

# ferritin heavy chain (3F8): sc-135667

## 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<sup>II</sup>, whereas ferritin light chains promote the nucleation of ferrihydrite, enabling storage of Fe<sup>III</sup>. 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. Hempstead, P.D., et al. 1997. Comparison of the three-dimensional structures of recombinant human H and horse L ferritins at high resolution. *J. Mol. Biol.* 268: 424-448.
3. 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.

## SOURCE

ferritin heavy chain (3F8) is a mouse monoclonal antibody raised against recombinant ferritin heavy chain protein of human origin.

## PRODUCT

Each vial contains IgG<sub>2a</sub> in 100 µl of PBS with < 0.1% sodium azide, 0.1% gelatin, 1% glycerol and < 0.1% stabilizer protein.

## APPLICATIONS

ferritin heavy chain (3F8) is recommended for detection of ferritin heavy chain of human origin by Western Blotting (starting dilution to be determined by researcher, dilution range 1:100-1:5000), immunoprecipitation [1-2 µl per 100-500 µg of total protein (1 ml of cell lysate)] and solid phase ELISA (starting dilution to be determined by researcher, dilution range 1:30-1:5000).

Suitable for use as control antibody for ferritin heavy chain siRNA (h): sc-40575, ferritin heavy chain shRNA Plasmid (h): sc-40575-SH and ferritin heavy chain shRNA (h) Lentiviral Particles: sc-40575-V.

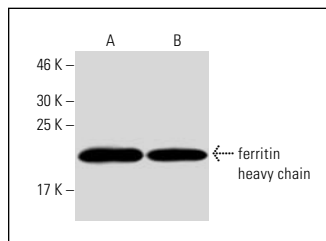
Molecular Weight of ferritin heavy chain: 21 kDa.

Positive Controls: U-87 MG cell lysate: sc-2411, Daudi cell lysate: sc-2415 or HeLa whole cell lysate: sc-2200.

## 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 (3F8): sc-135667. Western blot analysis of ferritin heavy chain expression in U-87 MG (A) and HeLa (B) whole cell lysates.

## SELECT PRODUCT CITATIONS

1. Kaur, S., et al. 2015. Novel immunosuppressive agent caerulomycin A exerts its effect by depleting cellular iron content. *Br. J. Pharmacol.* 172: 2286-2299.
2. Karlsson, M. and Kurz, T. 2016. Attenuation of iron-binding proteins in ARPE-19 cells reduces their resistance to oxidative stress. *Acta Ophthalmol.* 94: 556-564.
3. Distant, S., et al. 2016. Blood removal therapy in hereditary hemochromatosis induces a stress response resulting in improved genome integrity. *Transfusion* 56: 1435-1441.
4. Chawla, S., et al. 2019. Extracellular vesicles reveal abnormalities in neuronal iron metabolism in restless legs syndrome. *Sleep* 42: zsz079.
5. Tsuji, Y. 2020. Transmembrane protein western blotting: impact of sample preparation on detection of SLC11A2 (DMT1) and SLC40A1 (ferroportin). *PLoS ONE* 15: e0235563.
6. Cai, Y., et al. 2020. Synthesis, characterization and application of magneto-ferritin nanoparticle by using human H chain ferritin expressed by *Pichia pastoris*. *Nanotechnology* 31: 485709.

## RESEARCH USE

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

## PROTOCOLS

See our web site at [www.scbt.com](http://www.scbt.com) for detailed protocols and support products.



See **ferritin heavy chain (B-12): sc-376594** for ferritin antibody conjugates, including AC, HRP, FITC, PE, and Alexa Fluor<sup>®</sup> 488, 546, 594, 647, 680 and 790.