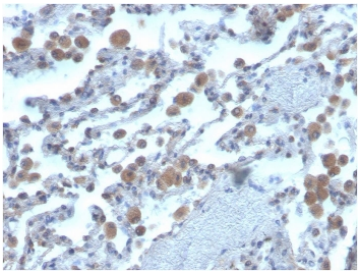
RAC1 Antibody CPTC-RAC1-1 / RAC1 Monoclonal Antibody [clone CPTC-RAC1-1] (V7332)

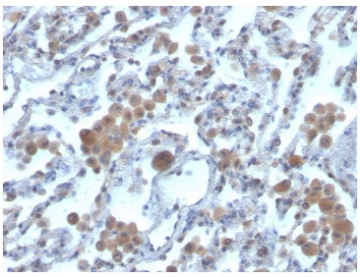
Catalog No.	Formulation	Size
V7332-100UG	0.2 mg/ml in 1X PBS with 0.1 mg/ml BSA (US sourced) and 0.05% sodium azide	100 ug
V7332-20UG	0.2 mg/ml in 1X PBS with 0.1 mg/ml BSA (US sourced) and 0.05% sodium azide	20 ug
V7332SAF-100UG	1 mg/ml in 1X PBS; BSA free, sodium azide free	100 ug

Bulk quote request

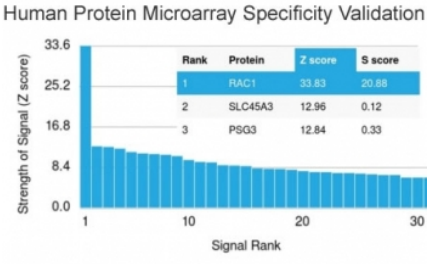
Species Reactivity	Human
Format	Purified
Host	Mouse
Clonality	Monoclonal (mouse origin)
Isotype	Mouse IgG1
Clone Name	CPTC-RAC1-1
Purity	Protein G affinity chromatography
UniProt	P63000
Localization	Cell membrane, cytoplasm
Applications	Western blot: 1-2ug/ml Immunohistochemistry (FFPE): 1-2ug/ml
Limitations	This RAC1 Antibody CPTC-RAC1-1 / RAC1 Monoclonal Antibody is available for research use only.



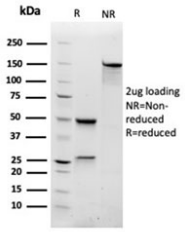
RAC1 Antibody CPTC-RAC1-1 IHC Staining of Human Lung Tissue. Immunohistochemical analysis of FFPE human lung tissue using RAC1 Monoclonal Antibody clone CPTC-RAC1-1. Brown DAB immunoreactivity is observed in cells distributed throughout the pulmonary tissue, including epithelial structures. Heat-induced epitope retrieval was performed using 10 mM Tris containing 1 mM EDTA at pH 9 for 20 minutes.



RAC1 Antibody CPTC-RAC1-1 IHC Staining of Human Lung Parenchyma. Immunohistochemical analysis of a second FFPE human lung tissue section using RAC1 Monoclonal Antibody clone CPTC-RAC1-1. Brown DAB staining is present in pulmonary cells surrounding alveolar spaces, demonstrating RAC1-associated immunoreactivity within the lung parenchyma. Heat-induced epitope retrieval was performed using 10 mM Tris containing 1 mM EDTA at pH 9 for 20 minutes.



RAC1 Antibody CPTC-RAC1-1 HuProt Human Protein Microarray Specificity Analysis. Specificity profiling of RAC1 Monoclonal Antibody clone CPTC-RAC1-1 using a HuProt microarray containing more than 19,000 full-length human proteins. RAC1 produces the highest-ranked binding signal in the displayed results, with lower signals observed for other array proteins. The graph presents protein binding signals ranked by Z-score, supporting preferential recognition of RAC1 under the microarray assay conditions.



RAC1 Antibody CPTC-RAC1-1 SDS-PAGE Analysis of Purified Monoclonal Antibody. SDS-PAGE analysis of purified, BSA-free RAC1 Monoclonal Antibody clone CPTC-RAC1-1 under reducing (R) and non-reducing (NR) conditions. The reduced preparation shows antibody heavy and light chains, while the non-reduced preparation shows the intact immunoglobulin species. The analysis provides a characterization of the purified antibody preparation.

Description

RAC1 Antibody CPTC-RAC1-1 / RAC1 Monoclonal Antibody targets RAC1, a small GTP-binding protein belonging to the Rho family of Ras-related GTPases. RAC1 functions as a molecular switch that regulates actin cytoskeleton organization, cell adhesion, migration, and intracellular signaling. Its activity is controlled by cycling between an inactive GDP-bound state and an active GTP-bound state. Guanine nucleotide exchange factors promote activation by facilitating GDP release and GTP binding, while GTPase-activating proteins stimulate GTP hydrolysis. Guanine nucleotide dissociation inhibitors also regulate RAC1 localization and availability for activation.

Activated RAC1 interacts with numerous downstream effectors involved in cytoskeletal remodeling. One of its principal functions is stimulation of the WAVE regulatory complex, which activates the Arp2/3 complex to promote branched actin filament formation. This mechanism supports lamellipodia development, cell spreading, and directional migration. RAC1 also regulates membrane trafficking, cell polarity, and interactions between the cytoskeleton and adhesion complexes. Its spatially restricted activation allows cells to coordinate membrane protrusion with attachment and movement across extracellular surfaces.

Beyond actin regulation, RAC1 participates in signaling pathways that influence proliferation, survival, differentiation, and inflammatory responses. RAC1 activates p21-activated kinases and contributes to MAP kinase signaling through interactions with multiple regulatory proteins. It also participates in NADPH oxidase activation, supporting reactive oxygen species production during cellular signaling and immune defense. In neuronal cells, RAC1 contributes to neurite extension, dendritic spine development, and synaptic organization. These diverse activities depend on interactions with specific effectors and the cellular context in which RAC1 becomes activated.

Dysregulated RAC1 signaling has been associated with cancer progression, particularly through effects on cell migration, invasion, and survival. Activating RAC1 mutations have been identified in certain malignancies, while altered regulation of RAC1-dependent pathways can contribute to abnormal cellular behavior. RAC1 is also involved in developmental processes and immune cell function, reflecting its importance across multiple biological systems. RAC1 Antibody CPTC-

RAC1-1 provides a clone-specific reagent for investigating this signaling protein and its contributions to cytoskeletal regulation, cellular organization, and disease-associated signaling.

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

Optimal dilution of the RAC1 Antibody CPTC-RAC1-1 / RAC1 Monoclonal Antibody should be determined by the researcher.

Immunogen

Full length recombinant human protein was used as the immunogen for this RAC1 Antibody CPTC-RAC1-1.

Storage

Store the RAC1 Antibody CPTC-RAC1-1 at 2-8oC (with azide) or aliquot and store at -20oC or colder (without azide).

Alternate Names

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

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