SANTA CRUZ BIOTECHNOLOGY, INC.

ferritin heavy chain (Y-16): sc-14416

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

Mammalian ferritins consist of 24 subunits made up of 2 types of polypeptide chains, ferritin heavy chain and ferritin light chain, which each have unique functions. Ferritin heavy chains catalyze the first step in iron storage, the oxidation of Fe^{II}, whereas ferritin light chains promote the nucleation of ferrihydrite, enabling storage of Fe^{III}. The most prominent role of mammalian ferritins is to provide iron-buffering capacity to cells. In addition to iron buffering, heavy chain ferritin is also involved in the regulation of thymidine biosynthesis via increased expression of cytoplasmic serine hydroxymethyltransferase, which is a limiting factor in thymidylate synthesis in MCF-7 cells. Light chain ferritin is involved in cataracts by at least two mechanisms: hereditary hyperferritinemia cataract syndrome, in which light chain ferritin is overexpressed; and oxidative stress, an important factor in the development of aging-related cataracts.

REFERENCES

1. Worwood, M., et al. 1985. Assignment of human ferritin genes to chromosomes 11 and 19q13.3→19qter. Hum. Genet. 69: 371-374.
2. Cheng, Q., et al. 2000. High level of ferritin light chain mRNA in lens. Biochem. Biophys. Res. Commun. 270: 349-355.

CHROMOSOMAL LOCATION

Genetic locus: FTH1 (human) mapping to 11q12.3, FTMT (human) mapping to 5q23.1; Fth1 (mouse) mapping to 19 A, Ftmt (mouse) mapping to 18 D1.

SOURCE

ferritin heavy chain (Y-16) is an affinity purified goat polyclonal antibody raised against a peptide mapping near the N-terminus of ferritin heavy chain of human origin.

PRODUCT

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

Blocking peptide available for competition studies, sc-14416 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

ferritin heavy chain (Y-16) is recommended for detection of ferritin heavy chain and mitochondrial ferritin 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 solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

ferritin heavy chain (Y-16) is also recommended for detection of ferritin heavy chain and mitochondrial ferritin in additional species, including equine, canine, bovine and avian.

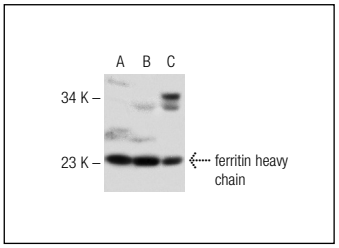
Molecular Weight of ferritin heavy chain: 21 kDa.

Positive Controls: Daudi cell lysate: sc-2415, Hep G2 cell lysate: sc-2227 or Caco-2 cell lysate: sc-2262.

STORAGE

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

DATA



ferritin heavy chain (Y-16): sc-14416. Western blot analysis of ferritin heavy chain expression in Daudi (**A**), Hep G2 (**B**) and Caco-2 (**C**) whole cell lysates.

SELECT PRODUCT CITATIONS

1. Ren, Q., et al. 2003. Comparative DNA microarray analysis of host cell transcriptional responses to infection by *Coxiella burnetii* or *Chlamydia trachomatis*. Ann. N.Y. Acad. Sci. 990: 701-713.
2. Galy, B., et al. 2005. Altered body iron distribution and microcytosis in mice deficient in iron regulatory protein 2 (IRP-2). Blood 106: 2580-2589.
3. Magens, B., et al. 2005. Nuclear iron deposits in hepatocytes of iron-loaded HFE-knock-out mice: a morphometric and immunocytochemical analysis. Acta Histochem. 107: 57-65.
4. Harrison-Findik, D.D., et al. 2007. Iron-mediated regulation of liver hepcidin expression in rats and mice is abolished by alcohol. Hepatology 46: 1979-1985.
5. Saunders, G.C., et al. 2007. Identification of a proteinase K resistant protein for use as an internal positive control marker in PrP Western blotting. Res. Vet. Sci. 83: 157-164.
6. Vidal, R., et al. 2008. Expression of a mutant form of the ferritin light chain gene induces neurodegeneration and iron overload in transgenic mice. J. Neurosci. 28: 60-67.
7. Fan, Y., et al. 2009. Ferritin expression in rat hepatocytes and Kupffer cells after lead nitrate treatment. Toxicol. Pathol. 37: 209-217.
8. Sengupta, R., et al. 2009. Morphine increases brain levels of ferritin heavy chain leading to inhibition of CXCR-4-mediated survival signaling in neurons. J. Neurosci. 29: 2534-2544.
9. Li, Z., et al. 2009. Increasing expression of H- or L-ferritin protects cortical astrocytes from hemin toxicity. Free Radic. Res. 43: 613-621.
10. Duan, W., et al. 2009. Nrf2 activity is lost in the spinal cord and its astrocytes of aged mice. In Vitro Cell. Dev. Biol. Anim. 45: 388-397.

RESEARCH USE

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