10320 Camino Santa Fe, Suite G
San Diego, CA 92121
Tel: 858.875.1900 Fax: 858.875.1999

SAR1A Antibody (Center)

Affinity Purified Rabbit Polyclonal Antibody (Pab)
Catalog # AP6915c

Product Information

Application	IHC-P, FC, WB, E
Primary Accession	Q9NR31
Other Accession	Q52NJ3, P36536, Q3T0D7
Reactivity	Human, Mouse
Predicted	Bovine, Mouse, Pig, Rat, Canine, Rabbit
Host	Rabbit
Clonality	Polyclonal
Isotype	Rabbit IgG
Clone Names	RB21259
Calculated MW	22367
Antigen Region	122-149

Additional Information

Gene ID	56681
Other Names	GTP-binding protein SAR1a, COPII-associated small GTPase, SAR1A, SAR1, SARA, SARA1
Target/Specificity	This SAR1A antibody is generated from rabbits immunized with a KLH conjugated synthetic peptide between 122-149 amino acids from the Central region of human SAR1A.
Dilution	IHC-P~~1:100~500 FC~~1:10~50 WB~~1:1000 E~~Use at an assay dependent concentration.
Format	Purified polyclonal antibody supplied in PBS with 0.09% (W/V) sodium azide. This antibody is purified through a protein A column, followed by peptide affinity purification.
Storage	Maintain refrigerated at 2-8°C for up to 2 weeks. For long term storage store at -20°C in small aliquots to prevent freeze-thaw cycles.
Precautions	SAR1A Antibody (Center) is for research use only and not for use in diagnostic or therapeutic procedures.

Protein Information

Name	SAR1A (HGNC:10534)
Synonyms	SAR1, SARA, SARA1

Function	Small GTPase that cycles between an active GTP-bound and an inactive GDP-bound state and mainly functions in vesicle-mediated endoplasmic reticulum (ER) to Golgi transport. The active GTP-bound form inserts into the endoplasmic reticulum membrane where it recruits the remainder of the coat protein complex II/COPII. The coat protein complex II assembling and polymerizing on endoplasmic reticulum membrane is responsible for both the sorting of cargos and the deformation and budding of membranes into vesicles destined to the Golgi (PubMed:23433038, PubMed:32358066, PubMed:36369712). The GTPase activity of SAR1 by controlling the timing of COPII budding regulates the size of the formed vesicles and is important for cargo selection depending on their size (PubMed:32358066). Together with SEC16A, forms the organized scaffold defining endoplasmic reticulum exit sites (ERES), some specific domains of the endoplasmic reticulum where COPII vesicles form (PubMed:17005010). In addition to its role in vesicle trafficking, can also function as a leucine sensor regulating TORC1 signaling and more indirectly cellular metabolism, growth and survival. In absence of leucine, interacts with the GATOR2 complex via MIOS and inhibits TORC1 signaling. The binding of leucine abrogates the interaction with GATOR2 and the inhibition of the TORC1 signaling. This function is completely independent of the GTPase activity of SAR1B (PubMed:34290409).
Cellular Location	Endoplasmic reticulum membrane; Peripheral membrane protein. Golgi apparatus, Golgi stack membrane; Peripheral membrane protein. Cytoplasm, cytosol. Lysosome membrane. Note=Active at endoplasmic reticulum exit sites (ERES) where it inserts into the membrane and recruits the remainder of the coat protein complex II/COPII (PubMed:23433038, PubMed:32358066). Upon leucine deprivation, associates with lysosomal membranes to repress TORC1 signaling (Probable)

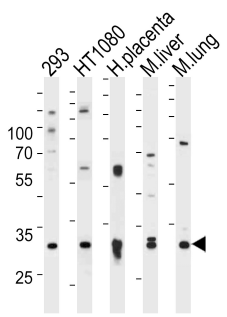
Background

SAR1A is involved in transport from the endoplasmic reticulum to the Golgi apparatus (By similarity) and required to maintain SEC16A localization at discrete locations on the ER membrane perhaps by preventing its dissociation. SAR1A-GTP-dependent assembly of SEC16A on the ER membrane forms an organized scaffold defining endoplasmic reticulum exit sites (ERES).

References

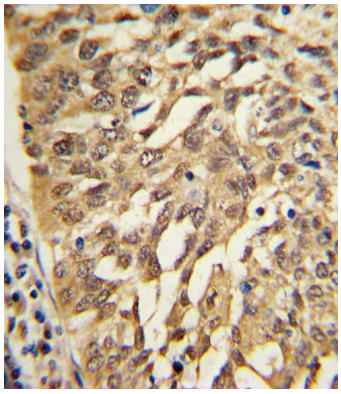
Morgan,A.R., et.al., Am. J. Med. Genet. B Neuropsychiatr. Genet. 144B (6), 762-770(2007)

Images

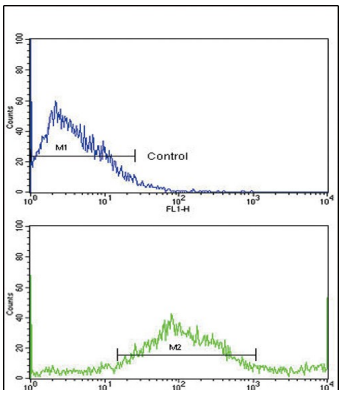


Western blot analysis of lysates from 293,HT1080 cell line,human placenta,mouse liver and lung tissue (from left to right),using SAR1A Antibody (Center)(Cat. #AP6915c).AP6915c was diluted at 1:1000 at each lane. A goat anti-rabbit IgG H&L(HRP) at 1:5000 dilution was used as the secondary antibody.Lysates at 35ug per lane.

Formalin-fixed and paraffin-embedded human lung



carcinoma with SAR1A Antibody (Center), which was peroxidase-conjugated to the secondary antibody, followed by DAB staining. This data demonstrates the use of this antibody for immunohistochemistry; clinical relevance has not been evaluated.



Flow cytometric analysis of NCI-H292 cells using SAR1A Antibody (Center)(bottom histogram) compared to a negative control cell (top histogram). FITC-conjugated goat-anti-rabbit secondary antibodies were used for the analysis.

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