

Product Specification Sheet

**Human Liver Ferritin**

Cat. # FERT17-R-100	Purified Human liver ferritin protein	<b>SIZE:</b> 100 ug
Cat. # FERT17-R-1000	Purified Human liver ferritin protein	<b>SIZE:</b> 1000 ug

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**

Human liver ferritin purified (>95%) protein from liver samples –ve for HIV/HbSAg/HCV etc. However, all precautions must be observed to avoid contamination. It is supplied in PBS, pH 7.4 and 0.05% azide (see lot specific concn on the vial). It is recommended to be used as positive control in ELISA or Western.

**Form & Storage of Antibodies/Peptide Control**

**Storage**

**Short-term:** unopened, undiluted liquid vials at -20oC and powder at 4oC or -20oC..

**Long-term:** at –20C or below in suitable aliquots after reconstitution. Do not freeze and thaw and store working, diluted solutions.

**Stability:** 6-12 months at –20oC or below.

**Shipping:** 4oC for solutions and room temp for powder.

**Specificity & Cross-reactivity**

Ferritin protein is conserved among various. The antibody may crossreact with ferritin from mouse, rat and other species. Ferritin from liver and spleen is enriched in “L subunit”. This antibody crossreact with spleen ferritin but not with heart ferritin. ADI offers FTH and FTL subunit specific antibodies and purified proteins for control studies. Purified human liver ferritin is 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

FERT17-R-100-1000

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