

# Hephaestin (M-90): sc-134445

## 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 the an increase in Cdx2 expression and thus Hephaestin. Hephaestin is primarily detected in the intestine, but is also expressed in colon, breast, bone trabecular cells and fibroblasts.

## REFERENCES

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2. Anderson, G.J., et al. 2005. Mechanisms of haem and non-haem iron absorption: lessons from inherited disorders of iron metabolism. *Biometals* 18: 339-348.
3. Petrak, J., et al. 2005. Hephaestin—a ferroxidase of cellular iron export. *Int. J. Biochem. Cell Biol.* 37: 1173-1178.
4. Gleeson, F., et al. 2005. Duodenal Dcytb and Hephaestin mRNA expression are not significantly modulated by variations in body iron homeostasis. *Blood Cells Mol. Dis.* 35: 303-308.
5. Reeves, P.G., et al. 2005. Repletion of copper-deficient rats with dietary copper restores duodenal Hephaestin protein and iron absorption. *Exp. Biol. Med.* 230: 320-325.
6. Hinoi, T., et al. 2005. Cdx2-regulated expression of iron transport protein Hephaestin in intestinal and colonic epithelium. *Gastroenterology* 128: 946-961.
7. Reeves, P.G., et al. 2005. Dietary copper deficiency reduces iron absorption and duodenal enterocyte Hephaestin protein in male and female rats. *J. Nutr.* 135: 92-98.

## CHROMOSOMAL LOCATION

Genetic locus: Heph (mouse) mapping to X C3.

## SOURCE

Hephaestin (M-90) is a rabbit polyclonal antibody raised against amino acids 331-420 mapping within an N-terminal extracellular domain of Hephaestin of mouse origin.

## PRODUCT

Each vial contains 200 µg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

## RESEARCH USE

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

## APPLICATIONS

Hephaestin (M-90) is recommended for detection of Hephaestin of mouse and rat 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 solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for Hephaestin siRNA (m): sc-60781, Hephaestin shRNA Plasmid (m): sc-60781-SH and Hephaestin shRNA (m) Lentiviral Particles: sc-60781-V.

Molecular Weight of Hephaestin: 160 kDa.

## RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use goat anti-rabbit IgG-HRP: sc-2004 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible goat anti-rabbit IgG-HRP: sc-2030 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) Immunofluorescence: use goat anti-rabbit IgG-FITC: sc-2012 (dilution range: 1:100-1:400) or goat anti-rabbit IgG-TR: sc-2780 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

## 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) or our catalog for detailed protocols and support products.


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Try **Hephaestin (C-8): sc-393701**, our highly recommended monoclonal alternative to Hephaestin (M-90).