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RAN Antibody (Center) Blocking Peptide
Synthetic peptide
Catalog # BP6693b

Specification

RAN Antibody (Center) Blocking Peptide - Product Information

Primary Accession	P62826
Other Accession	NP_006316.1

RAN Antibody (Center) Blocking Peptide - 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
Peptides are lyophilized in a solid powder format. Peptides can be reconstituted in solution using the appropriate buffer as needed.

Storage
Maintain refrigerated at 2-8°C for up to 6 months. For long term storage store at -20°C.

Precautions
This product is for research use only. Not for use in diagnostic or therapeutic procedures.

RAN Antibody (Center) Blocking Peptide - 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.

RAN Antibody (Center) Blocking Peptide - Protocols

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

- Blocking Peptides

RAN Antibody (Center) Blocking Peptide - Images

RAN Antibody (Center) Blocking Peptide - Background

RAN (ras-related nuclear protein) is a small GTP bindingprotein belonging to the RAS superfamily that is essential for thetranslocation of RNA and proteins through the nuclear pore complex.The RAN protein is also involved in control of DNA synthesis andcell cycle progression. Nuclear localization of RAN requires thepresence of regulator of chromosome condensation 1 (RCC1).Mutations in RAN disrupt DNA synthesis. Because of its manyfunctions, it is likely that RAN interacts with several otherproteins. RAN regulates formation and organization of themicrotubule network independently of its role in thenucleus-cytosol exchange of macromolecules. RAN could be a keysignaling molecule regulating microtubule polymerization duringmitosis. RCC1 generates a high local concentration of RAN-GTParound chromatin which, in turn, induces the local nucleation ofmicrotubules. RAN is an androgen receptor (AR) coactivator thatbinds differentially with different lengths of polyglutamine withinthe androgen receptor. Polyglutamine repeat expansion in the AR islinked to Kennedy's disease (X-linked spinal and bulbar muscularatrophy). RAN coactivation of the AR diminishes with polyglutamineexpansion within the AR, and this weak coactivation may lead topartial androgen insensitivity during the development of Kennedy'sdisease.

RAN Antibody (Center) Blocking Peptide - References

Kim, J.S., et al. Mol. Carcinog. 49(10):913-921(2010)Liu, C., et al. Mol. Cell. Biol. 30(16):3956-3969(2010)Boni, V., et al. Pharmacogenomics J. (2010) In press :Ly, T.K., et al. J. Biol. Chem. 285(8):5815-5826(2010)Mishra, R.K., et al. Nat. Cell Biol. 12(2):164-169(2010)