SANTA CRUZ BIOTECHNOLOGY, INC.

IscU1/2 (D-6): sc-373694

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.

CHROMOSOMAL LOCATION

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

SOURCE

IscU1/2 (D-6) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 109-135 near the C-terminus of IscU1 of human origin.

PRODUCT

Each vial contains 200 µg IgG_1 kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

IscU1/2 (D-6) is available conjugated to agarose (sc-373694 AC), 500 µg/ 0.25 ml agarose in 1 ml, for IP; to HRP (sc-373694 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-373694 PE), fluorescein (sc-373694 FITC), Alexa Fluor® 488 (sc-373694 AF488), Alexa Fluor® 546 (sc-373694 AF546), Alexa Fluor® 594 (sc-373694 AF594) or Alexa Fluor® 647 (sc-373694 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-373694 AF680) or Alexa Fluor® 790 (sc-373694 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

Blocking peptide available for competition studies, sc-373694 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

Alexa Fluor® is a trademark of Molecular Probes, Inc., Oregon, USA

STORAGE

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

RESEARCH USE

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

APPLICATIONS

IscU1/2 (D-6) is recommended for detection of IscU1 and IscU2 of human origin and IscU of mouse and rat origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], 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 (D-6) is also recommended for detection of IscU1 and IscU2 in additional species, including equine, canine, bovine and porcine.

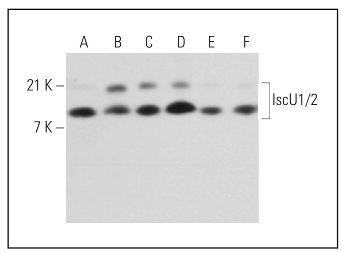
Suitable for use as control antibody for IscU1/2 siRNA (h): sc-270108, IscU siRNA (m): sc-40712, IscU1/2 shRNA Plasmid (h): sc-270108-SH, IscU shRNA Plasmid (m): sc-40712-SH, IscU1/2 shRNA (h) Lentiviral Particles: sc-270108-V and IscU shRNA (m) Lentiviral Particles: sc-40712-V.

Molecular Weight of IscU1: 15 kDa.

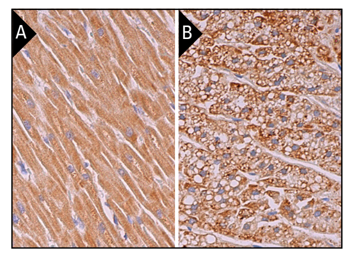
Molecular Weight of IscU2: 18 kDa.

Positive Controls: HeLa whole cell lysate: sc-2200, K-562 whole cell lysate: sc-2203 or PC-3 cell lysate: sc-2220.

DATA



IscU1/2 (D-6): sc-373694. Western blot analysis of IscU1/2 expression in HeLa (**A**), PC-3 (**B**), K-562 (**C**), 3T3-L1 (**D**), M1 (**E**) and L6 (**F**) whole cell lysates.



IscU1/2 (D-6): sc-373694. Immunoperoxidase staining of formalin fixed, paraffin-embedded human heart muscle tissue showing cytoplasmic staining of myocytes (**A**). Immunoperoxidase staining of formalin fixed, paraffin-embedded human adrenal gland tissue showing cytoplasmic staining of glandular cells (**B**).

SELECT PRODUCT CITATIONS

1. Tagscherer, K.E., et al. 2016. MicroRNA-210 induces apoptosis in colorectal cancer via induction of reactive oxygen. Cancer Cell Int. 16: 42.

2. Ward, N.P., et al. 2020. Nicotinamide nucleotide transhydrogenase regulates mitochondrial metabolism in NSCLC through maintenance of Fe-S protein function. J. Exp. Med. 217: e20191689.

3. Hu, X.Q., et al. 2022. MicroRNA-210-mediated mitochondrial reactive oxygen species confer hypoxia-induced suppression of spontaneous transient outward currents in ovine uterine arteries. Br. J. Pharmacol. E-published.

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.