



IRS-1 (h): 293T Lysate: sc-116569

BACKGROUND

The Insulin receptor substrate-1 (IRS-1), a protein major substrate of the Insulin receptor, is phosphorylated in response to stimulation of cells by Insulin, Insulin-like growth factor 1 (IGF-1) and interleukin 4 (IL-4). IRS-1 is phosphorylated on serine, threonine and tyrosine residues in a variety of tissues. An Insulin-sensitive serine/threonine kinase casein kinase II mediates a portion of the Insulin-stimulated serine/threonine phosphorylation of over-expressed IRS-1 *in vivo*. Thr 502 is identified as the major casein kinase II-catalyzed phosphorylation site in rat IRS-1, and Ser 99 is an additional phosphorylation site catalyzed by casein kinase II. Thus, casein kinase II-catalyzed phosphorylation of IRS-1 may be a component of the intracellular Insulin signaling cascade. IRS-1 contains three putative binding sites for 14-3-3 (Ser 270, Ser 374 and Ser 641) and the motif around Ser 270 is located in the phosphotyrosine binding domain of IRS-1, which is responsible for the interaction with the Insulin receptor. The association of 14-3-3 with IRS-1 increases significantly upon treatment with okadaic acid, a potent serine/threonine phosphatase inhibitor. Therefore, the association of 14-3-3 protein may play a role in the regulation of Insulin sensitivity by interrupting the association between the Insulin receptor and IRS-1.

REFERENCES

1. Myers, M.G., Jr., Backer, J.M., Sun, X.J., Shoelson, S.E., Hu, P., Schlessinger, J., Yoakim, M., Schaffhausen, B. and White, M.F. 1992. IRS-1 activates the phosphatidylinositol 3'-kinase by associating with the Src homology 2 domains of p85. *Proc. Natl. Acad. Sci. USA* 89: 10350-10354.
2. Myers, M.G., Jr., Sun, S.J., Cheatham, B., Jachna, B.R., Glasheen, E.M., Backner, J.M. and White, M.F. 1993. IRS-1 is a common element in Insulin and IGF signaling to the phosphatidylinositol 3'-kinase. *Endocrinology* 132: 1421-1430.
3. Myers, M.G., Jr. and White, M.F. 1993. The new elements of Insulin signaling: Insulin receptor substrate-1 and proteins with SH2 domains. *Diabetes* 42: 643-650.
4. Tanasijevic, M.J., Myers, M.G., Jr., Thoma, R.S., Crimmins, D.L., White, M.F. and Sacks, D.B. 1993. Phosphorylation of the Insulin receptor substrate IRS-1 by casein kinase II. *J. Biol. Chem.* 268: 18157-18166.
5. Ogihara, T., Isobe, T., Ichimura, T., Taoka, M., Funaki, M., Sakoda, H., Onishi, Y., Inukai, K., Anai, M., Fukushima, Y., Kikuchi, M., Yazaki, Y., Oka, Y. and Asano, T. 1997. 14-3-3 protein binds to Insulin receptor substrate-1, one of the binding sites of which is in the phosphotyrosine binding domain. *J. Biol. Chem.* 272: 25267-25274.

CHROMOSOMAL LOCATION

Genetic locus: IRS1 (human) mapping to 2q36.3.

PRODUCT

IRS-1 (h): 293T Lysate represents a lysate of human IRS-1 transfected 293T cells and is provided as 100 µg protein in 200 µl SDS-PAGE buffer.

RESEARCH USE

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

APPLICATIONS

IRS-1 (h): 293T Lysate is suitable as a Western Blotting positive control for human reactive IRS-1 antibodies. Recommended use: 10-20 µl per lane.

Control 293T Lysate: sc-117752 is available as a Western Blotting negative control lysate derived from non-transfected 293T cells.

STORAGE

Store at -20° C. Repeated freezing and thawing should be minimized. Sample vial should be boiled once prior to use. Non-hazardous. No MSDS required.

PROTOCOLS

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