

TRP2 (B-7): sc-271356

BACKGROUND

Tyrosinase (TYR), a type I membrane protein and copper-containing enzyme, is involved in the production of melanin, the primary pigment found in vertebrates. Melanin biogenesis requires the enzymatic activity of TYR, which catalyzes the critical and rate-limiting step of tyrosine hydroxylation in the biosynthesis of melanin. Defects effecting TYR activity result in various forms of albinism. The TYR-related proteins, TRP1 and TRP2, are also specifically expressed in melanocytes, and they likewise contribute to the synthesis of melanin within the melanosomes. The TRPs, including TYR, all share a similar transmembrane region, contain two metal-binding regions and a cysteine-rich epidermal growth factor motif and are localized in the melanosomal membrane. These proteins, however, have distinct catalytic activity, and they individually contribute to the biosynthesis of melanin biopolymers. The TRPs are believed to exist as a multi-enzyme complex, as these proteins form aggregates together, and the expression of TRP1 also helps stabilize TYR in melanocytes.

REFERENCES

1. Korner, A. and Pawelek, J. 1982. Mammalian tyrosinase catalyzes three reactions in the biosynthesis of melanin. *Science* 217: 1163-1165.
2. Shibahara, S., et al. 1986. Cloning and expression of cDNA encoding mouse tyrosinase. *Nucleic Acids Res.* 14: 2413-2427.
3. Hearing, V.J. and Jiménez, M. 1987. Mammalian tyrosinase—the critical regulatory control point in melanocyte pigmentation. *Int. J. Biochem.* 19: 1141-1147.

CHROMOSOMAL LOCATION

Genetic locus: DCT (human) mapping to 3q11.2; Dct (mouse) mapping to 14 E4.

SOURCE

TRP2 (B-7) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 57-88 near the N-terminus of TRP2 of human origin.

PRODUCT

Each vial contains 200 µg IgG₁ kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

TRP2 (B-7) is available conjugated to agarose (sc-271356 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-271356 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-271356 PE), fluorescein (sc-271356 FITC), Alexa Fluor[®] 488 (sc-271356 AF488), Alexa Fluor[®] 546 (sc-271356 AF546), Alexa Fluor[®] 594 (sc-271356 AF594) or Alexa Fluor[®] 647 (sc-271356 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor[®] 680 (sc-271356 AF680) or Alexa Fluor[®] 790 (sc-271356 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

Blocking peptide available for competition studies, sc-271356 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

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APPLICATIONS

TRP2 (B-7) is recommended for detection of TRP2 of mouse, rat and human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], 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).

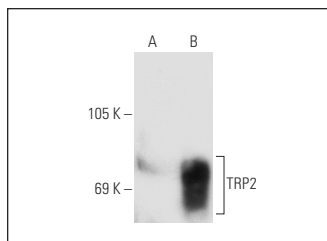
Suitable for use as control antibody for TRP2 siRNA (h): sc-41661, TRP2 siRNA (m): sc-41662, TRP2 shRNA Plasmid (h): sc-41661-SH, TRP2 shRNA Plasmid (m): sc-41662-SH, TRP2 shRNA (h) Lentiviral Particles: sc-41661-V and TRP2 shRNA (m) Lentiviral Particles: sc-41662-V.

Molecular Weight of TRP2 precursor: 59 kDa.

Molecular Weight of glycosylated TRP2: 75 kDa.

Positive Controls: TRP2 (h): 293T Lysate: sc-113802, A-375 cell lysate: sc-3811 or Y79 cell lysate: sc-2240.

DATA



TRP2 (B-7): sc-271356. Western blot analysis of TRP2 expression in non-transfected: sc-117752 (A) and human TRP2 transfected: sc-113802 (B) 293T whole cell lysates.

SELECT PRODUCT CITATIONS

1. Villareal, M.O., et al. 2017. Upregulation of mitf by phenolic compounds-rich cymbopogon schoenanthus treatment promotes melanogenesis in B16 melanoma cells and human epidermal melanocytes. *Biomed Res. Int.* 2017: 8303671.
2. Isogawa, K., et al. 2021. Thioxothiazolidin derivative, 4-OST, inhibits melanogenesis by enhancing the specific recruitment of tyrosinase-containing vesicles to lysosome. *J. Cell. Biochem.* 122: 667-678.
3. Dolinska, M.B., et al. 2022. Protein biochemistry and molecular modeling of the intra-melanosomal domain of human recombinant tyrp2 protein and OCA8-related mutant variants. *Int. J. Mol. Sci.* 23: 1305.
4. Osuna, I., et al. 2022. *In vitro* reconstitution of the melanin pathway's catalytic activities using tyrosinase nanoparticles. *Int. J. Mol. Sci.* 24: 639.

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.