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RAC1 Antibody (S71)

Affinity Purified Rabbit Polyclonal Antibody (Pab)
Catalog # AP7578a

Product Information

Application	WB, E
Primary Accession	P63000
Other Accession	P60764, P60763, Q05144, P15153, P48554, Q9TU25, Q6RUV5, P63001, P40792, Q03206, P62998, Q8CFN2, Q007T2, P60766, Q4R4R6, P60953, P40793, Q90694, Q05062, Q2KJ93
Reactivity	Human, Rat, Mouse
Predicted	Bovine, C.Elegans, Chicken, Drosophila, Monkey, Mouse, Pig, Rat, Canine, Rabbit
Host	Rabbit
Clonality	Polyclonal
Isotype	Rabbit IgG
Calculated MW	21450
Antigen Region	49-78

Additional Information

Gene ID	5879
Other Names	Ras-related C3 botulinum toxin substrate 1, Cell migration-inducing gene 5 protein, Ras-like protein TC25, p21-Rac1, RAC1, TC25
Target/Specificity	This RAC1 antibody is generated from rabbits immunized with a KLH conjugated synthetic peptide between 49-78 amino acids from human RAC1.
Dilution	WB~~1:1000 E~~Use at an assay dependent concentration.
Format	Purified polyclonal antibody supplied in PBS with 0.09% (W/V) sodium azide. This antibody is purified through a protein A column, followed by peptide affinity purification.
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	RAC1 Antibody (S71) is for research use only and not for use in diagnostic or therapeutic procedures.

Protein Information

Name	RAC1 (HGNC:9801)
Synonyms	TC25

Function	Plasma membrane-associated small GTPase which cycles between active GTP-bound and inactive GDP-bound states. In its active state, binds to a variety of effector proteins to regulate cellular responses such as secretory processes, phagocytosis of apoptotic cells, epithelial cell polarization, neurons adhesion, migration and differentiation, and growth-factor induced formation of membrane ruffles (PubMed:1643658, PubMed:22843693, PubMed:23512198, PubMed:28886345). Rac1 p21/rho GDI heterodimer is the active component of the cytosolic factor sigma 1, which is involved in stimulation of the NADPH oxidase activity in macrophages. Essential for the SPATA13- mediated regulation of cell migration and adhesion assembly and disassembly. Stimulates PKN2 kinase activity (PubMed:9121475). In concert with RAB7A, plays a role in regulating the formation of RBs (ruffled borders) in osteoclasts (PubMed:1643658). In podocytes, promotes nuclear shuttling of NR3C2; this modulation is required for a proper kidney functioning. Required for atypical chemokine receptor ACKR2-induced LIMK1-PAK1-dependent phosphorylation of cofilin (CFL1) and for up-regulation of ACKR2 from endosomal compartment to cell membrane, increasing its efficiency in chemokine uptake and degradation. In neurons, is involved in dendritic spine formation and synaptic plasticity (By similarity). In hippocampal neurons, involved in spine morphogenesis and synapse formation, through local activation at synapses by guanine nucleotide exchange factors (GEFs), such as ARHGEF6/ARHGEF7/PIX (PubMed:12695502). In synapses, seems to mediate the regulation of F-actin cluster formation performed by SHANK3. In neurons, plays a crucial role in regulating GABA(A) receptor synaptic stability and hence GABAergic inhibitory synaptic transmission through its role in PAK1 activation and eventually F-actin stabilization (By similarity). Required for DSG3 translocation to cell-cell junctions, DSG3-mediated organization of cortical F-actin bundles and anchoring of actin at cell junctions; via interaction with DSG3 (PubMed:22796473). Subunit of the phagocyte NADPH oxidase complex that mediates the transfer of electrons from cytosolic NADPH to O2 to produce the superoxide anion (O2(-)) (PubMed:38355798).
Cellular Location	Cell membrane; Lipid-anchor; Cytoplasmic side. Melanosome. Cytoplasm. Cell projection, lamellipodium {ECO:0000250|UniProtKB:P63001}. Cell projection, dendrite {ECO:0000250|UniProtKB:P63001}. Synapse {ECO:0000250|UniProtKB:Q6RUV5} Nucleus. Cell projection, ruffle membrane. Note=Inner surface of plasma membrane possibly with attachment requiring prenylation of the C-terminal cysteine (PubMed:1903399). Identified by mass spectrometry in melanosome fractions from stage I to stage IV (PubMed:17081065). Found in the ruffled border (a late endosomal-like compartment in the plasma membrane) of bone-resorbing osteoclasts. Localizes to the lamellipodium in a SH3RF1-dependent manner (By similarity). In macrophages, cytoplasmic location increases upon CSF1 stimulation (By similarity) Activation by GTP-binding promotes nuclear localization (PubMed:12551911). {ECO:0000250|UniProtKB:P63001, ECO:0000250|UniProtKB:Q6RUV5, ECO:0000269|PubMed:12551911, ECO:0000269|PubMed:17081065, ECO:0000269|PubMed:1903399}
Tissue Location	Isoform B is predominantly identified in skin and epithelial tissues from the intestinal tract. Its expression is elevated in colorectal tumors at various stages of neoplastic progression, as compared to their respective adjacent tissues

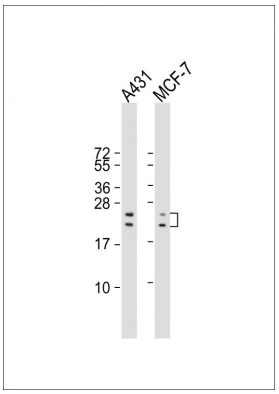
Background

RAC1 is a GTPase belonging to the RAS superfamily of small GTP-binding proteins. It is a pleiotropic regulator of many cellular processes, including the cell cycle, cell-cell adhesion, motility (through the actin network), and of epithelial differentiation (proposed to be necessary for maintaining epidermal stem cells).

References

Wang,T.,Neurosci. Lett. 437 (2), 71-75 (2008)
Gorshkova,I., J. Biol. Chem. 283 (17), 11794-11806 (2008)
Simeone-Penney,M.C.,Am. J. Physiol. Lung Cell Mol. Physiol. 294 (4), L698-L704 (2008)

Images



All lanes : Anti-RAC1 Antibody (S71) at 1:2000 dilution Lane 1: A431 whole cell lysate Lane 2: MCF-7 whole cell lysate Lysates/proteins at 20 µg per lane. Secondary Goat Anti-Rabbit IgG, (H+L), Peroxidase conjugated at 1/10000 dilution. Predicted band size : 21 kDa Blocking/Dilution buffer: 5% NFDM/TBST.

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