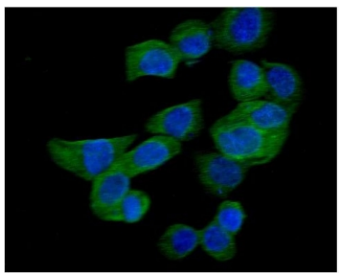
RAC1 Antibody / Rac Family Small GTPase 1 Polyclonal Antibody (R32162)

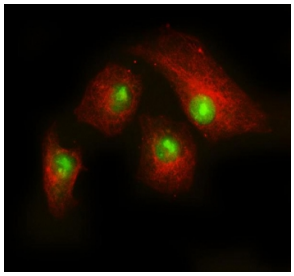
Catalog No.	Formulation	Size
R32162	0.5mg/ml if reconstituted with 0.2ml sterile DI water	100 ug

Bulk quote request

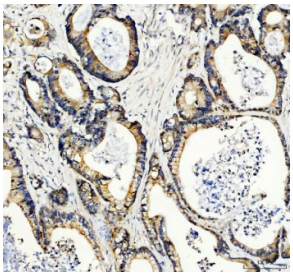
Species Reactivity	Human, Mouse, Rat
Format	Antigen affinity purified
Host	Rabbit
Clonality	Polyclonal (rabbit origin)
Isotype	Rabbit IgG
Purity	Antigen affinity
Buffer	Lyophilized from 1X PBS with 2% Trehalose
UniProt	P63000
Applications	Western blot: 0.5-1ug/ml Immunofluorescence: 5ug/ml Immunohistochemistry (FFPE): 2-5ug/ml Flow cytometry: 1-3ug/million cells
Limitations	This RAC1 Antibody / Rac Family Small GTPase 1 Polyclonal Antibody is available for research use only.



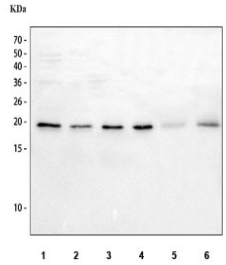
RAC1 Antibody IF Staining of Human A431 Cells. Immunofluorescence analysis of FFPE human A431 cells using Rac Family Small GTPase 1 Polyclonal Antibody. RAC1 immunoreactivity is visualized in green, with predominantly cytoplasmic staining and some perinuclear distribution. Nuclei are counterstained with DAPI (blue). Heat-induced epitope retrieval was performed using citrate buffer at pH 6 for 20 minutes.



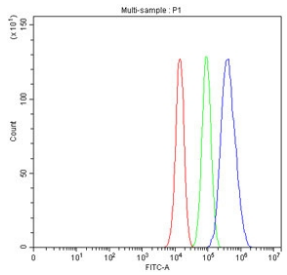
RAC1 Antibody IF Staining of Human A549 Cells. Immunofluorescence analysis of FFPE human A549 cells using Rac Family Small GTPase 1 Polyclonal Antibody. RAC1 immunoreactivity is visualized in green, with prominent nuclear and perinuclear staining. Beta Tubulin is labeled in red, highlighting the cytoplasmic microtubule network. Heat-induced epitope retrieval was performed using citrate buffer at pH 6 for 20 minutes.



RAC1 Antibody IHC Staining of Human Colon Carcinoma. Immunohistochemical analysis of FFPE human colon carcinoma tissue using Rac Family Small GTPase 1 Polyclonal Antibody. Brown DAB immunoreactivity is observed in carcinoma cells, with cytoplasmic staining particularly evident along the epithelial structures. Heat-induced epitope retrieval was performed using EDTA buffer at pH 8 for 20 minutes.



RAC1 Antibody WB Analysis of Human Cell Lines and Rodent Small Intestine Lysates. Western blot analysis of human A431 (lane 1), HaCaT (lane 2), MCF7 (lane 3), and PC-3 (lane 4) cell lysates, rat small intestine (lane 5), and mouse small intestine (lane 6) tissue lysates using Rac Family Small GTPase 1 Polyclonal Antibody. An immunoreactive band is detected at approximately 21 kDa in all six samples, consistent with the expected molecular weight of RAC1.



