

## TR $\beta$ 1 (P-16): sc-10823

### BACKGROUND

Thyroid hormone nuclear receptors (TRs) are ligand-dependent transcription factors which regulate growth, differentiation and development and represent members of the steroid/retinoic acid superfamily. The two genes encoding TRs identified to date, TR $\alpha$  and TR $\beta$ , have been mapped to human chromosomes 17 and 3, respectively. 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 (RXR $\alpha$ , RXR $\beta$  and RXR $\gamma$ ). The TR $\beta$  isoform TR $\beta$ 1 forms a complex with the PI 3-kinase p85 $\alpha$  subunit and plays an important role in the T3-induced activation of Akt in pancreatic  $\beta$  cells.

### REFERENCES

- 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.
- Lazar, M.A. 1993. Thyroid hormone receptors: multiple forms, multiple possibilities. *Endocrinol. Rev.* 14: 184-193.
- Meier, C.A., et al. 1993. Interaction of human TR $\beta$ 1 and its mutants with DNA and RXR $\beta$ . T3 response element-dependent dominant negative potency. *J. Clin. Invest.* 92: 1986-1993.
- Zhang, X.K., et al. 1993. Hetero- and homodimeric receptors in thyroid hormone and vitamin A action. *Receptor* 3: 183-191.
- 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.
- Sugawara, A., et al. 1994. Phosphorylation selectively increases triiodo-L-thyronine receptor homodimer binding to DNA. *J. Biol. Chem.* 269: 433-437.
- Verga Falzacappa, C., et al. 2007. Thyroid hormone receptor TR $\beta$ 1 mediates Akt activation by T3 in pancreatic  $\beta$  cells. *J. Mol. Endocrinol.* 38: 221-233.

### CHROMOSOMAL LOCATION

Genetic locus: THRB (human) mapping to 3p24.2; Thrb (mouse) mapping to 14 A2.

### SOURCE

TR $\beta$ 1 (P-16) is an affinity purified goat polyclonal antibody raised against a peptide mapping near the N-terminus of TR $\beta$ 1 of human origin.

### 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.

### PRODUCT

Each vial contains 200  $\mu$ g IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-10823 P, (100  $\mu$ g peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

Available as TransCruz reagent for Gel Supershift and ChIP applications, sc-10823 X, 200  $\mu$ g/0.1 ml.

### APPLICATIONS

TR $\beta$ 1 (P-16) is recommended for detection of TR $\beta$ 1 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).

TR $\beta$ 1 (P-16) is also recommended for detection of TR $\beta$ 1 in additional species, including equine and canine.

Suitable for use as control antibody for TR $\beta$ 1 siRNA (h): sc-38890, TR $\beta$ 1 siRNA (m): sc-38891, TR $\beta$ 1 shRNA Plasmid (h): sc-38890-SH, TR $\beta$ 1 shRNA Plasmid (m): sc-38891-SH, TR $\beta$ 1 shRNA (h) Lentiviral Particles: sc-38890-V and TR $\beta$ 1 shRNA (m) Lentiviral Particles: sc-38891-V.

TR $\beta$ 1 (P-16) X TransCruz antibody is recommended for Gel Supershift and ChIP applications.

Molecular Weight of TR $\beta$ 1: 55 kDa.

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

### RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use donkey anti-goat IgG-HRP: sc-2020 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible donkey anti-goat IgG-HRP: sc-2033 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use donkey anti-goat IgG-FITC: sc-2024 (dilution range: 1:100-1:400) or donkey anti-goat IgG-TR: sc-2783 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

### SELECT PRODUCT CITATIONS

- Fava, G., et al. 2006. Thyroid hormone inhibits biliary growth in bile duct-ligated rats by PLC/IP<sub>3</sub>/Ca<sup>2+</sup>-dependent downregulation of SRC/ERK1/2. *Am. J. Physiol. Cell Physiol.* 292: C1467-C1475.



Try **TR $\beta$ 1 (J51): sc-737** or **TR $\beta$ 1 (J52): sc-738**, our highly recommended monoclonal alternatives to TR $\beta$ 1 (P-16). Also, for AC, HRP, FITC, PE, Alexa Fluor® 488 and Alexa Fluor® 647 conjugates, see **TR $\beta$ 1 (J51): sc-737**.