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KPNA1 Antibody

Catalog # ASC11205

Product Information

Application	WB, IF, ICC, E
Primary Accession	P52294
Other Accession	NP_002255, 222144293
Reactivity	Human, Mouse, Rat
Host	Rabbit
Clonality	Polyclonal
Isotype	IgG
Calculated MW	60222
Concentration (mg/ml)	1 mg/mL
Conjugate	Unconjugated
Application Notes	KPNA1 antibody can be used for detection of KPNA1 by Western blot at 1 g/mL. Antibody can also be used for immunocytochemistry starting at 2.5 g/mL. For immunofluorescence start at 20 g/mL.

Additional Information

Gene ID	3836
Other Names	Importin subunit alpha-5, Karyopherin subunit alpha-1, Nucleoprotein interactor 1, NPI-1, RAG cohort protein 2, SRP1-beta, Importin subunit alpha-5, N-terminally processed, KPNA1, RCH2
Target/Specificity	KPNA1;
Reconstitution & Storage	KPNA1 antibody can be stored at 4℃ for three months and -20℃, stable for up to one year. As with all antibodies care should be taken to avoid repeated freeze thaw cycles. Antibodies should not be exposed to prolonged high temperatures.
Precautions	KPNA1 Antibody is for research use only and not for use in diagnostic or therapeutic procedures.

Protein Information

Name	KPNA1
Synonyms	RCH2
Function	Functions in nuclear protein import as an adapter protein for nuclear receptor KPNB1 (PubMed:27713473, PubMed:7892216, PubMed:8692858). Binds specifically and directly to substrates containing either a simple or bipartite NLS motif (PubMed:27713473, PubMed:7892216, PubMed:8692858). Docking of the importin/substrate complex to the nuclear pore complex (NPC) is mediated by KPNB1 through binding to nucleoporin FxFG repeats and the

complex is subsequently translocated through the pore by an energy requiring, Ran-dependent mechanism (PubMed:27713473, PubMed:7892216). At the nucleoplasmic side of the NPC, Ran binds to importin-beta and the three components separate and importin-alpha and -beta are re-exported from the nucleus to the cytoplasm where GTP hydrolysis releases Ran from importin (PubMed:7892216). The directionality of nuclear import is thought to be conferred by an asymmetric distribution of the GTP- and GDP-bound forms of Ran between the cytoplasm and nucleus (PubMed:7892216). Mediator of PR-DUB complex component BAP1 nuclear import; acts redundantly with KPNA2 and Transportin-1/TNPO1 (PubMed:35446349).

Cellular Location Cytoplasm. Nucleus

Tissue Location Expressed ubiquitously.

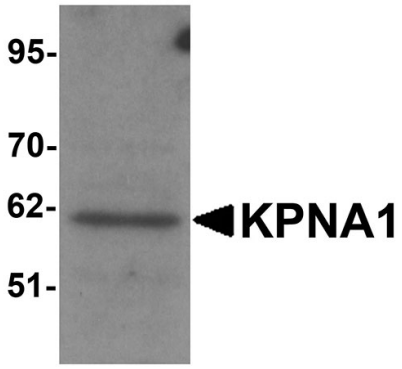
Background

KPNA1 Antibody: Karyopherin, a cytosolic and heterodimeric protein complex consisting of alpha and beta subunits, is responsible for targeting proteins with nuclear localization signals to the nuclear pore complex by an energy requiring, Ran-dependent mechanism. The alpha subunit and imported substrate enter the nucleus and accumulate in the nucleoplasm, while the beta subunit accumulates at the NPC. KPNA1, also known as importin alpha 5, is the alpha subunit of karyopherin, which forms a complex with importin subunit beta-1 and functions in nuclear protein import as an adapter protein for nuclear receptor KPNB1. It is ubiquitously expressed and polyubiquitinated in the presence of RAG1. KPNA1 interacts with various virus nucleoproteins, including those of Ebola and influenza.

References

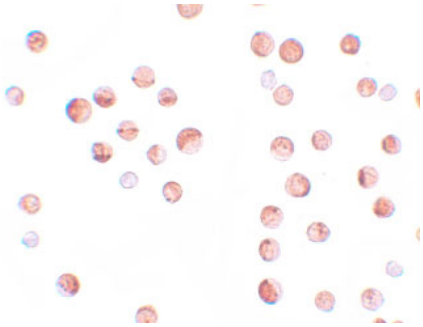
Moroianu J. Molecular mechanisms of nuclear protein transport. Crit. Rev. Eukaryot. Gene Expr.1997; 7:61-72.
Gilchrist D and Rexach M. Molecular basis for the rapid dissociation of nuclear localization signals from karyopherin alpha in the nucleoplasm. J. Biol. Chem.2003; 278: 51937-49.
Simkus C, Makiya M and Jones JM. Karyopherin alpha 1 is a putative substrate of the RAG1 ubiquitin ligase. Mol. Immunol.2009; 46:1319-25.
Reid SP, Valmas C, and Martinez O. Ebola virus VP24 proteins inhibit the interaction of NPI-1 subfamily karyopherin alpha proteins with activated STAT1. J. Virol.2007; 81:13469-77.

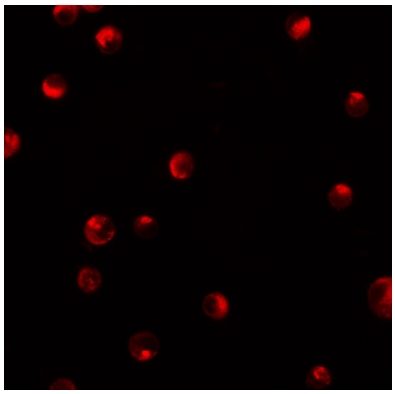
Images



Western blot analysis of KPNA1 in Hela cell lysate with KPNA1 antibody at 1 µg/mL.

Immunocytochemistry of KPNA1 in HeLa cells with KPNA1 antibody at 2.5 µg/mL.





Immunofluorescence of KPNA1 in K562 cells with KPNA1 antibody at 20 µg/mL.