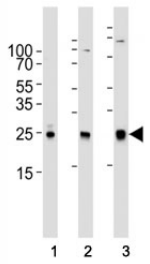
p21-Rac1 Antibody 1301CT276.121.104 / RAC1 Monoclonal Antibody [clone 1301CT276.121.104] (F52547)

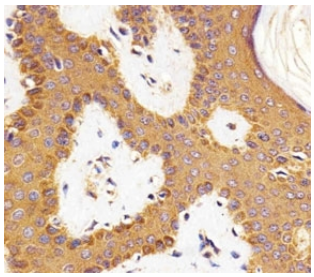
Catalog No.	Formulation	Size
F52547-0.4ML	In 1X PBS, pH 7.4, with 0.09% sodium azide	0.4 ml
F52547-0.08ML	In 1X PBS, pH 7.4, with 0.09% sodium azide	0.08 ml

Bulk quote request

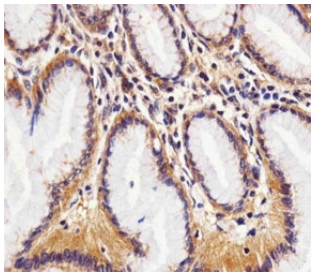
Availability	1-3 business days
Species Reactivity	Human, Rat
Predicted Reactivity	Mouse, Bovine
Format	Purified
Host	Mouse
Clonality	Monoclonal (mouse origin)
Isotype	Mouse IgG2b
Clone Name	1301CT276.121.104
Purity	Purified
UniProt	P63000
Applications	Flow Cytometry: 1:100 IHC (Paraffin): 1:25 Western blot: 1:1000
Limitations	This p21-Rac1 Antibody 1301CT276.121.104 / RAC1 Monoclonal Antibody is available for research use only.



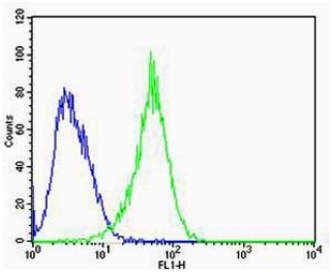
p21-Rac1 Antibody 1301CT276.121.104 WB Analysis of A431, NIH3T3 and C6 Cell Lysates. Western blot analysis of human A431 (lane 1), mouse NIH3T3 (lane 2), and rat C6 (lane 3) cell lysates using RAC1 Monoclonal Antibody clone 1301CT276.121.104 at a 1:1000 dilution. An immunoreactive band is detected at approximately 21 kDa in all three samples, consistent with the expected molecular weight of RAC1.



p21-Rac1 Antibody 1301CT276.121.104 IHC Staining of Human Skin. Immunohistochemical analysis of FFPE human skin tissue using RAC1 Monoclonal Antibody clone 1301CT276.121.104 at a 1:25 dilution. Brown DAB immunoreactivity is observed in epidermal keratinocytes, with predominantly cytoplasmic staining throughout the epithelial layers.



p21-Rac1 Antibody 1301CT276.121.104 IHC Staining of Human Stomach. Immunohistochemical analysis of FFPE human stomach tissue using RAC1 Monoclonal Antibody clone 1301CT276.121.104 at a 1:25 dilution. Brown DAB immunoreactivity is observed in gastric epithelial cells, with cytoplasmic staining along the glandular structures.



p21-Rac1 Antibody 1301CT276.121.104 FACS Staining of Human U-87 MG Cells. Flow cytometric analysis of human U-87 MG cells using RAC1 Monoclonal Antibody clone 1301CT276.121.104 at a 1:100 dilution. The antibody-stained population (green) exhibits a rightward fluorescence shift relative to the mouse IgG2b isotype control (blue), demonstrating RAC1-associated immunoreactivity.

Description

p21-Rac1 Antibody 1301CT276.121.104 / RAC1 Monoclonal Antibody targets RAC1, a member of the Rho family of small GTP-binding proteins involved in cytoskeletal organization, cell adhesion, migration, and signal transduction. Also known as p21-Rac1, RAC1 functions as a molecular switch that alternates between an inactive GDP-bound state and an active GTP-bound state. Its activation is promoted by guanine nucleotide exchange factors (GEFs), while GTPase-activating proteins (GAPs) stimulate GTP hydrolysis. Guanine nucleotide dissociation inhibitors (GDIs) regulate the availability and intracellular distribution of RAC1, contributing to precise spatial and temporal control of its signaling activity.

RAC1 plays a central role in actin cytoskeleton remodeling through interactions with the WAVE regulatory complex and the Arp2/3 actin nucleation machinery. These interactions promote branched actin filament formation, membrane protrusion, and lamellipodia development. Such processes are essential for cell spreading, directional migration, and the establishment of cellular polarity. RAC1 also influences the formation and turnover of adhesion complexes, coordinating cytoskeletal dynamics with extracellular matrix interactions. Its activity is particularly important at the leading edge of migrating cells, where localized signaling supports membrane extension and movement.

In addition to regulating actin organization, RAC1 participates in signaling pathways associated with cell proliferation, survival, differentiation, and inflammatory responses. Activated RAC1 interacts with p21-activated kinases (PAKs), which influence downstream MAP kinase signaling and cytoskeletal regulatory proteins. RAC1 also contributes to NADPH oxidase activation and reactive oxygen species production. In immune cells, these activities support processes such as chemotaxis and phagocytosis. RAC1 additionally contributes to neuronal development, dendritic spine organization, and synaptic plasticity through regulation of actin-dependent structural changes.

Altered RAC1 expression or activation has been associated with cancer progression, including enhanced cell migration, invasion, and resistance to normal growth controls. Activating mutations and dysregulated upstream signaling can promote persistent RAC1 activity in certain malignancies. RAC1 also contributes to developmental signaling and tissue homeostasis, reflecting its broad biological importance. The historical designation p21-Rac1 reflects its membership in the

approximately 21 kDa family of small GTPases. p21-Rac1 Antibody 1301CT276.121.104 supports investigations of RAC1-associated signaling, cytoskeletal regulation, and mechanisms underlying abnormal cell behavior.

RAC1 is a central regulator of actin cytoskeleton remodeling, cell migration, and intracellular signaling. Researchers investigating these functions can also explore our RAC1 Antibody R32162, which is validated for WB, IHC, IF, and FACS.

Application Notes

Titration of the p21-Rac1 Antibody 1301CT276.121.104 / RAC1 Monoclonal Antibody may be required due to differences in protocols and secondary/substrate sensitivity.

Immunogen

This RAC1 / p21-Rac1 antibody was produced from a mouse immunized with a KLH conjugated synthetic peptide from the human protein.

Storage

Aliquot the RAC1 / p21-Rac1 antibody and store frozen at -20oC or colder. Avoid repeated freeze-thaw cycles.

Alternate Names

RAC1 antibody, Rac-1 antibody, Ras-related C3 botulinum toxin substrate 1 antibody, Rac family small GTPase 1 antibody, Ras-like protein TC25 antibody, TC-25 antibody, Cell migration-inducing gene 5 protein antibody, MIG5 antibody

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