SANTA CRUZ BIOTECHNOLOGY, INC.

SRP54 (N-18): sc-21521

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.
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.
7. Wild, K., et al. 2001. Crystal structure of an early protein-RNA assembly complex of the signal recognition particle. Science 294: 598-601.

CHROMOSOMAL LOCATION

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

SOURCE

SRP54 (N-18) is an affinity purified goat polyclonal antibody raised against a peptide mapping at the N-terminus of SPR54 of mouse origin.

PRODUCT

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

Blocking peptide available for competition studies, sc-21521 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

SRP54 (N-18) is recommended for detection of SRP54 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500), immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

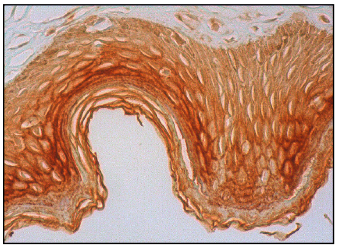
SRP54 (N-18) is also recommended for detection of SRP54 in additional species, including equine, canine, bovine, porcine and avian.

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: JEG-3 Whole Cell Lysate : sc-364255, NIH/3T3 whole cell lysate: sc-2210 or HeLa whole cell lysate: sc-2200.

DATA



SRP54 (N-18): sc-21521. Immunoperoxidase staining of formalin fixed, paraffin-embedded human vulva/anal skin tissue showing cytoplasmic, membrane and nuclear staining of epidermal cells.

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 or our catalog for detailed protocols and support products.