

# TRP1 (SPM456): sc-56491

## 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., et al. 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., et al. 1987. Mammalian tyrosinase—the critical regulatory control point in melanocyte pigmentation. *Int. J. Biochem.* 19: 1141-1147.
4. Tripathi, R.K., et al. 1992. Mutational mapping of the catalytic activities of human tyrosinase. *J. Biol. Chem.* 267: 23707-23712.
5. Tsukamoto, K., et al. 1992. A second tyrosinase-related protein, TRP2, is a melanogenic enzyme termed DOPAchrome tautomerase. *EMBO J.* 11: 519-526.
6. Bouchard, B., et al. 1994. Molecular characterization of a human tyrosinase-related-protein-2 cDNA. Patterns of expression in melanocytic cells. *Eur. J. Biochem.* 219: 127-134.
7. Orlow, S.J., et al. 1994. High-molecular-weight forms of tyrosinase and the tyrosinase-related proteins: evidence for a melanogenic complex. *J. Invest. Dermatol.* 103: 196-201.
8. Jimenez-Cervantes, C., et al. 1998. Molecular interactions within the melanogenic complex: formation of heterodimers of tyrosinase and TRP1 from B16 mouse melanoma. *Biochem. Biophys. Res. Commun.* 253: 761-767.

## CHROMOSOMAL LOCATION

Genetic locus: TYRP1 (human) mapping to 9p23; Tyrp1 (mouse) mapping to 4 C3.

## SOURCE

TRP1 (SPM456) is a mouse monoclonal antibody raised against SK-MEL-23 melanoma cell line of human origin.

## RESEARCH USE

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

## PRODUCT

Each vial contains 200 µg IgG<sub>2a</sub> kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

## APPLICATIONS

TRP1 (SPM456) is recommended for detection of TRP1 in melanomas of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000); non cross-reactive with carcinomas and sarcomas.

Suitable for use as control antibody for TRP1 siRNA (h): sc-36745, TRP1 siRNA (m): sc-36744, TRP1 shRNA Plasmid (h): sc-36745-SH, TRP1 shRNA Plasmid (m): sc-36744-SH, TRP1 shRNA (h) Lentiviral Particles: sc-36745-V and TRP1 shRNA (m) Lentiviral Particles: sc-36744-V.

Molecular Weight of TRP1 glycosylation: 70-90 kDa.

## 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.

## SELECT PRODUCT CITATIONS

1. Wang, D.G., et al. 2013. Stem cell factor combined with matrix proteins regulates the attachment and migration of melanocyte precursors of human hair follicles *in vitro*. *Biol. Pharm. Bull.* 36: 1317-1325.
2. Wang, D., et al. 2013. Optimization of the method for the culture of melanocyte precursors from hair follicles and their activation by 1,25-dihydroxyvitamin D<sub>3</sub>. *Exp. Ther. Med.* 6: 967-972.

## STORAGE

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

## PROTOCOLS

See our web site at [www.scbt.com](http://www.scbt.com) for detailed protocols and support products.



See **TRP1 (G-9): sc-166857** for TRP1 antibody conjugates, including AC, HRP, FITC, PE, and Alexa Fluor® 488, 546, 594, 647, 680 and 790.