RAC1 Antibody – Rabbit Polyclonal

PRODUCT OVERVIEW

Product Name	Rac1, Polyclonal Antibody
Full Product Name	Anti-Rac1 Antibody, Rabbit Polyclonal
Product Gene Name	anti-RAC1 antibody
Product Synonym Names	RAC1 Antibody, Rabbit PAb, Antigen Affinity Purified; ras-related C3 botulinum toxin substrate 1 (rho family, small GTP binding protein Rac1); Anti-MIG5 Antibody; Anti-p21-Rac1 Antibody; Anti-Rac-1 Antibody; Anti-TC-25 Antibody
Clonality	Polyclonal
Isotype	Rabbit IgG
Host	Rabbit
Species Reactivity	Human
Form/Format	Liquid; 0.2um filtered solution in PBS
Purity/Purification	Protein A & Antigen Affinity
Specificity	Human RAC1
Preparation and Storage	This antibody can be stored at 2-8 degree C for one month without detectable loss of activity. Antibody products are stable for twelve months from date of receipt when stored at -20 degree C to -80 degree C. Preservative-Free. Avoid repeated freeze-thaw cycles.
Molecular Weight	21,450 Da
Chromosome Location	Chromosome: 7; NC_000007.13 (6414126..6443598). Location: 7p22
OMIM	602048
3D Structure	ModBase 3D Structure for P63000
Immunogen	Recombinant Human RAC1 Protein
Conjugation	Unconjugated
Preparation	Produced in rabbits immunized with purified, recombinant Human RAC1 (rh RAC1). RAC1 specific IgG was purified by Human RAC1 affinity chromatography.
Product Categories/Family for anti-RAC1 antibody	EGFR Signaling Pathway
Applications Tested/Suitable for anti-RAC1 antibody	ELISA (EIA)
Application Notes for anti-RAC1 antibody	ELISA: 1:5000-1:10,000

Related Product Information for anti-RAC1 antibody	RAC1 is a GTPase that belongs to the RAS superfamily of small GTP-binding proteins. Members of this superfamily appear to regulate a diverse array of cellular events, including the control of cell growth, cytoskeletal reorganization, and the activation of protein kinases. Two transcript variants encoding different isoforms have been found for RAC1 gene. RAC1 is a 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 and growth-factor induced formation of membrane ruffles. 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 macrophage. RAC1 is essential for the SPATA13-mediated regulation of cell migration and adhesion assembly and disassembly. RAC1's isoform B has an accelerated GEF-independent GDP/GTP exchange and an impaired GTP hydrolysis, which is restored partially by GTPase-activating proteins. It is able to bind to the GTPase-binding domain of PAK but not full-length PAK in a GTP-dependent manner, suggesting that the insertion does not completely abolish effector interaction. Stat3 is an important transcription factor that regulates both proinflammatory and anti-apoptotic pathways in the heart. It forms a multiprotein complex with RAC1 and PKC in an H/R-dependent manner by expression of constitutively active Rac1 mutant protein, and by RNA silencing of RAC1. Selective inhibition of PKC with calphostin C produces a marked suppression of Stat3 S727 phosphorylation. The association of Stat3 with Rax1 occurs predominantly at the cell membrane, but also inside the nucleus, and occurs through the binding of the coiled-coil domain of Stat3 to the 54 NH(2)-terminal residues of RAC1. Transfection with a peptide comprising the NH(2)-terminal 17 amino acid residues of RAC1-dependent signaling pathways resulting in a physical association between Rac1 and Stat3 and the formation of a novel multiprotein complex with PKC.
Product References and Citations for anti-RAC1 antibody	Kogai T, et al.. (2012) Regulation of sodium iodide symporter gene expression by Rac1/p38beta mitogen-activated protein kinase signaling pathway in MCF-7 breast cancer cells. J Biol Chem. 287(5):3292-300.Osborn-Heaford HL, et al. (2012) Mitochondrial Rac1 GTPase import and electron transfer from cytochrome c are required for pulmonary fibrosis. J Biol Chem. 287(5):3301-12.Chang MH, et al. (2012) Prognostic role of integrin beta1, E-cadherin, and rac1 expression in small cell lung cancer. APMIS. 120(1):28-38.Osborn-Heaford HL, et al. (2012) Mitochondrial Rac1 GTPase import and electron transfer from cytochrome c are required for pulmonary fibrosis. J Biol Chem. 287(5):3301-12.Mattagajasingh SN, et al. (2012) Activation of Stat3 in endothelial cells following hypoxia-reoxygenation is mediated by Rac1 and protein Kinase C. Biochim Biophys Acta. 1823(5):997-1006.
Other Notes	Small volumes of anti-RAC1 antibody vial(s) may occasionally become entrapped in the seal of the product vial during shipment and storage. If necessary, briefly centrifuge the vial on a tabletop centrifuge to dislodge any liquid in the container`s cap. Certain products may require to ship with dry ice and additional dry ice fee may apply.
Searchable Terms for RAC1 purchase	MBS8103155 is an antibody targeting RAC1. Also known as Anti-Rac1 Antibody, Rabbit Polyclonal. Reactive in Human. Host: Rabbit.