RAC1 Antibody FACS Staining of Human U-87 MG Cells. Flow cytometric analysis of fixed and permeabilized human U-87 MG cells using Rac Family Small GTPase 1 Polyclonal Antibody at 1 ug per million cells. The antibody-stained population (blue) exhibits a rightward fluorescence shift relative to the isotype control (green) and unstained cells (red), demonstrating intracellular RAC1 immunoreactivity. Cells were blocked with goat serum before antibody incubation.

Description

RAC1 Antibody / Rac Family Small GTPase 1 Polyclonal Antibody targets RAC1, a member of the Rho family of small guanosine triphosphatases (GTPases) that regulate cytoskeletal organization, cell migration, adhesion, and intracellular signaling. Encoded by the RAC1 gene, this approximately 21 kDa protein functions as a molecular switch, cycling between an inactive GDP-bound state and an active GTP-bound state. Guanine nucleotide exchange factors (GEFs) promote RAC1 activation, while GTPase-activating proteins (GAPs) accelerate GTP hydrolysis and return the protein to its inactive state. This regulatory cycle allows RAC1 to coordinate cellular responses to extracellular signals.

One of the best-characterized functions of RAC1 is its regulation of actin cytoskeleton remodeling. Activated RAC1 stimulates the WAVE regulatory complex, which promotes Arp2/3-mediated actin nucleation and the formation of branched actin networks. These processes drive lamellipodia formation and contribute to cell spreading, directional migration, and membrane dynamics. RAC1 also participates in the assembly and turnover of cell adhesion structures, coordinating interactions between the actin cytoskeleton and the extracellular environment. Its activity is spatially regulated, allowing cells to establish polarity and respond to chemotactic signals.

Beyond cytoskeletal regulation, RAC1 influences multiple signaling pathways involved in cell proliferation, survival, differentiation, and inflammatory responses. RAC1 can activate p21-activated kinases (PAKs) and contribute to signaling through MAP kinase pathways. It also participates in the regulation of reactive oxygen species production through interactions with NADPH oxidase complexes. In immune cells, RAC1-dependent signaling contributes to migration, phagocytosis, and other processes requiring dynamic cytoskeletal rearrangement. The protein's diverse functions depend on its activation state, subcellular localization, and interactions with specific downstream effectors.

Abnormal RAC1 signaling has been implicated in cancer progression, particularly through effects on cell motility, invasion, and survival. Alterations in RAC1 activity can also influence developmental processes and immune regulation. Because RAC1 operates at the intersection of cytoskeletal remodeling and signal transduction, its regulation is important for

maintaining normal cellular behavior. RAC1 Antibody supports research into the molecular mechanisms governing cell movement, actin organization, and the signaling pathways associated with cellular transformation and disease.

RAC1 regulates actin cytoskeleton remodeling, cell adhesion, and migration, making it an important signaling protein in studies of cell biology and cellular organization.

Application Notes

Optimal dilution of the RAC1 Antibody / Rac Family Small GTPase 1 Polyclonal Antibody should be determined by the researcher.

Immunogen

Amino acids FDEAIRAVLCPPPVKKRKRKC of human RAC1 were used as the immunogen for the RAC1 antibody.

Storage

After reconstitution, the RAC1 antibody can be stored for up to one month at 4oC. For long-term, aliquot and store at -20oC. Avoid repeated freezing and thawing.

Alternate Names

Rac1 antibody, Ras-related C3 botulinum toxin substrate 1 antibody, Rac family small GTPase 1 antibody, Ras-related C3 botulinum toxin substrate 1 protein antibody, p21-Rac1 antibody, TC-25 antibody, Cell migration-inducing gene 5 protein antibody

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