ALPHA DIAGNOSTIC INTERNATIONAL

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Product Specification Sheet

Iron Regulatory Protein (IRP-1) Antibodies

Cat. # IRP11-S	Rabbit Anti-Rat IRP-1 antiserum	**SIZE**: 100 ul
Cat. # IRP11-A	Rabbit Anti-Rat IRP-1 IgG (aff pure)	**SIZE**: 100 ug
Cat. # IRP11-P	Rat IRP-1 Control/blocking peptide	**SIZE**: 100 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. Humans also have very limited capacity to excrete iron. Therefore, cells have developed mechanisms to improve solubility of iron and to control intracellular iron levels at the point of absorption in the intestine and other tissue. Several proteins including **Ferritin, transferrin (Tf), transferrin receptors (TfRs)**, and **iron regulatory proteins (IRPs)**, iron transporter (**NRMAP2/DMT1/DCT1**) etc play a key role in iron metabolism. Some genes involved in iron-metabolism are associated with genetic disorders such as Friedreich's Ataxia (**Frataxin**), genetic hemochromatosis (**HFE**), and Sex-linked anemia (**Hephaestin**).

Iron regulatory proteins (IRP-1 and IRP-2) are cytoplasmic mRNA-binding proteins that control intracellular iron levels by regulating the translation of ferritin, Tfrs, and other proteins congaing iron-responsive element (IRE) located at the 5'-UTR. IRP binds to IREs with high affinity in situation of iron starvation. Binding of IRP to IRE of ferritin represses its transcription. However, when cells are iron replete, IRPs lose their capacity to bind IREs, allowing efficient translation of ferritin and reducing Tfr mRNA half-life. Although IRP1 and IRP-2 share significant protein sequence homology, they differ in tissue distribution and mode of regulation. IRP-2/IRE-BP2 (rat/human 963 aa) is relatively less abundant than IRP-1 and lacks aconitase activity. It has a unique 73-aa insertion in the N-terminus. In the presence of high iron levels, IRP-2 is rapidly targeted to proteasome-mediated degradation. Although, both IRPs bind the consensus IREs, it is also shown that IRP-2 can recognize an exclusive IRE subset.

Source of Antigen and Antibodies

Antigen	20-aa peptide from **rat IRP-1 (1)**; **Designation (#IRP11-P, control or blocking peptide**) conjugated to KLH; epitope location ~ N-terminus
Ab Host/type	Rabbit, Polyclonal unpurified antiserum (**#IRP11**-S) and IgG, purified over antigen-agarose (Cat # **IRP11**-A)
2-Ab	Cat # 20320, goat anti-rabbit IgG-HRP (AP, biotin, FITC conjugates also available).
-ve control IgG	# 20009-1, Rabbit (non-immune) IgG, purified, suitable for ELISA, Western, IHC as –ve control

Form & Storage of Antibodies/Peptide Control

Antiserum (unpurified)
100ul solution lyophilized powder
Supplied 0.05% azide, **Reconstitute** powder in 100 ul PBS

Affinity pure IgG
100 ug/100ul solution lyophilized powder
Supplied in **Buffer**: PBS+0.1% BSA
Reconstitute powder in PBS at 1mg/ml

Control/blocking peptide
100 ug/100 ul solution lyophilized powder
Supplied in Buffer: PBS pH 7.5,
Reconstitute powder in PBS at 1 mg/ml.

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

Recommended Usage

Western Blotting (1:1K-5K for antiserum and 1-10 ug/ml for aff. pure IgG using ECL technique).

ELISA (1:100K; using 50-100 ng control peptide/well).

Histochemistry & Immunofluorescence: Not tested

Specificity & Cross-reactivity

The IRP11-P sequence is 94% conserved in mouse, and 89% in human and rabbit IRP-1. No significant sequence homology exist with IRP-2. Antibody cross-reactivity in various species has not been studied. Control peptide, because of its low mol. Wt (<3 kDa), is not suitable for Western. It should be used for ELISA or antibody blocking experiments (use 5-10 ug control peptide per 1 ug of aff pure IgG or 1 ul antiserum) to confirm antibody specificity (see detailed protocol at the web site).

General References: (1). Yu Y (199JBC 267, 19005; Phillipot CC (1991) Nucl. Acid. Res. 19, 6333; Hirling H (1992) Nucl. Acid. Res. 20, 33; Rouault TA (1990) PNAS 87, 7958; Kaptain S (1991) PNAS 88, 10109; Cairo G (2000) Biochem. J. 352, 241 (review)

2. Citations of for ADI Antibodies (see updated list at the web site)

Popovic Z2007, FEBS,274, 3108-3119, WB, HepG2 cells
Biederbick A, 2006, Mol. Cell. Biol., 26: 5675 - 5687

*This product is for in vitro research use only.

Some New Antibodies from ADI…

IRP1-2, HFE, Frataxin, Hepcidin, Hephaestin, NRAMPs, USF2, Ferritin, ferritin and B2-M ELISA, Tfr1-2, ceruloplasmin, B2-M
IRP11-S-A-P 71214A

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