SANTA CRUZ BIOTECHNOLOGY, INC.

IRSp53 (46): sc-136470

BACKGROUND

The scaffolding protein Insulin receptor tyrosine kinase substrate p53 (IRSp53), a ubiquitous regulator of the Actin cytoskeleton, mediates filopodia formation under the control of Rho-family GTPases. It is expressed in the cytoplasm and links small membrane-bound G-proteins to cytoplasmic effector proteins. IRSp53 comprises a central SH3 domain, which binds to proline-rich regions of a wide range of Actin regulators, and a conserved N-terminal IRSp53/MIM homology domain (IMD) that harbors F-Actin-bundling activity. IRSp53 interacts with atrophin-1, the product of the dentatorubral-pallidoluysian atrophy (DRPLA) gene, which is associated with an autosomal dominant neurodegenerative disease. The IRSp53 protein also interacts with ENAH, BAI-1, Eps8, Shank 1, Shank 2, Shank 3, WAVE1, WAVE2, Tiam1 and Dia 1.

REFERENCES

1. Okamura-Oho, Y., et al. 1999. Dentatorubral-pallidoluysian atrophy protein interacts through a proline-rich region near polyglutamine with the SH3 domain of an Insulin receptor tyrosine kinase substrate. Hum. Mol. Genet. 8: 947-957.
2. Soltau, M., et al. 2002. The Insulin receptor substrate IRSp53 links postsynaptic shank1 to the small G-protein Cdc42. Mol. Cell. Neurosci. 21: 575-583.
3. Miyahara, A., et al. 2003. Genomic structure and alternative splicing of the Insulin receptor tyrosine kinase substrate of 53 kDa protein. J. Hum. Genet. 48: 410-414.
4. Funato, Y., et al. 2004. IRSp53/Eps8 complex is important for positive regulation of Rac and cancer cell motility/invasiveness. Cancer Res. 64: 5237-5244.
5. Choi, J., et al. 2005. Regulation of dendritic spine morphogenesis by Insulin receptor substrate 53, a downstream effector of Rac1 and Cdc42 small GTPases. J. Neurosci. 25: 869-879.

CHROMOSOMAL LOCATION

Genetic locus: BAIAP2 (human) mapping to 17q25.3; Baiap2 (mouse) mapping to 11 E2.

SOURCE

IRSp53 (46) is a mouse monoclonal antibody raised against amino acids 200-322 of IRSp53 of human origin.

PRODUCT

Each vial contains 200 µg IgG_{2a} kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

IRSp53 (46) is available conjugated to agarose (sc-136470 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; and to HRP (sc-136470 HRP), 200 µg/ml, for WB, IHC(P) and ELISA.

STORAGE

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

APPLICATIONS

IRSp53 (46) is recommended for detection of IRSp53 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000) and immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)].

IRSp53 (46) is also recommended for detection of IRSp53 in additional species, including canine.

Suitable for use as control antibody for IRSp53 siRNA (h): sc-60863, IRSp53 siRNA (m): sc-60864, IRSp53 shRNA Plasmid (h): sc-60863-SH, IRSp53 shRNA Plasmid (m): sc-60864-SH, IRSp53 shRNA (h) Lentiviral Particles: sc-60863-V and IRSp53 shRNA (m) Lentiviral Particles: sc-60864-V.

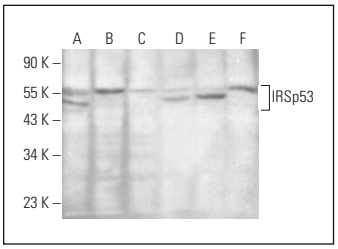
Molecular Weight of IRSp53: 53 kDa.

Positive Controls: NIH/3T3 whole cell lysate: sc-2210, PC-3 cell lysate: sc-2220 or F9 cell lysate: sc-2245.

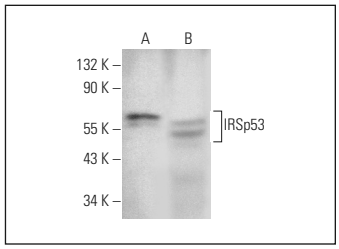
RECOMMENDED SUPPORT REAGENTS

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™ Molecular Weight Standards: sc-2035, UltraCruz® 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).

DATA



IRSp53 (46): sc-136470. Western blot analysis of IRSp53 expression in PC-3 (**A**), 3T3-L1 (**B**), NIH/3T3 (**C**), HeLa (**D**), T-47D (**E**) and U-2 OS (**F**) whole cell lysates.



IRSp53 (46): sc-136470. Western blot analysis of IRSp53 expression in F9 (**A**) and PC-3 (**B**) whole cell lysates.

SELECT PRODUCT CITATIONS

1. Kast, D.J. and Dominguez, R. 2019. Mechanism of IRSp53 inhibition by 14-3-3. Nat. Commun. 10: 483.
2. Kast, D.J. and Dominguez, R. 2019. IRSp53 coordinates AMPK and 14-3-3 signaling to regulate filopodia dynamics and directed cell migration. Mol. Biol. Cell 30: 1285-1297.
3. Fox, S., et al. 2022. Cooperative assembly of filopodia by the formin FMNL2 and I-BAR domain protein IRTKS. J. Biol. Chem. 298: 102512.

RESEARCH USE

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