Revision 1

Phospho-IRS-1 (Ser302) Antibody

#2384 Store at -20C

Cell Signaling TECHNOLOGY®

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Applications:	Reactivity:	Sensitivity:	MW (kDa):	Source/Isotype:	UniProt ID:	Entrez-Gene Id:
W	H M R	Endogenous	180	Rabbit	#P35568	3667

Product Usage Information

Application	Dilution
Western Blotting	1:1000

Storage

Supplied in 10 mM sodium HEPES (pH 7.5), 150 mM NaCl, 100 µg/ml BSA and 50% glycerol. Store at –20°C. Do not aliquot the antibody.

Specificity/Sensitivity

Phospho-IRS-1 (Ser 302) Antibody detects endogenous levels of IRS-1 only when phosphorylated at Ser302 of mouse IRS-1 or Ser307 of human IRS-1. This antibody does not detect IRS-1 phosphorylated at other sites.

Species predicted to react based on 100% sequence homology

Pig

Source / Purification

Polyclonal antibodies are produced by immunizing animals with a synthetic phosphopeptide corresponding to residues surrounding Ser 302 of mouse IRS-1. Antibodies are purified by protein A and peptide affinity chromatography.

Background

Insulin receptor substrate 1 (IRS-1) is one of the major substrates of the insulin receptor kinase (1). IRS-1 contains multiple tyrosine phosphorylation motifs that serve as docking sites for SH2-domain containing proteins that mediate the metabolic and growth-promoting functions of insulin (2-4). IRS-1 also contains over 30 potential serine/threonine phosphorylation sites. Ser307 of IRS-1 is phosphorylated by JNK (5) and IKK (6) while Ser789 is phosphorylated by SIK-2, a member of the AMPK family (7). The PKC and mTOR pathways mediate phosphorylation of IRS-1 at Ser612 and Ser636/639, respectively (8,9). Phosphorylation of IRS-1 at Ser1101 is mediated by PKCθ and results in an inhibition of insulin signaling in the cell, suggesting a potential mechanism for insulin resistance in some models of obesity (10).
Ser302 in rat/mouse IRS-1 (corresponding to Ser307 of human IRS-1) is phosphorylated rapidly during insulin stimulation and has a postive role in IRS-1 tyrosine phosphorylation. Inhibition of Ser302 phosphorylation by short-term amino acid/glucose starvation correlates with a decrease in IRS-1 tyrosine phosphorylation without inhibition of insulin receptor autophosphorylation or Akt phosphorylation. A defect in this positive regulatory pathway may be a mechanism contributing to insulin resistence (11).

Background References

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4. Wang, L.M. et al. (1993) *Science* 261, 1591-1594.
5. Rui, L. et al. (1997) *J. Clin. Invest.* 107, 181-189.
6. Gao, Z. et al. (2002) *J. Biol. Chem.* 277, 48115-48121.
7. Horike, N. et al. (2003) *J. Biol. Chem.* 278, 18440-18447.
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10. Li, Y. et al. (2004) *J. Biol. Chem.* 279, 45304-45307.
11. Giraud, J. et al. (2004) *J Biol Chem* 279, 3447-54.

Species Reactivity

Species reactivity is determined by testing in at least one approved application (e.g., western blot).

Western Blot Buffer

IMPORTANT: For western blots, incubate membrane with diluted primary antibody in 5% w/v BSA, 1X TBS, 0.1% Tween® 20 at 4°C with gentle shaking, overnight.

Applications Key

W: Western Blotting

Cross-Reactivity Key

H: Human **M:** Mouse **R:** Rat

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