

Goat Anti-RAN Antibody
Peptide-affinity purified goat antibody
Catalog # AF1906a

Specification

Goat Anti-RAN Antibody - Product Information

Application	WB, IHC
Primary Accession	P62826
Other Accession	NP_006316 , 5901 , 19384 (mouse) , 84509 (rat)
Reactivity	Human, Mouse
Predicted	Rat, Dog
Host	Goat
Clonality	Polyclonal
Concentration	100ug/200ul
Isotype	IgG
Calculated MW	24423

Goat Anti-RAN Antibody - 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

Format

0.5 mg IgG/ml in Tris saline (20mM Tris pH7.3, 150mM NaCl), 0.02% sodium azide, with 0.5% bovine serum albumin

Storage

Maintain refrigerated at 2-8°C for up to 6 months. For long term storage store at -20°C in small aliquots to prevent freeze-thaw cycles.

Precautions

Goat Anti-RAN Antibody is for research use only and not for use in diagnostic or therapeutic procedures.

Goat Anti-RAN Antibody - 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.

Goat Anti-RAN Antibody - Protocols

Provided below are standard protocols that you may find useful for product applications.

- [Western Blot](#)
- [Blocking Peptides](#)
- [Dot Blot](#)
- [Immunohistochemistry](#)
- [Immunofluorescence](#)
- [Immunoprecipitation](#)
- [Flow Cytometry](#)
- [Cell Culture](#)

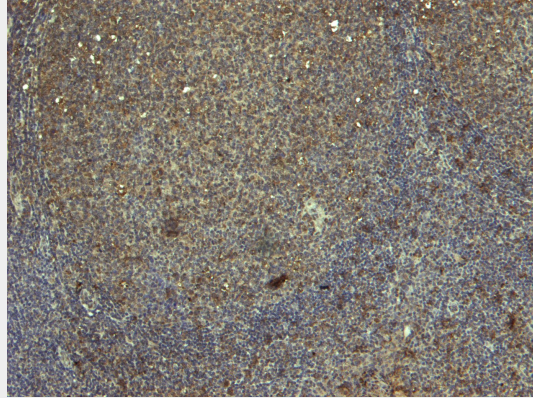
Goat Anti-RAN Antibody - Images



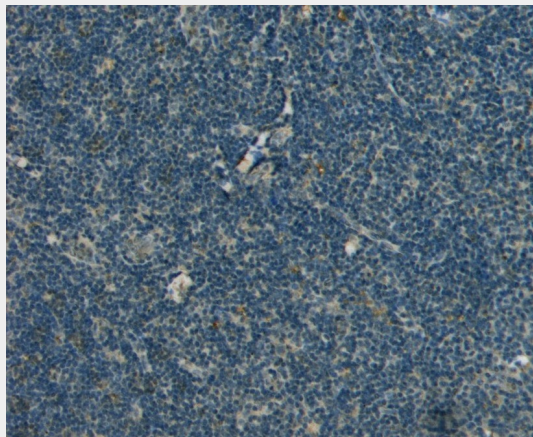
AF1906a (0.5 μ g/ml) staining of A431 (35 μ g protein in RIPA buffer). Primary incubation was 1 hour. Detected by chemiluminescence.



EB06419 (0.5 μ g/ml) staining of A431 (35 μ g protein in RIPA buffer). Detected by chemiluminescence.



EB06419 (3µg/ml) staining of paraffin embedded Human Tonsil. Heat induced antigen retrieval with citrate buffer pH 6, HRP-staining.



EB06419 Negative Control showing staining of paraffin embedded Human Tonsil, with no primary antibody.

Goat Anti-RAN Antibody - 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.

Goat Anti-RAN Antibody - References

Association of a common AGO1 variant with lung cancer risk: A two-stage case-control study. Kim JS, et al. *Mol Carcinog*, 2010 Oct. PMID 20721975.

Role of primary miRNA polymorphic variants in metastatic colon cancer patients treated with 5-fluorouracil and irinotecan. Boni V, et al. *Pharmacogenomics J*, 2010 Jun 29. PMID 20585341.

The interaction of Epac1 and Ran promotes Rap1 activation at the nuclear envelope. Liu C, et al. Mol Cell Biol, 2010 Aug. PMID 20547757.

The Nup107-160 complex and gamma-TuRC regulate microtubule polymerization at kinetochores. Mishra RK, et al. Nat Cell Biol, 2010 Feb. PMID 20081840.

Activation of the Ran GTPase is subject to growth factor regulation and can give rise to cellular transformation. Ly TK, et al. J Biol Chem, 2010 Feb 19. PMID 20028979.