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IRS-1 Antibody

Catalog # ASC10324

Product Information

Application	WB, IF, ICC, E
Primary Accession	P35568
Other Accession	P35568, 547738
Reactivity	Human, Mouse
Host	Rabbit
Clonality	Polyclonal
Isotype	IgG
Calculated MW	131591
Concentration (mg/ml)	1 mg/mL
Conjugate	Unconjugated
Application Notes	IRS-1antibody can be used for the detection of IRS-1 by Western blot at 1 - 4 g/mL. Antibody can also be used for immunocytochemistry starting at 2 g/mL. For immunofluorescence start at 2 g/mL.

Additional Information

Gene ID	3667
Other Names	IRS-1 Antibody: HIRS-1, Insulin receptor substrate 1, IRS-1, insulin receptor substrate 1
Target/Specificity	IRS1;
Reconstitution & Storage	IRS-1 antibody can be stored at 4℃ for three months and -20℃, stable for up to one year. As with all antibodies care should be taken to avoid repeated freeze thaw cycles. Antibodies should not be exposed to prolonged high temperatures.
Precautions	IRS-1 Antibody is for research use only and not for use in diagnostic or therapeutic procedures.

Protein Information

Name	IRS1
Function	Signaling adapter protein that participates in the signal transduction from two prominent receptor tyrosine kinases, insulin receptor/INSR and insulin-like growth factor I receptor/IGF1R (PubMed:7541045, PubMed:33991522, PubMed:38625937). Plays therefore an important role in development, growth, glucose homeostasis as well as lipid metabolism (PubMed:19639489). Upon phosphorylation by the insulin receptor, functions as a signaling scaffold that propagates insulin action through binding to SH2 domain-containing proteins including the p85 regulatory subunit of PI3K, NCK1, NCK2, GRB2 or SHP2 (PubMed:11171109, PubMed:8265614).

	Recruitment of GRB2 leads to the activation of the guanine nucleotide exchange factor SOS1 which in turn triggers the Ras/Raf/MEK/MAPK signaling cascade (By similarity). Activation of the PI3K/AKT pathway is responsible for most of insulin metabolic effects in the cell, and the Ras/Raf/MEK/MAPK is involved in the regulation of gene expression and in cooperation with the PI3K pathway regulates cell growth and differentiation. Acts a positive regulator of the Wnt/beta-catenin signaling pathway through suppression of DVL2 autophagy-mediated degradation leading to cell proliferation (PubMed:24616100).
Cellular Location	Cytoplasm. Nucleus. Note=Nuclear or cytoplasmic localization of IRS1 correlates with the transition from proliferation to chondrogenic differentiation.

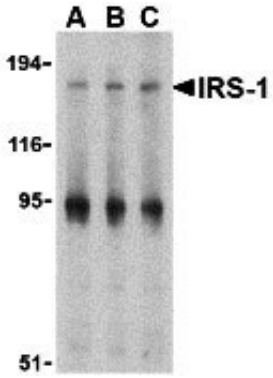
Background

IRS-1 Antibody: Following tyrosine phosphorylation, the insulin receptor substrate 1 and 2 (IRS-1 and IRS-2) can form a protein scaffolding for the assembly of a host of Src homology 2 (SH2) domain-containing proteins. IRS-1 tyrosine phosphorylation can occur through the activity of several cytokine and growth factor receptors such as interleukin (IL)-4, IL-9, interferon-gamma, in addition to the insulin and insulin-like growth factor 1 receptors. The scaffolding provided by IRS-1 and IRS-2 is necessary for insulin signal transduction across the cell membrane. IRS-1 tyrosine phosphorylation, and thus formation of the IRS scaffolding is inhibited by tumor necrosis factor (TNF), and this inhibition can itself be blocked by rapamycin, an inhibitor of the mammalian target of rapamycin (TOR). TNF activity could also be blocked by inhibition of the Akt kinase and the PTEN tumor suppressor, suggesting that TNF impairs insulin signaling through IRS-1 by activation of the TOR signaling pathway.

References

Giovannone B, Scaldaferri ML, Federici M, et al. Insulin receptor substrate (IRS) transduction system: distinct and overlapping signaling potential. Diabetes Metab. Res. Rev. 2000; 16:434-41.
Waters SB and Pessin JE. Insulin receptor substrate 1 and 2 (IRS1 and IRS2): what a tangled web we weave. Trends in Cell Biol. 1996; 6:1-4.
Ozes ON, Akca H, Mayo LD, et al. A phosphatidylinositol 3-kinase/Akt/mTOR pathway mediates and PTEN antagonizes tumor necrosis factor inhibition of insulin signaling through insulin receptor substrate-1. Proc. Natl. Acad. Sci. USA 2001; 98:4640-5.
Shamji AF, Ngheim P, and Schreiber SL. Integration of growth factor and nutrient signaling: implications for cancer biology. Mol. Cell 2003; 12:271-80.

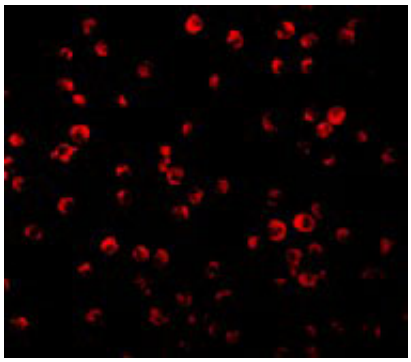
Images



Western blot analysis of IRS-1 in PC-3 cell lysate with IRS-1 antibody at (A) 1, (B) 2 and (C) 4 µg/mL.

Immunocytochemistry of IRS-1 in P815 cells with IRS-1 antibody at 2 µg/mL.





Immunofluorescence of IRS-1 in P815 cells with IRS-1 antibody at 2 µg/mL.

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