

# IscU1/2 (B-12): sc-271468

## 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., et al. 1998. Assembly of iron-clusters: identification of an iscSUA-hscBA-fdx gene cluster from *Azotobacter vinelandii*. *J. Biol. Chem.* 273: 13264-13272.

## CHROMOSOMAL LOCATION

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

## SOURCE

IscU1/2 (B-12) is a mouse monoclonal antibody raised against amino acids 1-142 representing full length IscU1 of human origin.

## PRODUCT

Each vial contains 200 µg IgG<sub>1</sub> kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

IscU1/2 (B-12) is available conjugated to agarose (sc-271468 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-271468 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-271468 PE), fluorescein (sc-271468 FITC), Alexa Fluor<sup>®</sup> 488 (sc-271468 AF488), Alexa Fluor<sup>®</sup> 546 (sc-271468 AF546), Alexa Fluor<sup>®</sup> 594 (sc-271468 AF594) or Alexa Fluor<sup>®</sup> 647 (sc-271468 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor<sup>®</sup> 680 (sc-271468 AF680) or Alexa Fluor<sup>®</sup> 790 (sc-271468 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

## 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 (B-12) is recommended for detection of IscU1 and IscU2 of human origin and IscU of mouse and rat origin by Western Blotting (starting dilution 1:100, 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) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

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.

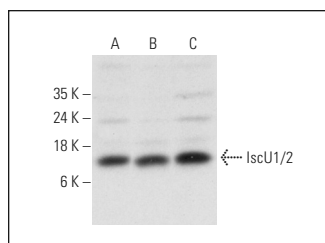
Molecular Weight of IscU2: 18 kDa.

Positive Controls: HeLa whole cell lysate: sc-2200, SW480 cell lysate: sc-2219 or IscU1/2 (m): 293T Lysate: sc-121116.

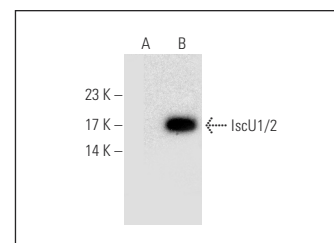
## RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker<sup>™</sup> Molecular Weight Standards: sc-2035, UltraCruz<sup>®</sup> Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) Immunofluorescence: use m-IgGκ BP-FITC: sc-516140 or m-IgGκ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz<sup>®</sup> Mounting Medium: sc-24941 or UltraCruz<sup>®</sup> Hard-set Mounting Medium: sc-359850.

## DATA



IscU1/2 (B-12): sc-271468. Western blot analysis of IscU1/2 expression in HeLa (A), HCT-116 (B) and SW480 (C) whole cell lysates.



IscU1/2 (B-12): sc-271468. Western blot analysis of IscU1/2 expression in non-transfected: sc-117752 (A) and mouse IscU1/2 transfected: sc-121116 (B) 293T whole cell lysates.

## SELECT PRODUCT CITATIONS

1. Terzi, E.M., et al. 2021. Iron-sulfur cluster deficiency can be sensed by IRP2 and regulates iron homeostasis and sensitivity to ferroptosis independent of IRP1 and FBXL5. *Sci. Adv.* 7: eabg4302.

## RESEARCH USE

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

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