SANTA CRUZ BIOTECHNOLOGY, INC.

SIRP-β1 (LSB1.50): sc-53603

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

SIRPs (signal-regulatory proteins) are a family of transmembrane glycoproteins that were identified by their association with the Src homology 2 domain-containing protein-tyrosine phosphatase SHP-2 in response to Insulin. The SIRP family negatively regulates the PI 3-K pathway, which may diminish EGFR-mediated motility and survival phenotypes that contribute to transformation of certain cell types. SIRP-α1 is a transmembrane protein which contains an extracellular portion with three immunoglobulin-like structures and a cytoplasmic region with four potential tyrosine phosphorylation sites. SIRP-α1 is a substrate for activated receptor tyrosine kinases. In its tyrosine phosphorylated form, SIRP-α1 binds to SH-PTP2 through SH2 interactions and acts as an SH-PTP2 substrate. SIRP-α1 has been shown to have negative regulatory effects on cellular responses induced by growth factors, oncogenes and insulin. SIRP-β1 shares extensive sequence homology with SIRP-α1 in its extracellular portion but lacks the cytoplasmic portion. SIRP-γ, originally designated SIRP-β2 (SIRP-B2, CD172g) has unique characteristics from both the α and β versions. SIRP-γ is expressed on the majority of T cells and a proportion of B cells. CD47 associates with SIRP-γ, and this interaction signals unidirectionally only.

REFERENCES

1. Yamauchi, K., et al. 1995. Identification of the major SHPTP2-binding protein that is tyrosine-phosphorylated in response to Insulin. J. Biol. Chem. 270: 17716-17722.
2. Fujioka, Y., et al. 1996. A novel membrane glycoprotein, SHPS-1, that binds the SH2-domain-containing tyrosine phosphatase SHP-2 in response to mitogens and cell adhesion. Mol. Cell. Biol. 16: 6887-6899.
3. Kharitonenkov, A., et al. 1997. A family of proteins that inhibit signalling through tyrosine kinase receptors. Nature 386: 181-186.
4. Stofega, M.R., et al. 1998. Growth hormone regulation of SIRP and SHP-2 tyrosyl phosphorylation and association. J. Biol. Chem. 273: 7112-7117.
5. Wu, C.J., et al. 2000. Inhibition of EGFR-mediated phosphoinositide-3-OH kinase (PI-3 K) signaling and glioblastoma phenotype by signal-regulatory proteins (SIRPs). Oncogene 19: 3999-4010.
6. Latour, S., et al. 2001. Bidirectional negative regulation of human T and dendritic cells by CD47 and its cognate receptor signal-regulator protein-α: downregulation of IL-12 responsiveness and inhibition of dendritic cell activation. J. Immunol. 167: 2547-2554.
7. Brooke, G., et al. 2004. Human lymphocytes interact directly with CD47 through a novel member of the signal regulatory protein (SIRP) family. J. Immunol. 173: 2562-2570.
8. Kapoor, G.S., et al. 2004. Transcriptional regulation of signal regulatory protein α1 inhibitory receptors by epidermal growth factor receptor signaling. Cancer Res. 64: 6444-6452.

STORAGE

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

CHROMOSOMAL LOCATION

Genetic locus: SIRPB1 (human) mapping to 20p13.

SOURCE

SIRP-β1 (LSB1.50) is a mouse monoclonal antibody raised against SIRP-β1-D1D2-IgG of human origin.

PRODUCT

Each vial contains 200 µg IgG_1 kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

SIRP-β1 (LSB1.50) is available conjugated to either phycoerythrin (sc-53603 PE) or fluorescein (sc-53603 FITC), 200 µg/ml, for IF, IHC(P) and FCM.

APPLICATIONS

SIRP-β1 (LSB1.50) is recommended for detection of SIRP-β1 of human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)] and flow cytometry (1 µg per 1 x 10^6 cells).

Suitable for use as control antibody for SIRP-β1 siRNA (h): sc-40985, SIRP-β1 shRNA Plasmid (h): sc-40985-SH and SIRP-β1 shRNA (h) Lentiviral Particles: sc-40985-V.

Molecular Weight of SIRP-β1: 55 kDa.

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, TBS Blotto A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml).

RESEARCH USE

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

PROTOCOLS

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