SANTA CRUZ BIOTECHNOLOGY, INC.

TRα1/β1 (C1): sc-739

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.

CHROMOSOMAL LOCATION

Genetic locus: THRA (human) mapping to 17q21.1, THRB (human) mapping to 3p24.2; Thra (mouse) mapping to 11 D, Thrb (mouse) mapping to 14 A2.

SOURCE

TRα1/β1 (C1) is a mouse monoclonal antibody raised against the ligand binding domain of TRα1 and TRβ1 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-739 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.

RESEARCH USE

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

APPLICATIONS

TRα1/β1 (C1) is recommended for detection of TRα1 and TRβ1 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)] and immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500).

TRα1/β1 (C1) X TransCruz antibody is recommended for Gel Supershift and ChIP applications.

Molecular Weight of TRα1: 47 kDa.

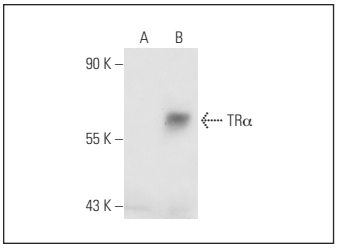
Molecular Weight of TRβ1: 58 kDa.

Positive Controls: TRα (h2): 293T Lysate: sc-170626 or 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). 3) Immunofluorescence: use m-IgGκ BP-FITC: sc-516140 or m-IgGκ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

DATA



TRα1/β1 (C1): sc-739. Western blot analysis of TRα expression in non-transfected: sc-117752 (**A**) and human TRα transfected: sc-170626 (**B**) 293T whole cell lysates.

SELECT PRODUCT CITATIONS

1. Yuan, C., et al. 1998. The TRAP220 component of a thyroid hormone receptor-associated protein (TRAP) co-activator complex interacts directly with nuclear receptors in a ligand-dependent fashion. Proc. Natl. Acad. Sci. USA 95: 7939-7944.
2. Kinugawa, K., et al. 2005. Thyroid hormone induces cardiac myocyte hypertrophy in a thyroid hormone receptor α1-specific manner that requires TAK1 and p38 mitogen-activated protein kinase. Mol. Endocrinol. 19: 1618-1628.
3. Hiroi, Y., et al. 2006. Rapid nongenomic actions of thyroid hormone. Proc. Natl. Acad. Sci. USA 103: 14104-14109.
4. Guyot, R., et al. 2010. The transforming acidic coiled coil (TACC1) protein modulates the transcriptional activity of the nuclear receptors TR and RAR. BMC Mol. Biol. 11: 3.
5. Wu, S.M., et al. 2015. Negative modulation of the epigenetic regulator, UHRF1, by thyroid hormone receptors suppresses liver cancer cell growth. Int. J. Cancer 137: 37-49.
5. Guan, W., et al. 2017. Methylcytosine dioxygenase TET3 interacts with thyroid hormone nuclear receptors and stabilizes their association to chromatin. Proc. Natl. Acad. Sci. USA 114: 8229-8234.