SANTA CRUZ BIOTECHNOLOGY, INC.

TFR2 (9F8 1C11): sc-32271

BACKGROUND

Iron is a vital molecule for living organisms because it is involved in a wide variety of metabolic processes, such as oxygen transport, DNA synthesis and electron transport. Excessive iron uptake leads to tissue damage as a result of formation of free radicals. Iron uptake and storage is tightly regulated by the feedback system of iron responsive element-containing gene products and iron regulatory proteins that modulate the expression levels of the genes involved in iron metabolism. The transferrin receptor 2 (TFR2) mediates the uptake of transferrin-bound iron. It is involved in iron metabolism, hepatocyte function and erythrocyte differentiation, and is highly expressed as a protein in liver as well as in hepatocytes and erythroid precursors. The gene encoding human TRF2 maps to chromosome 7q22.1 and is expressed as an α isoform, which encodes a transmembrane protein, and a β isoform, which encodes a shorter, intracellular protein. Mutations in the TFR2 gene result in hereditary hemochromatosis type III (HFE3), an iron overloading disorder that results in clinical complications, including cirrhosis, cardiopathy, diabetes, endocrine dysfunctions, arthropathy and susceptibility to liver cancer.

CHROMOSOMAL LOCATION

Genetic locus: TFR2 (human) mapping to 7q22.1.

SOURCE

TFR2 (9F8 1C11) is a mouse monoclonal antibody raised against the purified ectodomains of human TFR2.

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.

TFR2 (9F8 1C11) is available conjugated to agarose (sc-32271 AC), 500 µg/ 0.25 ml agarose in 1 ml, for IP; to HRP (sc-32271 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-32271 PE), fluorescein (sc-32271 FITC), Alexa Fluor® 488 (sc-32271 AF488), Alexa Fluor® 546 (sc-32271 AF546), Alexa Fluor® 594 (sc-32271 AF594) or Alexa Fluor® 647 (sc-32271 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-32271 AF680) or Alexa Fluor® 790 (sc-32271 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

APPLICATIONS

TFR2 (9F8 1C11) is recommended for detection of TFR2 of 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 TFR2 siRNA (h): sc-42997, TFR2 shRNA Plasmid (h): sc-42997-SH and TFR2 shRNA (h) Lentiviral Particles: sc-42997-V.

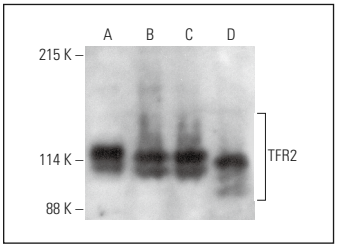
Molecular Weight of TFR2: 97-105 kDa.

Positive Controls: HEL 92.1.7 cell lysate: sc-2270, TF-1 cell lysate: sc-2412 or MEG-01 cell lysate: sc-2283.

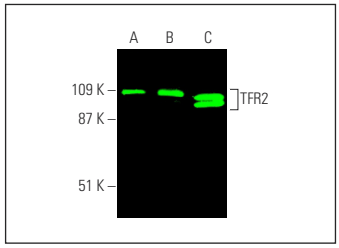
STORAGE

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

DATA



TFR2 (9F8 1C11) HRP: sc-32271 HRP. Direct western blot analysis of TFR2 expression in HEL 92.1.7 (**A**), TF-1 (**B**) and MEG-01 (**C**) whole cell lysates and human liver tissue extract (**D**).



TFR2 (9F8 1C11): sc-32271. Near-infrared western blot analysis of TFR2 expression in Hep G2 (**A**), HEL 92.1.7 (**B**) and TF-1 (**C**) whole cell lysates. Blocked with UltraCruz® Blocking Reagent: sc-516214. Detection reagent used: m-IgGκ BP-CFL 680: sc-516180.

SELECT PRODUCT CITATIONS

1. Shindo, M., et al. 2006. Functional role of DMT1 in transferrin-independent iron uptake by human hepatocyte and hepatocellular carcinoma cell, HLF. Hepatol. Res. 35: 152-162.
2. Helchowski, C.M., et al. 2009. The use of pepsin in receptor internalization assays. Biochem. Biophys. Res. Commun. 388: 240-246.
3. Ikuta, K., et al. 2010. Characterization of the interaction between diferric transferrin and transferrin receptor 2 by functional assays and atomic force microscopy. J. Mol. Biol. 397: 375-384.
4. Dikshit, N., et al. 2015. Intracellular uropathogenic *E. coli* exploits host Rab35 for iron acquisition and survival within urinary bladder cells. PLoS Pathog. 11: e1005083.
5. Mrowczynski, O.D., et al. 2017. HFE genotype affects exosome phenotype in cancer. Biochim. Biophys. Acta 1861: 1921-1928.
6. Khalil, S., et al. 2018. Iron modulation of erythropoiesis is associated with Scribble-mediated control of the erythropoietin receptor. J. Exp. Med. 215: 661-679.
7. Nandakumar, S.K., et al. 2019. Gene-centric functional dissection of human genetic variation uncovers regulators of hematopoiesis. Elife 8: e44080.
8. Adachi, M., et al. 2019. Transferrin receptor 1 overexpression is associated with tumour de-differentiation and acts as a potential prognostic indicator of hepatocellular carcinoma. Histopathology 75: 63-73.
9. Zhang, H., et al. 2020. miR-30-5p-mediated ferroptosis of trophoblasts is implicated in the pathogenesis of preeclampsia. Redox Biol. 29: 101402.

RESEARCH USE

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