SANTA CRUZ BIOTECHNOLOGY, INC.

SIRP-γ (LSB2.20): sc-53604

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.
9. Liu, Y., et al. 2005. SIRP-β1 is expressed as a disulfide-linked homodimer in leukocytes regulates neutrophil transepithelial migration. J. Biol. Chem. 280: 36132-36140.

CHROMOSOMAL LOCATION

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

SOURCE

SIRP-γ (LSB2.20) is a mouse monoclonal antibody raised against SIRP-γ-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-γ (LSB2.20) is available conjugated to agarose (sc-53604 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-53604 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-53604 PE), fluorescein (sc-53604 FITC), Alexa Fluor® 488 (sc-53604 AF488), Alexa Fluor® 546 (sc-53604 AF546), Alexa Fluor® 594 (sc-53604 AF594) or Alexa Fluor® 647 (sc-53604 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-53604 AF680) or Alexa Fluor® 790 (sc-53604 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

APPLICATIONS

SIRP-γ (LSB2.20) is recommended for detection of SIRP-γ of human origin by flow cytometry (1 µg per 1 x 10^6 cells).

Suitable for use as control antibody for SIRP-γ siRNA (h): sc-76499, SIRP-γ shRNA Plasmid (h): sc-76499-SH and SIRP-γ shRNA (h) Lentiviral Particles: sc-76499-V.

Molecular Weight of SIRP-γ: 55 kDa.

SELECT PRODUCT CITATIONS

1. Stefanidakis, M., et al. 2008. Endothelial CD47 interaction with SIRP-γ is required for human T-cell transendothelial migration under shear flow conditions *in vitro*. Blood 112: 1280-1289.
2. Hendriks, M.A.J.M., et al. 2021. Cancer cells under immune attack acquire CD47-mediated adaptive immune resistance independent of the myeloid CD47-SIRPα axis. Oncoimmunology 10: 2005344.
3. Xu, C., et al. 2022. Protocol for detecting macrophage-mediated cancer cell phagocytosis *in vitro* and *in vivo*. STAR Protoc. 4: 101940.

STORAGE

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

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.