SANTA CRUZ BIOTECHNOLOGY, INC.

SIRP-α (SE7C2): sc-23863

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-kinase 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-α (also known as SIRP-α1, SIRP-α2 or SIRP-α3) is a substrate for activated receptor tyrosine kinases. In its tyrosine phosphorylated form, SIRP-α binds to SH-PTP2 through SH2 interactions and acts as an SH-PTP2 substrate. SIRP-α 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-α 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.

CHROMOSOMAL LOCATION

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

SOURCE

SIRP-α (SE7C2) is a mouse monoclonal antibody raised against recombinant extracellular domain of SIRP-α 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-α (SE7C2) is available conjugated to agarose (sc-23863 AC), 500 µg/ 0.25 ml agarose in 1 ml, for IP; to HRP (sc-23863 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-23863 PE), fluorescein (sc-23863 FITC), Alexa Fluor® 488 (sc-23863 AF488), Alexa Fluor® 546 (sc-23863 AF546), Alexa Fluor® 594 (sc-23863 AF594) or Alexa Fluor® 647 (sc-23863 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-23863 AF680) or Alexa Fluor® 790 (sc-23863 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

APPLICATIONS

SIRP-α (SE7C2) is recommended for detection of SIRP-α 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-α siRNA (h): sc-44106, SIRP-α shRNA Plasmid (h): sc-44106-SH and SIRP-α shRNA (h) Lentiviral Particles: sc-44106-V.

Molecular Weight of unglycosylated SIRP-α: 65 kDa.

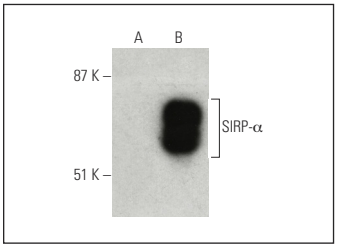
Molecular Weight of glycosylated SIRP-α: 100-150 kDa.

Positive Controls: SIRP-α (h): 293T Lysate: sc-159295.

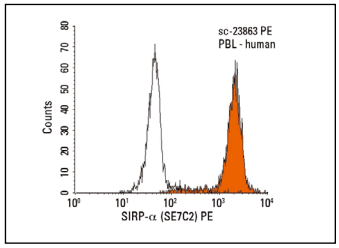
STORAGE

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

DATA



SIRP-α (SE7C2) HRP: sc-23863 HRP. Direct western blot analysis of SIRP-α expression in non-transfected: sc-117752 (**A**) and human SIRP-α transfected: sc-159295 (**B**) 293T whole cell lysates.



SIRP-α (SE7C2) PE: sc-23863 PE. FCM analysis of human peripheral blood leukocytes. Black line histogram represents the isotype control, normal mouse IgG_1-PE: sc-2866.

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. Tsai, R.K., et al. 2010. Self inhibition of phagocytosis: the affinity of "marker of self" CD47 for SIRP-α dictates potency of inhibition but only at low expression levels. Blood Cells Mol. Dis. 45: 67-74.
3. Catani, L., et al. 2011. The CD47 pathway is deregulated in human immune thrombocytopenia. Exp. Hematol. 39: 486-494.
4. Sosale, N.G., et al. 2016. "Marker of self" CD47 on lentiviral vectors decreases macrophage-mediated clearance and increases delivery to SIRPA-expressing lung carcinoma tumors. Mol. Ther. Methods Clin. Dev. 3: 16080.
5. Alvey, C.M., et al. 2017. SIRPA-inhibited, marrow-derived macrophages engorge, accumulate, and differentiate in antibody-targeted regression of solid tumors. Curr. Biol. 27: 2065-2077.e6.
6. Podolnikova, N.P., et al. 2019. Interaction between the integrin Mac-1 and signal regulatory protein α (SIRP-α) mediates fusion in heterologous cells. J. Biol. Chem. 294: 7833-7849.
7. Hayes, B.H., et al. 2020. Macrophages show higher levels of engulfment after disruption of *cis* interactions between CD47 and the checkpoint receptor SIRP-α. J. Cell Sci. 133: jcs237800.
8. Robinson, T.M., et al. 2020. Display of self-peptide on adeno-associated virus capsid decreases phagocytic uptake *in vitro*. ACS Synth. Biol. 9: 2246-2251.
9. Wibfeld, J., et al. 2021. Deletion of Alzheimer's disease-associated CD33 results in an inflammatory human microglia phenotype. Glia 69: 1393-1412.

RESEARCH USE

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