

## Rabbit Rac1/cdc42 Polyclonal Antibody | anti-Rac1/cdc42 antibody

Rac1/cdc42 Antibody

| CATALOG # | HOST   | REACTIVITY                                                                                                     | APPLICATIONS                                                                       |
|-----------|--------|----------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|
| AAA31342  | Rabbit | Human, Mouse, Rat<br>Predicted Reactivity: Pig (100%), Bovine (100%), Sheep (100%), Dog (100%), Xenopus (100%) | Western Blot, Immunohistochemistry, Immunofluorescence, Immunocytochemistry, ELISA |

### PRODUCT SYNONYMS

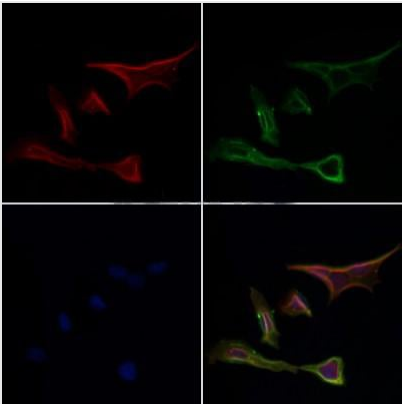
Rac1/cdc42; Polyclonal Antibody; Rac1/cdc42 Antibody; Cell migration inducing gene 5 protein; Cell migration-inducing gene 5 protein; MGC111543; MIG5; Migration inducing gene 5; Migration inducing protein 5; p21 Rac1; p21-Rac1; Rac 1; RAC1; RAC1\_HUMAN; Ras like protein TC25; Ras related C3 botulinum toxin substrate 1 (rho family; small GTP binding protein Rac1); Ras-like protein TC25; Ras-related C3 botulinum toxin substrate 1; Rho family small GTP binding protein Rac1; TC 25; TC25; anti-Rac1/cdc42 antibody

### PRODUCT SPECIFICATIONS

|                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Host                                                 | Rabbit                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Reactivity                                           | Human, Mouse, Rat<br>Predicted Reactivity: Pig (100%), Bovine (100%), Sheep (100%), Dog (100%), Xenopus (100%)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Clonality                                            | Polyclonal                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Isotype                                              | Rabbit IgG                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Specificity                                          | Rac1/cdc42 Antibody detects endogenous levels of total Rac1/cdc42.<br>Tissue Specificity: 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.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Purity/Purification                                  | The antiserum was purified by peptide affinity chromatography using SulfoLink Coupling Resin                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Form/Format                                          | Liquid. Rabbit IgG in phosphate buffered saline, pH7.4, 150mM NaCl, 0.02% sodium azide and 50% glycerol.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Concentration                                        | 1mg/ml (varies by lot)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Applicable Applications for anti-Rac1/cdc42 antibody | WB (Western Blot), IHC (Immunohistochemistry), IF (Immunofluorescence), ICC (Immunocytochemistry), ELISA (Peptide ELISA)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Application Notes                                    | WB: 1:500-1:1000<br>IF/ICC: 1:200<br>IHC: 1:50-1:200<br>Peptide ELISA: 1:20,000-1:40,000                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Immunogen                                            | A synthesized peptide derived from human Rac1/cdc42, corresponding to a region within the internal amino acids.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Conjugation                                          | Unconjugated                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Fragment                                             | Fab fragment                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Post Translational Modifications                     | (Microbial infection) AMPylation at Tyr-32 and Thr-35 are mediated by bacterial enzymes in case of infection by H. Somnus and V.parahaemolyticus, respectively. AMPylation occurs in the effector region and leads to inactivation of the GTPase activity by preventing the interaction with downstream effectors, thereby inhibiting actin assembly in infected cells. It is unclear whether some human enzyme mediates AMPylation; FICD has such ability in vitro but additional experiments remain to be done to confirm results in vivo.GTP-bound active form is ubiquitinated by HACE1, leading to its degradation by the proteasome. (Microbial infection) Glycosylated at Tyr-32 by Phototransducing toxin PAU_02230. Mono-O-GlcNAcylation by PAU_02230 inhibits downstream signaling by an impaired interaction with diverse regulator and effector proteins of Rac and leads to actin disassembly. |