ADDITIONAL DETAILS

NCBI/Uniprot data below describe general gene information for RAC1. It may not necessarily be applicable to this product.

NCBI GI #	9845511
NCBI GeneID	5879
NCBI Accession #	NP_008839.2
UniProt Primary Accession #	P63000
UniProt Secondary Accession #	O95501; P15154; Q3Y4D3; Q5JAA8; Q9BTB4
UniProt Related Accession #	P63000; AAB22206
GenBank Nucleotide #	NM_006908.4
NCBI Official Full Name	ras-related C3 botulinum toxin substrate 1 isoform Rac1
NCBI Official Synonym Full Names	ras-related C3 botulinum toxin substrate 1 (rho family, small GTP binding protein Rac1)
NCBI Official Symbol	RAC1
NCBI Official Synonym Symbols	MIG5; Rac-1; TC-25; p21-Rac1
UniProt Protein Name	Ras-related C3 botulinum toxin substrate 1
UniProt Synonym Protein Names	Cell migration-inducing gene 5 protein; Ras-like protein TC25; p21-Rac1

Protein Family	Rac-like GTP-binding protein
UniProt Gene Name	RAC1
UniProt Synonym Gene Names	TC25
UniProt Entry Name	RAC1_HUMAN
NCBI Protein Information	ras-related C3 botulinum toxin substrate 1; ras-like protein TC25; cell migration-inducing gene 5 protein
UniProt Comments for RAC1	RAC1: a plasma membrane-associated member of the Rho-GTPase family. Plays a key role in cytoskeletal reorganization, membrane trafficking, transcriptional regulation and cell growth and development. GTP binding stimulates its activity. Phosphorylation by Akt may inhibit GTP binding of Rac1, therefore attenuating the downstream signal transduction pathway. Found in a trimeric complex composed of DOCK1 and ELMO1, which plays a central role in phagocytosis of apoptotic cells. Two alternatively spliced isoforms have been described. Protein type: Motility/polarity/chemotaxis; G protein; G protein, monomeric, Rho; G protein, monomeric Chromosomal Location of Human Ortholog: 7p22 Cellular Component: extrinsic to plasma membrane; Golgi membrane; focal adhesion; membrane; lamellipodium; cytoplasm; plasma membrane; melanosome; actin filament; trans-Golgi network; cytosol; phagocytic cup Molecular Function: GTPase activity; protein binding; enzyme binding; GTP binding; GTP-dependent protein binding; Rho GDP-dissociation inhibitor binding; thioesterase binding; protein kinase binding; Rab GTPase binding Biological Process: viral reproduction; nerve growth factor receptor signaling pathway; metabolic process; positive regulation of apoptosis; cell motility involved in cell locomotion; regulation of cell migration; small GTPase mediated signal transduction; positive regulation of stress fiber formation; cell adhesion; bone resorption; platelet activation; anatomical structure morphogenesis; mast cell chemotaxis; dendrite morphogenesis; positive regulation of Rho protein signal transduction; regulation of defense response to virus by virus; negative regulation of interleukin-23 production; T cell costimulation; cerebral cortex radially oriented cell migration; actin cytoskeleton organization and biogenesis; axon guidance; cell-matrix adhesion; localization within membrane; positive regulation of focal adhesion formation; actin filament polymerization; response to wounding; ephrin receptor signaling pathway; inflammatory response; regulation of hydrogen peroxide metabolic process; lamellipodium biogenesis; embryonic olfactory bulb interneuron precursor migration; intercellular junction assembly and maintenance; Wnt receptor signaling pathway, planar cell polarity pathway; positive regulation of phosphoinositide 3-kinase activity; engulfment of apoptotic cell; cell proliferation; G-protein coupled receptor protein signaling pathway; hyperosmotic response; positive regulation of actin filament polymerization; organization of an anatomical structure; auditory receptor cell morphogenesis; ruffle organization and biogenesis; innate immune response; negative regulation of receptor-mediated endocytosis; positive regulation of protein amino acid phosphorylation; vascular endothelial growth factor receptor signaling pathway; blood coagulation; cell motility; positive regulation of DNA replication
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