of thyroid hormone receptor and steroid receptor coregulator 2. Molecular Libraries.
2. Hwang, J.Y., et al. 2011. Methylsulfonylnitrobenzoates, a new class of irreversible inhibitors of the interaction of the thyroid hormone receptor and its obligate coactivators that functionally antagonizes thyroid hormone. J. Biol. Chem. 286: 11895-11908.

RESEARCH USE

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