SANTA CRUZ BIOTECHNOLOGY, INC.

SRP54 (H-8): sc-393855

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

Signal recognition particle (SRP) is a ribonucleoprotein composed of an Alu domain and an S domain that contains six proteins. The S domain contains unique sequence SRP RNA and four SRP proteins: SRP19, SRP54, SRP68 and SRP72. The Alu domain contains two SRP proteins, SRP9 and SRP14. SRP interacts with ribosomes to bring translating membrane and secreted proteins to the endoplasmic reticulum (ER) for proper processing. SRP9 and SRP14 form a heterodimer before binding to SRP RNA, and SRP19 functions in the assembly of SRP and binds to free SRP RNA. This event is a prerequisite for the subsequent binding of SRP54 to helix 8 of SRP RNA in eukaryotes and involves an SRP19-induced conformational change in the RNA. SRP54 interacts with both the nascent signal peptide and SRP RNA. SRP68 binding to SRP RNA enhances SRP72 binding. SRP19, SRP68 and SRP72 are localized in the nucleolus and cytoplasm, whereas SRP54 is only localized in the cytoplasm. SRP68 also accumulates in the ER. Thus, the nucleolus is the site of assembly and/or interaction between the family of ribonucleoproteins involved in protein synthesis.

REFERENCES

1. Walter, P. and Blobel, G. 1983. Subcellular distribution of signal recognition particle and 7SL-RNA determined with polypeptide-specific antibodies and complementary DNA probe. J. Cell Biol. 97: 1693-1699.
2. Lingelbach, K., et al. 1988. Isolation and characterization of a cDNA clone encoding the 19 kDa protein of signal recognition particle (SRP): expression and binding to 7SL RNA. Nucleic Acids Res. 16: 9431-9442.
3. Zwieb, C. 1997. The uRNA database. Nucleic Acids Res. 25: 102-103.

CHROMOSOMAL LOCATION

Genetic locus: SRP54 (human) mapping to 14q13.2; Srp54a/Srp54b/Srp54c (mouse) mapping to 12 C1.

SOURCE

SRP54 (H-8) is a mouse monoclonal antibody raised against amino acids 259-504 mapping at the C-terminus of SRP54 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.

SRP54 (H-8) is available conjugated to agarose (sc-393855 AC), 500 µg/ 0.25 ml agarose in 1 ml, for IP; to HRP (sc-393855 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-393855 PE), fluorescein (sc-393855 FITC), Alexa Fluor® 488 (sc-393855 AF488), Alexa Fluor® 546 (sc-393855 AF546), Alexa Fluor® 594 (sc-393855 AF594) or Alexa Fluor® 647 (sc-393855 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-393855 AF680) or Alexa Fluor® 790 (sc-393855 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

RESEARCH USE

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

APPLICATIONS

SRP54 (H-8) is recommended for detection of SRP54 of mouse, rat and human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

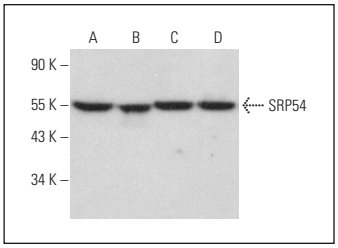
SRP54 (H-8) is also recommended for detection of SRP54 in additional species, including equine, canine, bovine and porcine.

Suitable for use as control antibody for SRP54 siRNA (h): sc-106810, SRP54 shRNA Plasmid (h): sc-106810-SH and SRP54 shRNA (h) Lentiviral Particles: sc-106810-V.

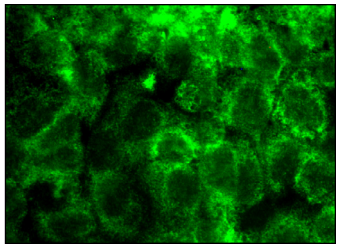
Molecular Weight of SRP54: 54 kDa.

Positive Controls: SUP-T1 whole cell lysate: sc-364796, NIH/3T3 whole cell lysate: sc-2210 or Hep G2 cell lysate: sc-2227.

DATA



SRP54 (H-8): sc-393855. Western blot analysis of SRP54 expression in SUP-T1 (**A**), Hep G2 (**B**), NIH/3T3 (**C**) and TK-1 (**D**) whole cell lysates.



SRP54 (H-8): sc-393855. Immunofluorescence staining of formalin-fixed A-431 cells showing cytoplasmic localization.

SELECT PRODUCT CITATIONS

1. Carapito, R., et al. 2017. Mutations in signal recognition particle SRP54 cause syndromic neutropenia with Shwachman-Diamond-like features. J. Clin. Invest. 127: 4090-4103.
2. Juaire, K.D., et al. 2021. Structural and functional impact of SRP54 mutations causing severe congenital neutropenia. Structure 29: 15-28.e7.
3. Chen, H.H., et al. 2021. DDX3 modulates the tumor microenvironment via its role in endoplasmic reticulum-associated translation. iScience 24: 103086.
4. Božic, J., et al. 2022. Interactome screening of C9orf72 dipeptide repeats reveals VCP sequestration and functional impairment by polyGA. Brain 145: 684-699.
5. Ko, S., et al. 2022. Profiling of RNA-binding proteins interacting with glucagon and adipokinetic hormone mRNAs. J. Lipid Atheroscler. 11: 55-72.

STORAGE

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