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|--------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Subunit Structure</b>       | Interacts with NISCH. Interacts with PIP5K1A. Interacts with the GTP-bound form of RAB7A. Interacts with SRGAP2. Interacts with CYFIP1/SRA-1. Interacts with PLXNB3. Interacts with ARHGDI1A; the interaction is induced by SEMA5A, mediated through PLXNB3 and inactivates and stabilizes RAC1. Interacts (GTP-bound form preferentially) with PKN2 (via the REM repeats); the interaction stimulates autophosphorylation and phosphorylation of PKN2. Interacts with the GEF proteins PREX1, RASGRF2, FARP1, FARP2, DOCK1, DOCK2 and DOCK7, which promote the exchange between GDP and GTP, and therefore activate it. Interacts with PARD6A, PARD6B and PARD6G in a GTP-dependent manner. Part of a quaternary complex containing PARD3, some PARD6 protein (PARD6A, PARD6B or PARD6G) and some atypical PKC protein (PRKCI or PRKCZ), which plays a central role in epithelial cell polarization. Found in a trimeric complex composed of DOCK1 and ELMO1, which plays a central role in phagocytosis of apoptotic cells. Interacts with RALBP1 via its effector domain. Interacts with PLXNB1. Probably found in a ternary complex composed of DSCAM, PAK1 and RAC1. Interacts with DSCAM; the interaction requires PAK1. Part of a complex with MAP2K3, MAP3K3, CCM2 and DEF6. Interacts with BAIAP2, BAIAP2L1 and DEF6. Interacts with Y.pseudotuberculosis YPKA and PLCB2. Interacts with NOXA1. Interacts with ARHGEF2. Interacts with TBC1D2. Interacts with UNKL. Interacts with USP6. Interacts with SPATA13. Interacts with ARHGEF16; mediates activation of RAC1 by EPHA2. Interacts with ITGB4. Interacts with S100A8 and calprotectin (S100A8/9). Interacts with PACSIN2. Interacts with ITGB1BP1. Interacts (when active) with PPP5C (via TPR repeats); activates PPP5C phosphatase activity and translocates PPP5C to the cell membrane. Interacts with RAPH1 (via Ras associating and pHdomains). Interacts with MTSS2 (via IMD domain); this interaction may be important to potentiate PDGF-induced RAC1 activation. Interacts with PAK2. Interacts (GTP-bound form) with SH3RF1 and SH3RF3. Found in a complex with SH3RF1, MAPK8IP1/JIP1, MAP3K11/MLK3, MAP2K7/MKK7 and MAPK8/JNK1. Interacts (both active GTP- or inactive GDP-bound forms) with SH3RF2 (By similarity). |
| <b>Similarity</b>              | The effector region mediates interaction with DEF6.Belongs to the small GTPase superfamily. Rho family.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>Subcellular Location</b>    | Cell membrane>Lipid-anchor>Cytoplasmic side. Melanosome. Cytoplasm. Cell projection>Lamellipodium. 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).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <b>Preparation and Storage</b> | Store at -20 degree C. Stable for 12 months from date of receipt.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |

## IMAGES



### Application Data

At 25 degree C. Samples were then incubated with primary Ab(At 37 degree C. An AlexaFluor594 conjugated goat anti-rabbit IgG(H+L) Ab(Red) and an AlexaFluor488 conjugated goat anti-mouse IgG(H+L) Ab(Green) were used as the secondary antibody.The nuclear counter stain is DAPI(blue).



### IHC (Immunohistochemistry)

At 1/100 staining Rat brain tissue by IHC-P. The sample was formaldehyde fixed and a heat mediated antigen retrieval step in citrate buffer was performed. The sample was then blocked and incubated with the primary antibody at 4 degree C overnight. An HRP conjugated anti-Rabbit antibody was used as the secondary antibody.



