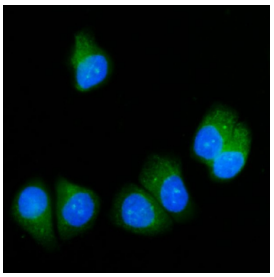
SRP54 Antibody / Signal recognition particle 54 kDa protein (FY13431)

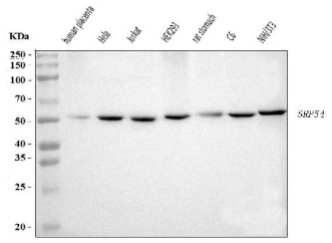
Catalog No.	Formulation	Size
FY13431	Adding 0.2 ml of distilled water will yield a concentration of 500 ug/ml	100 ug

Bulk quote request

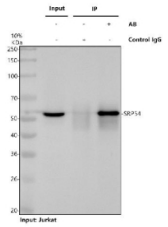
Availability	1-2 days
Species Reactivity	Human, Mouse, Rat
Format	Lyophilized
Clonality	Polyclonal (rabbit origin)
Isotype	Rabbit IgG
Purity	Immunogen affinity purified
Buffer	Each vial contains 4 mg Trehalose, 0.9 mg NaCl and 0.2 mg Na2HPO4
UniProt	P61011
Localization	Cytoplasm, ER, Nuclear speckles
Applications	Western Blot : 0.5-1ug/ml Immunofluorescence : 5ug/ml Immunoprecipitation : 2ug per 500ug of lysate Flow Cytometry : 1-3ug/million cells
Limitations	This SRP54 antibody is available for research use only.



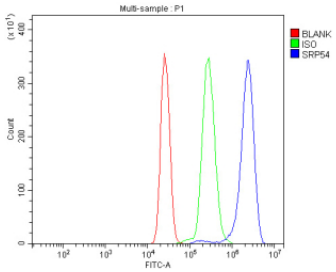
Immunofluorescent staining of FFPE human T-47D cells with SRP54 antibody (green) and DAPI nuclear stain (blue). HIER: steam section in pH6 citrate buffer for 20 min.



Western blot analysis using SRP54 antibody. Lane 1: human placenta tissue lysates; Lane 2: human HeLa whole cell lysates; Lane 3: human Jurkat whole cell lysates; Lane 4: human HEK293 whole cell lysates; Lane 5: rat stomach tissue lysates; Lane 6: mouse C6 whole cell lysates; Lane 7: mouse NIH/3T3 whole cell lysates. The predicted molecular weight of Signal recognition particle 54 kDa protein is ~56 kDa, and a band is observed at the expected size.



Immunoprecipitation of SRP54 protein from 500ug of human Jurkat whole cell lysate with 2ug of SRP54 antibody.



Flow cytometry analysis of fixed and permeabilized human U937 cells with SRP54 antibody at 1ug/million cells (blocked with goat sera); Red=cells alone, Green=isotype control, Blue= SRP54 antibody.

Description

SRP54 antibody targets Signal recognition particle 54 kDa protein, encoded by the SRP54 gene. Signal recognition particle 54 kDa protein is a core component of the signal recognition particle (SRP), a ribonucleoprotein complex that mediates co-translational targeting of nascent polypeptides to the endoplasmic reticulum membrane. SRP54 is primarily localized in the cytoplasm and associates transiently with ribosomes, where it recognizes signal peptides emerging from the ribosomal exit tunnel. This interaction is essential for directing secretory and membrane proteins into the correct cellular trafficking pathway.

Functionally, Signal recognition particle 54 kDa protein serves as the signal peptide-binding and GTPase subunit of the SRP complex. Upon binding a signal sequence, SRP54 pauses translation and facilitates docking of the ribosome-nascent chain complex to the SRP receptor at the endoplasmic reticulum membrane. Subsequent GTP-dependent interactions between SRP54 and the SRP receptor coordinate transfer of the translating ribosome to the translocon, allowing protein synthesis to resume with concurrent translocation into or insertion across the membrane. A SRP54 antibody supports studies focused on protein targeting, translation regulation, and secretory pathway biology.

SRP54 is ubiquitously expressed across tissues and cell types, reflecting the universal requirement for accurate targeting of secreted and membrane proteins. Cells with high secretory activity, such as plasma cells and glandular epithelial cells, rely heavily on efficient SRP function to maintain protein homeostasis. SRP54 interacts with SRP RNA and other SRP subunits to form a functional complex, and these interactions are tightly regulated to ensure fidelity and efficiency of protein targeting during translation.

From a disease-relevance perspective, alterations in SRP54 function have been linked to defects in protein secretion and cellular stress responses. Mutations in SRP54 have been associated with congenital neutropenia and related hematological disorders, highlighting the importance of proper co-translational targeting for immune cell development and function. Disruption of SRP-mediated trafficking can also contribute to endoplasmic reticulum stress and impaired protein folding, processes that are implicated in a wide range of pathological conditions. These findings underscore the relevance

of SRP54 in studies of protein biogenesis and disease-associated trafficking defects.

At the molecular level, Signal recognition particle 54 kDa protein contains conserved domains required for signal peptide recognition and GTP binding, enabling its role as a regulatory switch during protein targeting. Post-translational modifications and dynamic interactions with ribosomes and membranes can influence its behavior in biochemical assays and SDS-PAGE without implying changes in primary sequence. A SRP54 antibody supports research applications focused on translational control, secretory pathway regulation, and disease-associated disruptions of protein targeting, with NSJ Bioreagents providing reagents intended for research use.

Application Notes

Optimal dilution of the SRP54 antibody should be determined by the researcher.

Immunogen

E.coli-derived human Signal recognition particle 54 kDa protein (amino acids V2-K433) was used as the immunogen for the SRP54 antibody.

Storage

After reconstitution, the SRP54 antibody can be stored for up to one month at 4oC. For long-term, aliquot and store at -20oC. Avoid repeated freezing and thawing.