

SRP54 (30): sc-136303

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.
4. Gowda, K., et al. 1998. Protein SRP54 of human signal recognition particle: cloning, expression, and comparative analysis of functional sites. *Gene* 207: 197-207.
5. Politz, J.C., et al. 2000. Signal recognition particle components in the nucleolus. *Proc. Natl. Acad. Sci. USA* 97: 55-60.
6. Pederson, T. and Politz, J.C. 2000. The nucleolus and the four ribonucleoproteins of translation. *J. Cell Biol.* 148: 1091-1095.

CHROMOSOMAL LOCATION

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

SOURCE

SRP54 (30) is a mouse monoclonal antibody raised against amino acids 262-476 of SRP54 of human origin.

PRODUCT

Each vial contains 200 µg IgG₁ in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

STORAGE

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

APPLICATIONS

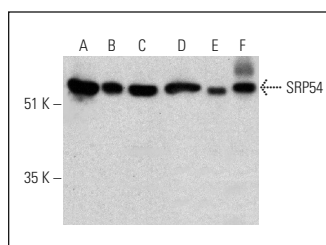
SRP54 (30) is recommended for detection of SRP54 of mouse, rat, human and canine origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)] and immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500).

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.

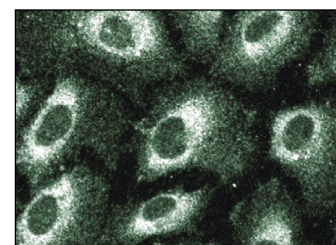
Molecular Weight of SRP54: 54 kDa.

Positive Controls: Jurkat whole cell lysate: sc-2204, HEK293 whole cell lysate: sc-45136 or HeLa whole cell lysate: sc-2200.

DATA



SRP54 (30): sc-136303. Western blot analysis of SRP54 expression in Jurkat (A), HEK293 (B), HeLa (C) and NIH/3T3 (D) whole cell lysates and human placenta (E) and mouse ovary (F) tissue extracts.



SRP54 (30): sc-136303. Immunofluorescence staining of human endothelial cells showing cytoplasmic localization.

RESEARCH USE

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

PROTOCOLS

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