

## IscU1/2 (K-12): sc-31744

### BACKGROUND

Iron-sulfur (Fe-S) clusters are cofactors that are essential for a wide variety of processes, including facilitation of electron transfer processes in oxidative phosphorylation, catalysis of enzymatic reactions in aconitase and dehydratases and maintenance of structural integrity in the DNA repair enzyme endonuclease III. In bacteria and eukaryotes, several new genes are implicated in the biogenesis of Fe-S cluster-containing proteins. IscU1 and IscU2, homologs to bacterial IscU and NifU, are iron cluster-assembly proteins. Deletion of either IscU1 or IscU2 results in increased accumulation of iron within the mitochondria, loss of activity of the [4Fe-4S] aconitase enzyme, and suppression of oxidative damage in cells lacking cytosolic copper/zinc superoxide dismutase. IscU1 and IscU2 are regulated by the iron status of the cell and localize primarily in the mitochondria. In human cells, alternative splicing of IscU pre-mRNA results in synthesis of these two proteins, which differ at the N-terminus and localize either to the cytosol (IscU1) or the mitochondria (IscU2). IscU proteins interact with IscS, a cysteine desulfurase, to sequester inorganic sulfur for Fe-S cluster assembly. IscU-IscS protein complex localizes in both mitochondria and cytosol, implying that Fe-S cluster assembly takes place in multiple subcellular compartments in mammalian cells.

### REFERENCES

1. Beinert, H. and Holm R.H. 1997. Iron-sulfur clusters: nature's modular, multipurpose structure. *Science* 277: 653-659.
2. Zheng, L., Cash, V.L., Flint, D.H. and Dean, D.R. 1998. Assembly of iron-clusters: identification of an iscSUA-hscBA-fdx gene cluster from *Azotobacter vinelandii*. *J. Biol. Chem.* 273: 13264-13272.
3. Garland, S.A., Hoff K., Vickery, L.E. and Culotta, V.C. 1999. *Saccharomyces cerevisiae* ISU1 and ISU2: members of a well-conserved gene family for iron-sulfur cluster assembly. *J. Mol. Biol.* 294: 897-907.
4. Schilke, B., Voisine, C., Beinert, H. and Craig, E. 1999. Evidence for a conserved system for iron metabolism in the mitochondria of *Saccharomyces cerevisiae*. *Proc. Natl. Acad. Sci. USA* 96: 10206-10211.

### CHROMOSOMAL LOCATION

Genetic locus: ISCU (human) mapping to 12q23.3; Iscu (mouse) mapping to 5 F.

### SOURCE

IscU1/2 (K-12) is an affinity purified goat polyclonal antibody raised against a peptide mapping at the C-terminus of IscU1 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-31744 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

### STORAGE

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

### APPLICATIONS

IscU1/2 (K-12) is recommended for detection of IscU1 and IscU2 of human origin and IscU of mouse and rat origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500), immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

IscU1/2 (K-12) is also recommended for detection of IscU1 and IscU2 in additional species, including porcine.

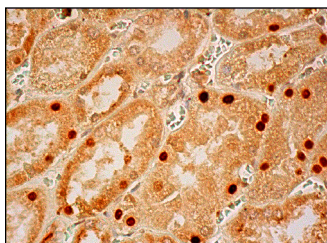
Suitable for use as control antibody for IscU1/2 siRNA (h): sc-270108, IscU siRNA (m): sc-40712, IscU1/2 shRNA Plasmid (h): sc-270108-SH, IscU shRNA Plasmid (m): sc-40712-SH, IscU1/2 shRNA (h) Lentiviral Particles: sc-270108-V and IscU shRNA (m) Lentiviral Particles: sc-40712-V.

Molecular Weight of IscU1: 15 kDa.

Molecular Weight of IscU2: 18 kDa.

Positive Controls: HeLa whole cell lysate: sc-2200, SW480 cell lysate: sc-2219 or HL-60 whole cell lysate: sc-2209.

### DATA



IscU1/2 (K-12): sc-31744. Immunoperoxidase staining of formalin fixed, paraffin-embedded human kidney tissue showing cytoplasmic and nuclear staining of cells in tubules.

### RESEARCH USE

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

### PROTOCOLS

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Try **IscU1/2 (D-6): sc-373694** or **IscU1/2 (B-3): sc-271536**, our highly recommended monoclonal alternatives to IscU1/2 (K-12).