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RAN Antibody (N-term)

Purified Rabbit Polyclonal Antibody (Pab)
Catalog # AP6693a

Product Information

Application	WB, IHC-P, FC, E
Primary Accession	P62826
Other Accession	P52301, P62828, P62827, Q4R4M9, P79735, P42558, O17915, Q3T054, P32836, P32835
Reactivity	Human, Mouse
Predicted	Yeast, Bovine, C.Elegans, Chicken, Zebrafish, Monkey, Rat, Xenopus, Canine
Host	Rabbit
Clonality	Polyclonal
Isotype	Rabbit IgG
Clone Names	RB20229
Calculated MW	24423
Antigen Region	12-39

Additional Information

Gene ID	5901
Other Names	GTP-binding nuclear protein Ran, Androgen receptor-associated protein 24, GTPase Ran, Ras-like protein TC4, Ras-related nuclear protein, RAN, ARA24
Target/Specificity	This RAN antibody is generated from rabbits immunized with a KLH conjugated synthetic peptide between 12-39 amino acids from the N-terminal region of human RAN.
Dilution	WB~~1:1000 IHC-P~~1:100~500 FC~~1:10~50 E~~Use at an assay dependent concentration.
Format	Purified polyclonal antibody supplied in PBS with 0.09% (W/V) sodium azide. This antibody is prepared by Saturated Ammonium Sulfate (SAS) precipitation followed by dialysis against PBS.
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	RAN Antibody (N-term) is for research use only and not for use in diagnostic or therapeutic procedures.

Protein Information

Name	RAN

Synonyms	ARA24 {ECO:0000303|PubMed:10400640}
Function	GTPase involved in nucleocytoplasmic transport, participating both to the import and the export from the nucleus of proteins and RNAs (PubMed:10400640, PubMed:17209048, PubMed:26272610, PubMed:27306458, PubMed:8276887, PubMed:8636225, PubMed:8692944, PubMed:8896452, PubMed:9351834, PubMed:9428644, PubMed:9822603). Switches between a cytoplasmic GDP- and a nuclear GTP-bound state by nucleotide exchange and GTP hydrolysis (PubMed:11336674, PubMed:26272610, PubMed:29040603, PubMed:7819259, PubMed:8636225, PubMed:8692944, PubMed:8896452, PubMed:9351834, PubMed:9428644, PubMed:9822603). Nuclear import receptors such as importin beta bind their substrates only in the absence of GTP-bound RAN and release them upon direct interaction with GTP-bound RAN, while export receptors behave in the opposite way. Thereby, RAN controls cargo loading and release by transport receptors in the proper compartment and ensures the directionality of the transport (PubMed:8896452, PubMed:9351834, PubMed:9428644). Interaction with RANBP1 induces a conformation change in the complex formed by XPO1 and RAN that triggers the release of the nuclear export signal of cargo proteins (PubMed:20485264). RAN (GTP-bound form) triggers microtubule assembly at mitotic chromosomes and is required for normal mitotic spindle assembly and chromosome segregation (PubMed:10408446, PubMed:29040603). Required for normal progress through mitosis (PubMed:12194828, PubMed:29040603, PubMed:8421051). The complex with BIRC5/survivin plays a role in mitotic spindle formation by serving as a physical scaffold to help deliver the RAN effector molecule TPX2 to microtubules (PubMed:18591255). Acts as a negative regulator of the kinase activity of VRK1 and VRK2 (PubMed:18617507). Enhances AR- mediated transactivation. Transactivation decreases as the poly-Gln length within AR increases (PubMed:10400640).
Cellular Location	Nucleus. Nucleus envelope. Cytoplasm, cytosol Cytoplasm. Melanosome Note=Predominantly nuclear during interphase (PubMed:10679025, PubMed:12194828, PubMed:8421051). Becomes dispersed throughout the cytoplasm during mitosis (PubMed:12194828, PubMed:8421051). Identified by mass spectrometry in melanosome fractions from stage I to stage IV (PubMed:17081065).
Tissue Location	Expressed in a variety of tissues.

