SANTA CRUZ BIOTECHNOLOGY, INC.

HFE (C-12): sc-514405

BACKGROUND

The features of hemochromatosis include cirrhosis of the liver, diabetes, hypermelanotic pigmentation of the skin, and heart failure. Since hemochromatosis is a relatively easily treated disorder if diagnosed, this is a form of preventable cancer. The HFE protein, which is defective in hereditary hemochromatosis, normally is expressed in crypt enterocytes of the duodenum where it has a unique, predominantly intracellular localization. In placenta, the HFE protein co-localizes with and forms a stable association with the transferrin receptor (TfR), providing a link between the HFE protein and iron transport. Immunocytochemistry shows that the HFE protein and TfR both are expressed in the crypt enterocytes. Western blots show that, as is the case in human placenta, the HFE protein in crypt enterocytes is physically associated with the TfR and with β_2-Microglobulin. It is proposed that HFE has two mutually exclusive activities in cells: inhibition of uptake or inhibition of release of iron and that the balance between serum transferrin saturation and serum transferrin-receptor concentrations determines which of these functions predominates. The gene which encodes HFE maps to human chromosome 6p22.2.

REFERENCES

1. Cragg, S.J., et al. 1985. Genes for the "H" subunit of human ferritin are present on a number of human chromosomes. Hum. Genet. 71: 108-112.
2. McGill, J.R., et al. 1987. Human ferritin H and L sequences lie on ten different chromosomes. Hum. Genet. 76: 66-72.
3. Waheed, A., et al. 1999. Association of HFE protein with transferrin receptor in crypt enterocytes of human duodenum. Proc. Natl. Acad. Sci. USA 96: 1579-1584.
4. Townsend, A., et al. 2002. Role of HFE in iron metabolism, hereditary haemochromatosis, anaemia of chronic disease, and secondary iron overload. Lancet 359: 786-790.

CHROMOSOMAL LOCATION

Genetic locus: HFE (human) mapping to 6p22.2; Hfe (mouse) mapping to 13 A3.1.

SOURCE

HFE (C-12) is a mouse monoclonal antibody raised against amino acids 210-263 mapping within an internal region of HFE of human origin.

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.

HFE (C-12) is available conjugated to agarose (sc-514405 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-514405 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-514405 PE), fluorescein (sc-514405 FITC), Alexa Fluor® 488 (sc-514405 AF488), Alexa Fluor® 546 (sc-514405 AF546), Alexa Fluor® 594 (sc-514405 AF594) or Alexa Fluor® 647 (sc-514405 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-514405 AF680) or Alexa Fluor® 790 (sc-514405 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

APPLICATIONS

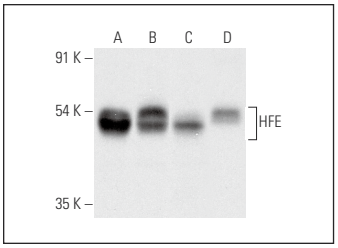
HFE (C-12) is recommended for detection of HFE of mouse, rat and human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for HFE siRNA (h): sc-43832, HFE siRNA (m): sc-145951, HFE shRNA Plasmid (h): sc-43832-SH, HFE shRNA Plasmid (m): sc-145951-SH, HFE shRNA (h) Lentiviral Particles: sc-43832-V and HFE shRNA (m) Lentiviral Particles: sc-145951-V.

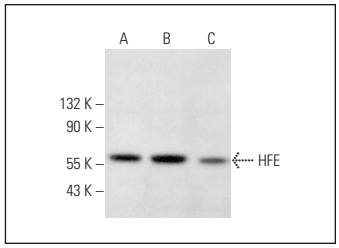
Molecular Weight of HFE: 49 kDa.

Positive Controls: HeLa whole cell lysate: sc-2200, A-431 whole cell lysate: sc-2201 or Caco-2 cell lysate: sc-2262.

DATA



HFE (C-12): sc-514405. Western blot analysis of HFE expression in HeLa (**A**), A-431 (**B**) and Caco-2 (**C**) whole cell lysates and human liver tissue extract (**D**).



HFE (C-12): sc-514405. Western blot analysis of HFE expression in Sol8 (**A**), A-10 (**B**) and L6 (**C**) whole cell lysates.

SELECT PRODUCT CITATIONS

1. Frýdlová, J., et al. 2018. Liver HFE protein content is posttranscriptionally decreased in iron-deficient mice and rats. Am. J. Physiol. Gastrointest. Liver Physiol. 315: G560-G568.
2. Liu, J., et al. 2021. HFE inhibits type I IFNs signaling by targeting the SQSTM1-mediated MAVS autophagic degradation. Autophagy 17: 1962-1977.
3. Mikaeeli, S., et al. 2024. Insights into PCSK9-LDLR regulation and trafficking via the differential functions of MHC-I proteins HFE and HLA-C. Cells 13: 857.

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.

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