

Tyrosinase (T311): sc-20035

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 affecting 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.

CHROMOSOMAL LOCATION

Genetic locus: TYR (human) mapping to 11q14.3; Tyr (mouse) mapping to 7 D3.

SOURCE

Tyrosinase (T311) is a mouse monoclonal antibody raised against recombinant Tyrosinase of human origin.

PRODUCT

Each vial contains 200 µg IgG_{2a} kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Tyrosinase (T311) is available conjugated to agarose (sc-20035 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-20035 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-20035 PE), fluorescein (sc-20035 FITC), Alexa Fluor® 488 (sc-20035 AF488), Alexa Fluor® 546 (sc-20035 AF546), Alexa Fluor® 594 (sc-20035 AF594) or Alexa Fluor® 647 (sc-20035 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-20035 AF680) or Alexa Fluor® 790 (sc-20035 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

APPLICATIONS

Tyrosinase (T311) is recommended for detection of Tyrosinase 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)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500).

Suitable for use as control antibody for Tyrosinase siRNA (h): sc-36766, Tyrosinase siRNA (m): sc-36767, Tyrosinase shRNA Plasmid (h): sc-36766-SH, Tyrosinase shRNA Plasmid (m): sc-36767-SH, Tyrosinase shRNA (h) Lentiviral Particles: sc-36766-V and Tyrosinase shRNA (m) Lentiviral Particles: sc-36767-V.

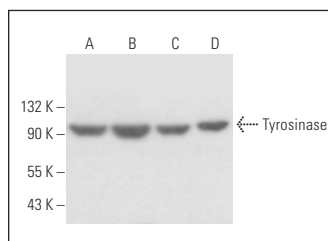
Molecular Weight of Tyrosinase: 60 kDa.

Molecular Weight of glycosylated Tyrosinase: 70-84 kDa.

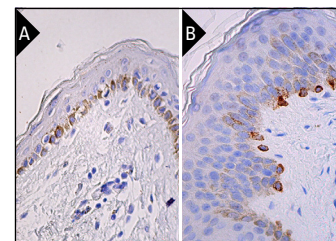
STORAGE

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

DATA



Tyrosinase (T311): sc-20035. Western blot analysis of Tyrosinase expression in Hep G2 (A), Jurkat (B), A-431 (C) and A375 (D) whole cell lysates.



Tyrosinase (T311): sc-20035. Immunoperoxidase staining of formalin fixed, paraffin-embedded human skin tissue showing cytoplasmic staining of subset of basal epidermal cells (A). Immunoperoxidase staining of formalin fixed, paraffin-embedded human skin tissue showing cytoplasmic staining of melanocytes (B).

SELECT PRODUCT CITATIONS

- Halaban, R., et al. 2000. Endoplasmic reticulum retention is a common defect associated with Tyrosinase-negative albinism. *Proc. Natl. Acad. Sci. USA* 97: 5889-5894.
- 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 D₃. *Exp. Ther. Med.* 6: 967-972.
- Bultema, J.J., et al. 2014. Myosin vc interacts with Rab32 and Rab38 proteins and works in the biogenesis and secretion of melanosomes. *J. Biol. Chem.* 289: 33513-33528.
- Arts, N., et al. 2015. microRNA-155, induced by interleukin-1β, represses the expression of microphthalmia-associated transcription factor (MITF-M) in melanoma cells. *PLoS ONE* 10: e0122517.
- Ambrosio, A.L., et al. 2016. TPC2 controls pigmentation by regulating melanosome pH and size. *Proc. Natl. Acad. Sci. USA* 113: 5622-5627.
- Patwardhan, A., et al. 2017. Routing of the RAB6 secretory pathway towards the lysosome related organelle of melanocytes. *Nat. Commun.* 8: 15835.
- Wu, Q., et al. 2018. Microphthalmia-associated transcription factor up-regulates acetylcholinesterase expression during melanogenesis of murine melanoma cells. *J. Biol. Chem.* 293: 14417-14428.
- Teramae, A., et al. 2019. The molecular basis of chemical chaperone therapy for oculocutaneous albinism type 1A. *J. Invest. Dermatol.* 139: 1143-1149.

RESEARCH USE

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

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