SANTA CRUZ BIOTECHNOLOGY, INC.

Hephaestin (C-7): sc-365365

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

Hephaestin is a single-pass type I membrane protein that belongs to the multicopper oxidase family of proteins. Hephaestin, a copper-dependant ferroxidase protein, is crucial for iron exiting intestinal enterocytes into the circulation. It mediates the movement of iron across the basolateral membrane in conjunction with ferroportin 1. This is an important link between iron and copper metabolism in mammalian systems, as copper deficiency leads to reduced Hephaestin and reduced iron absorption resulting in anemia. Hephaestin can bind six copper ions per monomer and is regulated by the homeobox transcription factor CDX2. Increased levels of iron leads to an increase in CDX2 expression and thus Hephaestin. Hephaestin is primarily detected in the intestine, but is also expressed in colon, breast, bone trabecural cells and fibroblasts.

CHROMOSOMAL LOCATION

Genetic locus: HEPH (human) mapping to Xq12.

SOURCE

Hephaestin (C-7) is a mouse monoclonal antibody raised against amino acids 331-420 mapping within an N-terminal extracellular domain of Hephaestin of human origin.

PRODUCT

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

Hephaestin (C-7) is available conjugated to agarose (sc-365365 AC), 500 µg/ 0.25 ml agarose in 1 ml, for IP; to HRP (sc-365365 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-365365 PE), fluorescein (sc-365365 FITC), Alexa Fluor® 488 (sc-365365 AF488), Alexa Fluor® 546 (sc-365365 AF546), Alexa Fluor® 594 (sc-365365 AF594) or Alexa Fluor® 647 (sc-365365 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-365365 AF680) or Alexa Fluor® 790 (sc-365365 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

APPLICATIONS

Hephaestin (C-7) is recommended for detection of Hephaestin of 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), immunohistochemistry (including paraffin-embedded sections) (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 Hephaestin siRNA (h): sc-60780, Hephaestin shRNA Plasmid (h): sc-60780-SH and Hephaestin shRNA (h) Lentiviral Particles: sc-60780-V.

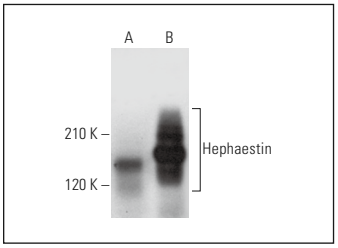
Molecular Weight of Hephaestin: 160 kDa.

Positive Controls: human colon extract: sc-363757, human small intestine extract: sc-364225 or K-562 whole cell lysate: sc-2203.

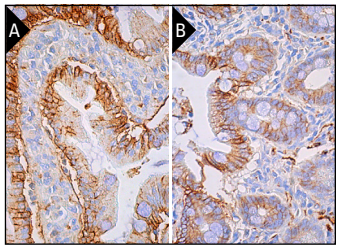
STORAGE

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

DATA



Hephaestin (C-7): sc-365365. Western blot analysis of Hephaestin expression in human colon (**A**) and human small intestine (**B**) tissue extracts.



Hephaestin (C-7): sc-365365. Immunoperoxidase staining of formalin fixed, paraffin-embedded human small intestine (**A**) and human colon (**B**) tissue showing membrane staining of glandular cells.

SELECT PRODUCT CITATIONS

1. Wang, Y.F., et al. 2017. G9a regulates breast cancer growth by modulating iron homeostasis through the repression of ferroxidase Hephaestin. Nat. Commun. 8: 274.
2. Broide, E., et al. 2018. Expression of duodenal iron transporter proteins in diabetic patients with and without iron deficiency anemia. J. Diabetes Res. 2018: 7494821.
3. Zacchi, P., et al. 2021. The ferroxidase Hephaestin in lung cancer: pathological significance and prognostic value. Front. Oncol. 11: 638856.
4. Baringer, S.L., et al. 2023. Amyloid-β exposed astrocytes induce iron transport from endothelial cells at the blood-brain barrier by altering the ratio of apo- and holo-transferrin. J. Neurochem. 167: 248-261.
5. Baringer, S.L., et al. 2023. Apo- and holo-transferrin differentially interact with Hephaestin and ferroportin in a novel mechanism of cellular iron release regulation. J. Biomed. Sci. 30: 36.
6. Baringer, S., et al. 2023. Apo- and holo- transferrin differentially interact with ferroportin and Hephaestin to regulate iron release at the blood-brain barrier. Res. Sq. E-published.
7. Hilton, J.B.W., et al. 2024. Evidence for disrupted copper availability in human spinal cord supports Cu^{II}(atsm) as a treatment option for sporadic cases of ALS. Sci. Rep. 14: 5929.

RESEARCH USE

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

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.