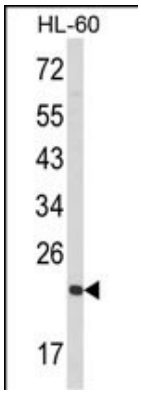
Background

RAN (ras-related nuclear protein) is a small GTP binding protein belonging to the RAS superfamily that is essential for the translocation of RNA and proteins through the nuclear pore complex. The RAN protein is also involved in control of DNA synthesis and cell cycle progression. Nuclear localization of RAN requires the presence of regulator of chromosome condensation 1 (RCC1). Mutations in RAN disrupt DNA synthesis. Because of its many functions, it is likely that RAN interacts with several other proteins. RAN regulates formation and organization of the microtubule network independently of its role in the nucleus-cytosol exchange of macromolecules. RAN could be a key signaling molecule regulating microtubule polymerization during mitosis. RCC1 generates a high local concentration of RAN-GTP around chromatin which, in turn, induces the local nucleation of microtubules. RAN is an androgen receptor (AR) coactivator that binds differentially with different lengths of polyglutamine within the androgen receptor. Polyglutamine repeat expansion in the AR is linked to Kennedy's disease (X-linked spinal and bulbar muscular atrophy). RAN coactivation of the AR diminishes with polyglutamine expansion within the AR, and this weak coactivation may lead to partial androgen insensitivity during the development of Kennedy's disease.

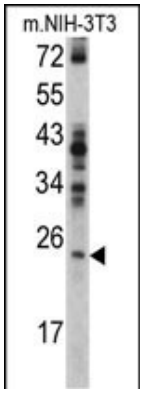
References

Monecke,T., Science 324 (5930), 1087-1091 (2009)
Moss,D.K., J. Cell. Sci. 122 (PT 5), 644-655 (2009)

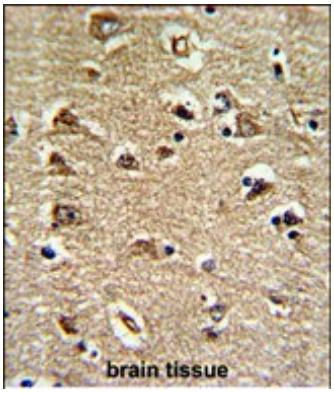
Images



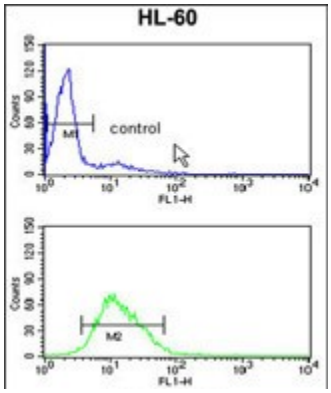
Western blot analysis of RAN Antibody (N-term) (Cat. #AP6693a) in HL-60 cell line lysates (35ug/lane).RAN (arrow) was detected using the purified Pab.



Western blot analysis of RAN antibody (N-term) (Cat. #AP6693a) in NIH-3T3 cell line lysates (35ug/lane). RAN (arrow) was detected using the purified Pab.

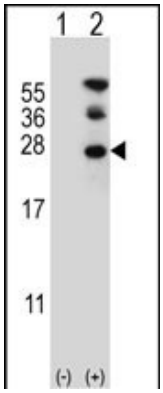


Formalin-fixed and paraffin-embedded human brain tissue reacted with RAN Antibody (N-term), which was peroxidase-conjugated to the secondary antibody, followed by DAB staining. This data demonstrates the use of this antibody for immunohistochemistry; clinical relevance has not been evaluated.



RAN Antibody (N-term) (Cat. #AP6693a) flow cytometry analysis of HL-60 cells (bottom histogram) compared to a negative control cell (top histogram).FITC-conjugated goat-anti-rabbit secondary antibodies were used for the analysis.

Western blot analysis of RAN (arrow) using rabbit polyclonal RAN Antibody (N-term) (Cat. #AP6693a). 293



cell lysates (2 ug/lane) either nontransfected (Lane 1) or transiently transfected (Lane 2) with the RAN gene.

Please note: All products are 'FOR RESEARCH USE ONLY. NOT FOR USE IN DIAGNOSTIC OR THERAPEUTIC PROCEDURES'.