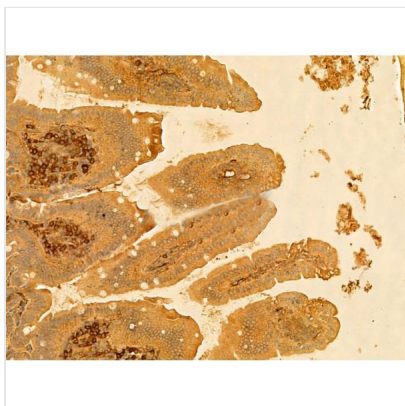
#### IHC (Immunohistochemistry)

At 1/100 staining Mouse spleen tissue by IHC-P. The sample was formaldehyde fixed and a heat mediated antigen retrieval step in citrate buffer was performed. The sample was then blocked and incubated with the primary antibody at 4 degree C overnight. An HRP conjugated anti-Rabbit antibody was used as the secondary antibody.



#### IHC (Immunohistochemistry)

At 1/100 staining Mouse testis tissue by IHC-P. The sample was formaldehyde fixed and a heat mediated antigen retrieval step in citrate buffer was performed. The sample was then blocked and incubated with the primary antibody at 4 degree C overnight. An HRP conjugated anti-Rabbit antibody was used as the secondary antibody.



#### IHC (Immunohistochemistry)

At 1/100 staining Mouse colon tissue by IHC-P. The sample was formaldehyde fixed and a heat mediated antigen retrieval step in citrate buffer was performed. The sample was then blocked and incubated with the primary antibody at 4 degree C overnight. An HRP conjugated anti-Rabbit antibody was used as the secondary antibody.



#### IHC (Immunohistochemistry)

At 1/100 staining Mouse muscle tissue by IHC-P. The sample was formaldehyde fixed and a heat mediated antigen retrieval step in citrate buffer was performed. The sample was then blocked and incubated with the primary antibody at 4 degree C overnight. An HRP conjugated anti-Rabbit antibody was used as the secondary antibody.

## ADDITIONAL INFORMATION

### Related Product Information for anti-Rac1/cdc42 antibody

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. Rac1 p21/rho GDI heterodimer is the active component of the cytosolic factor sigma 1, which is involved in stimulation of the NADpHoxidase activity in macrophages. Essential for the SPATA13-mediated regulation of cell migration and adhesion assembly and disassembly. Stimulates PKN2 kinase activity. In concert with RAB7A, plays a role in regulating the formation of RBs (ruffled borders) in osteoclasts. 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 synapses, seems to mediate the regulation of F-actin cluster formation performed by SHANK3. 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.

Rac1 encoded by this gene is a GTPase which 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 this gene.

NCBI AND UNIPROT INFORMATION

|                                  |                                                                                                           |
|----------------------------------|-----------------------------------------------------------------------------------------------------------|
| NCBI GI #                        | 51702787                                                                                                  |
| NCBI GeneID                      | 5879                                                                                                      |
| UniProt Accession #              | P63000; O95501; P15154; Q3Y4D3; Q5JAA8; Q9BTB4; AAB22206                                                  |
| Molecular Weight                 | 192                                                                                                       |
| NCBI Official Full Name          | Ras-related C3 botulinum toxin substrate 1                                                                |
| 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                                                                              |
| NCBI Protein Information         | ras-related C3 botulinum toxin substrate 1; ras-like protein TC25; cell migration-inducing gene 5 protein |
| UniProt Protein Name             | Ras-related C3 botulinum toxin substrate 1                                                                |
| UniProt Gene Name                | <b>RAC1</b>                                                                                               |
| UniProt Synonym Gene Names       | TC25                                                                                                      |
| UniProt Entry Name               | RAC1_HUMAN                                                                                                |

**For Research Use Only.** Not for use in diagnostic or therapeutic procedures. Small volumes of product may become entrapped in the seal of the vial during shipment and storage; if necessary, briefly centrifuge the vial on a tabletop centrifuge to dislodge any liquid in the cap.

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