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Mouse Monoclonal Antibody to RAN

Purified Mouse Monoclonal Antibody
Catalog # AO2329a

Specification

Mouse Monoclonal Antibody to RAN - Product Information

Application	**WB, IHC, FC, E**
Primary Accession	P62826
Reactivity	**Human, Rat, Monkey**
Host	**Mouse**
Clonality	**Monoclonal**
Isotype	**Mouse IgG1**
Calculated MW	**24.4kDa KDa**

Description
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.;

Immunogen
Purified recombinant fragment of human RAN (AA: 1-216) expressed in E. Coli.

Formulation
Purified antibody in PBS with 0.05% sodium azide

Application Note
ELISA: 1/10000; WB: 1/500 - 1/2000; IHC: 1/200 - 1/1000; FCM: 1/200 - 1/400

Mouse Monoclonal Antibody to RAN - Additional Information

Gene ID 5901

Other Names
TC4; Gsp1; ARA24

Dilution
WB~~1:1000
IHC~~1:100~500

FC~~1:10~50
E~~N/A

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
Mouse Monoclonal Antibody to RAN is for research use only and not for use in diagnostic or therapeutic procedures.

Mouse Monoclonal Antibody to RAN - 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).

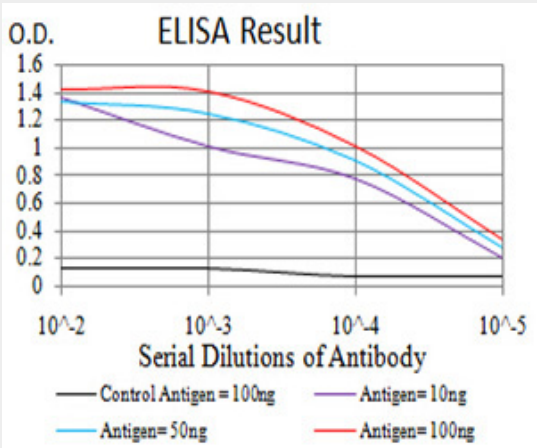
Tissue Location
Expressed in a variety of tissues.

Mouse Monoclonal Antibody to RAN - Protocols

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

- Western Blot
- Blocking Peptides
- Dot Blot
- Immunohistochemistry
- Immunofluorescence
- Immunoprecipitation
- Flow Cytomety
- Cell Culture

Mouse Monoclonal Antibody to RAN - Images



Black line: Control Antigen (100 ng);Purple line: Antigen (10ng); Blue line: Antigen (50 ng); Red

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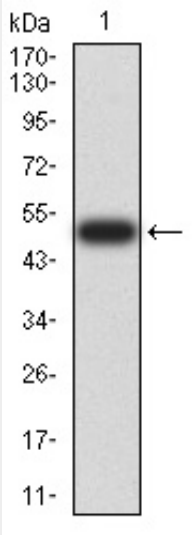
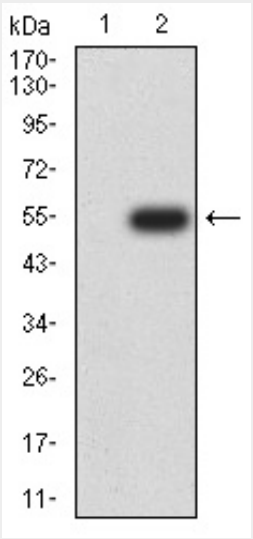
line:Antigen (100 ng)



Western blot analysis using RAN mAb against human RAN (AA: 1-216) recombinant protein. (Expected MW is 50.4 kDa)



Western blot analysis using RAN mAb against HEK293 (1) and RAN (AA: 1-216)-hIgGFc transfected HEK293 (2) cell lysate.

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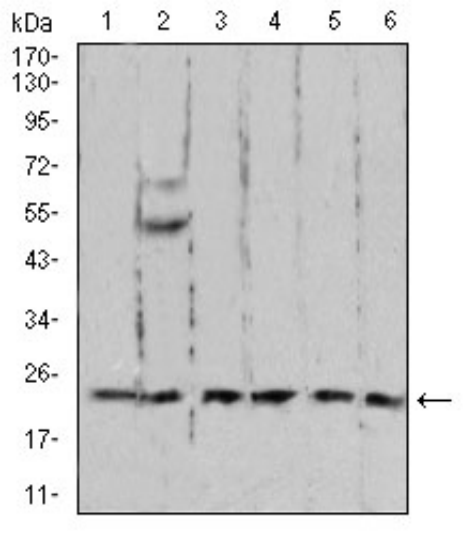
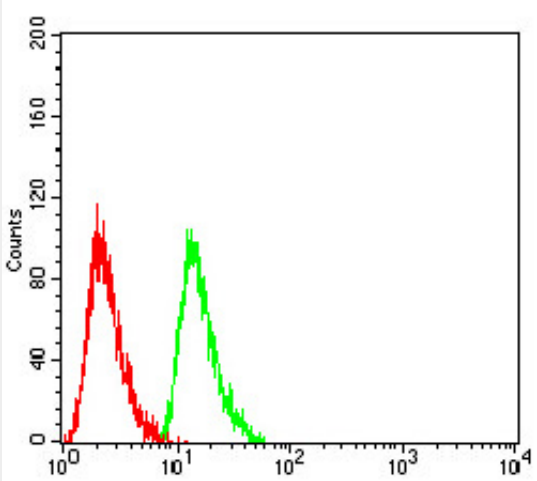
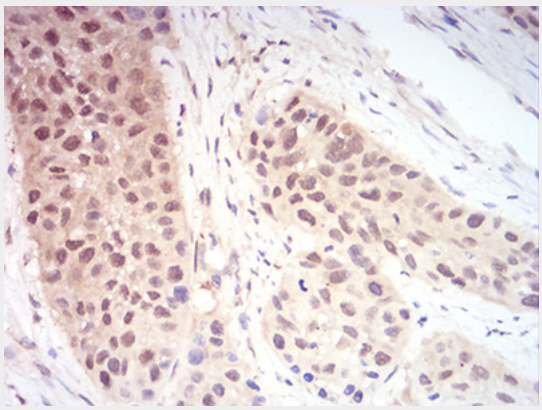


Western blot analysis using RAN mouse mAb against A431 (1), C6 (2), Jurkat (3), Hela (4), COS7 (5), and Jurkat (6) cell lysate.



Flow cytometric analysis of Hela cells using RAN mouse mAb (green) and negative control (red).



Immunohistochemical analysis of paraffin-embedded esophageal cancer tissues using RAN mouse mAb with DAB staining.

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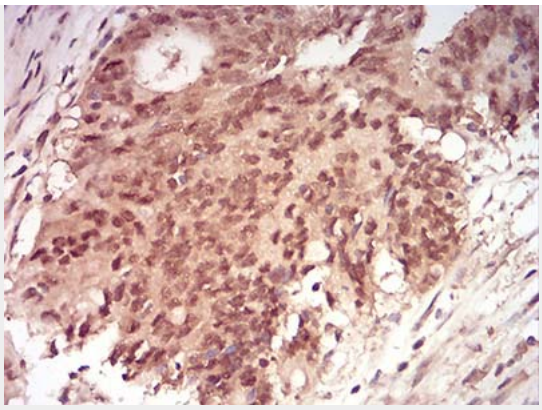

Immunohistochemical analysis of paraffin-embedded rectum cancer tissues using RAN mouse mAb with DAB staining.

Mouse Monoclonal Antibody to RAN - References

1.Int J Clin Oncol. 2013 Oct;18(5):856-63. ; 2.Clin Cancer Res. 2012 Jan 15;18(2):380-91.;