ALPHA DIAGNOSTIC INTERNATIONAL

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Product Specification Sheet

# Mouse Monoclonal Anti-Human Ferritin Light Chain (L-chain) Antibodies

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| Cat. # FERL15-M | **Mouse** Monoclonal anti-Human Light Chain IgG | **SIZE**: 100 ul |
| Cat. # FERL14-C | Purified Human liver ferritin L-chain protein W. blot +ve control | **SIZE**: 100 ul |

Elemental iron is required for a variety of normal cellular functions and vital for proper growth and development. However, natural iron is quite insoluble and excess iron is harmful, since it can catalyze the formation of potentially damaging reactive oxygen species. Iron absorption occurs primarily in the intestine (duodenum) and inversely related to body iron reserve. Several proteins including **Ferritin, transferrin (Tf), transferrin receptors (TfRs)**, and **iron regulatory proteins (IRPs**) etc play a key role in iron metabolism.

**Ferritin** is the major protein involved in iron sequestration and detoxification. Ferritin is found in all living species and its three dimensional structure is conserved in all species despite very low sequence identity from bacteria to human. Mammalian liver and spleen ferritin (~450 kDa) consists of 24 subunits of 2 species, **the heavy subunit (~21 kDa; FTH) and the light subunit (~ 19 kDa; FTL**). The 2 types of apoferritin subunits were designated H and L for heart and liver, respectively. Ferritin molecules from plants and bacteria contain only H-type chains, where 'H-type' is associated with the presence of centers catalyzing the oxidation of two Fe(II) atoms. **FTL subunit** (rich in human liver and spleen) is coded by a gene in segment 19q13.3 and **FTH subunit** (rich in human heart) is located on chromosome 11. Ferritin is capable of storing up to 4,500 atoms of ferric iron. The H-to-L ratio within ferritin varies in a tissue-specific manner and is also influenced by pathophysiological conditions, including inflammation and malignancy. Hyperferritinemia-cataract syndrome has a mutation in the iron response element (IRE) in the 5-prime noncoding region of the FTL gene. Synthesis of both ferritin subunits is controlled by a common cytosolic protein, **iron regulatory proteins (IRPs)**, which binds to the iron-responsive element (IRE) in the 5'-UTR of the H- and L-ferritin mRNAs. H-chains are important for Fe(II) oxidation and L-chains assist in core formation.

## Source of Antigen and Antibodies

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| **Antigen** | Purified **human spleen ferritin L-chain** |
| **Ab Host/type** | Mouse, monoclonal, IgG1 and IgG, purified over Protein A/G Agarose (Cat # FERL15-M) supplied in PBS+0.1% BSA+0.05% azide |
| **2-Ab** | **Goat Anti-mouse IgG-HRP conjugate** Cat # 40320 (AP, biotin, FITC conjugates also available) |
| **-ve control IgG** | Cat # 20008-1, Mouse (non-immune) Serum IgG, purified, suitable for ELISA, Western, IHC as –ve control |

Recombinant human liver ferritin L-chain purified (>95%) protein Western blot +ve control (**Cat # FERL14-C**) is supplied in SDS-PAGE sample buffer (reduced). Load 10 ul/lane of **FERL14**-C for good visibility with antibody Cat # **FERL14**-M. Store at –20oC in suitable size aliquots. SDS may crystallize in cold conditions. It should redissolve by warming before taking it from the stock. It should be heated once prior to loading on gels. If the product has been stored for several weeks, then it may be preferable to add 5 ul of fresh 2x sample buffer per 10 ul of the **FERL14**-C solution prior to heating and loading on gels. This preparation is not biologically active. It is not suitable for ELISA or other applications where native protein is required. Do not freeze, thaw, or heat repeatedly

## Form & Storage

**Antibody** is supplied as in solution at ~100 ug/100 ul or in powder. **Lyophilized products** should be reconstituted in 100 ul water and gently mixed for 15 min at room temp. All products received in solution or lyophilized vials should be stored frozen at -20$^{o}$C or below in suitable aliquots. Do not store diluted solutions of antibodies and avoid repeated freeze and thaw.

## Recommended Usage

**Western Blotting** (1:1K-5K antibody using ECL technique).

**ELISA**: Control protein can be used to coat ELISA plates at 1 ug/ml and detected with antibodies (0.5-1 ug/ml for affinity pure).

**Histochemistry** & Immunofluorescence: Not tested.

## Specificity & Cross-reactivity

Ferritin L-chain is conserved among various. The antibody may crossreact with ferritin L-chain from mouse, rat and other species. Ferritin from liver and spleen is enriched in "L subunit". ADI also offers FTH subunit specific antibodies and purified proteins for control studies. Purified human liver, spleen and heart ferritins are available for control studies.

**General References**: Harrsion PM et al (1996) BBA 1275, 161-203; Picard V et al (1998) JBC 273, 15382-15386; Rucker P-F et al (1996) JBC 271, 33352-33357; Nelson N et al (1999) EMBO J. 18, 4361-4371 (review); Cairo G and Pietrangelo A et al (2000) Biochem. J. 352, 241-250

**2. Citations of for ADI Antibodies** (see updates at the web site)
Leong W-I, 2003, Am J Physiol Gastrointest Liver Physiol, 285: 1153 - 1161., WB
Leong W-I, 2005, Am. J. Clinical Nutrition, 81: 445 - 453, WB
Leong W-I, 2003, Am. J. Clinical Nutrition, 78: 1203 - 1211, WB

*This product is for In vitro research use only.

**Related material available from ADI**

Antibodies NRAMP1/2, MTP1, Transferrin, and receptor, Ferritin, H and L-chain, Hemeoxygenases 1-3, HFE, Dcytb, IRP1 and IRP2, Frataxin,

Human serum Ferritin ELISA Kit



Alpha Diagnostic Intl Inc., 6203 Woodlake Center Dr, S an Antonio, T X 7 8 24 4 , U S A;

**India Contact**:
**Life Technologies (India) Pvt. Ltd.**
**306, Aggarwal City Mall, Opposite M2K Pitampura, Delhi – 110034 (INDIA). Ph: +91-11-42208000, 42208111, 42208222, Mobile: +91-9810521400 Fax: +91-11-42208444 Email: customerservice@lifetechindia.com Website: www.lifetechindia.com**