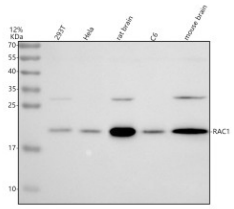
Rac1/2/3 Antibody AAIO-18 / Rac Family Rabbit Monoclonal Antibody [clone AAIO-18] (FY13693)

Catalog No.	Formulation	Size
FY13693	Rabbit IgG in stabilizing components, phosphate buffered saline, pH 7.4, 150mM NaCl, 0.02% sodium azide and 50% glycerol	100 ul

Recombinant RABBIT MONOCLONAL

Bulk quote request

Species Reactivity	Human, Mouse, Rat
Format	Antigen affinity purified
Host	Rabbit
Clonality	Recombinant Rabbit Monoclonal
Isotype	Rabbit IgG
Clone Name	AAIO-18
Purity	Antigen affinity purified
UniProt	P63000, P15153, P60763
Applications	Western blot: 1:500
Limitations	This Rac1/2/3 Antibody AAIO-18 is available for research use only.



Rac1/2/3 Antibody AAIO-18 WB Analysis of 293T, HeLa, Rat Brain, C6 and Mouse Brain Lysates. Western blot analysis of human 293T (lane 1), human HeLa (lane 2), rat brain tissue (lane 3), rat C6 (lane 4), and mouse brain tissue (lane 5) lysates using Rac Family Rabbit Monoclonal Antibody clone AAIO-18 at a 1:500 dilution. An immunoreactive band is detected at approximately 21 kDa in all five samples, consistent with the expected molecular weight of Rac family small GTPases.

Description

Rac1/2/3 Antibody AAIO-18 / Rac Family Rabbit Monoclonal Antibody targets members of the Rac subfamily of small GTPases, comprising RAC1, RAC2, and RAC3. These closely related proteins belong to the Rho family of Ras-related GTPases and regulate actin cytoskeleton organization, cell migration, adhesion, and intracellular signaling. Each functions as a molecular switch by cycling between an inactive GDP-bound state and an active GTP-bound state. Guanine nucleotide exchange factors (GEFs) promote activation, while GTPase-activating proteins (GAPs) stimulate GTP hydrolysis. Guanine nucleotide dissociation inhibitors (GDIs) further regulate their localization and availability for

signaling.

RAC1 is widely expressed and plays a central role in actin remodeling, membrane protrusion, and cellular polarity. Activated RAC1 stimulates the WAVE regulatory complex, which promotes Arp2/3-dependent actin nucleation and the formation of branched actin networks. These processes contribute to lamellipodia formation, cell spreading, and directional migration. RAC1 also regulates adhesion dynamics and participates in signaling pathways involving p21-activated kinases (PAKs), MAP kinases, and other downstream effectors. Its activity is important for coordinating cytoskeletal rearrangements with extracellular signals.

RAC2 is expressed predominantly in hematopoietic cells and has specialized functions in immune responses. It contributes to leukocyte migration, phagocytosis, and reactive oxygen species production through regulation of NADPH oxidase activity. RAC3 shares many biochemical properties with RAC1 but exhibits distinct expression patterns and regulatory functions, particularly in the nervous system. RAC3 participates in neuronal development, cytoskeletal organization, and signaling processes associated with cell morphology and movement. Although the three proteins share substantial sequence similarity, differences in their expression and interactions with regulatory proteins contribute to distinct biological activities.

Altered Rac family signaling has been implicated in cancer progression, immune dysfunction, and neurological disorders. Dysregulated RAC1 activity can promote tumor cell migration and invasion, while RAC2 abnormalities can impair immune cell function. RAC3 has also been investigated in neuronal signaling and cancer-associated pathways. The functional overlap among RAC1, RAC2, and RAC3 makes their combined study relevant to understanding cytoskeletal regulation and cellular signaling. Rac1/2/3 Antibody AAIO-18 supports research into the expression of these closely related small GTPases and their contributions to normal physiology and disease.

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 Rac1/2/3 Antibody AAIO-18 / Rac Family Rabbit Monoclonal Antibody should be determined by the researcher.

Immunogen

A synthesized peptide derived from human Rac1/2/3 was used as the immunogen for the Rac1/2/3 Antibody AAIO-18.

Storage

The Rac1/2/3 Antibody AAIO-18 can be stored at -20oC.

Alternate Names

Rac1 antibody, Rac2 antibody, Rac3 antibody, RAC1/2/3 antibody, Rac family GTPase antibody, Ras-related C3 botulinum toxin substrate antibody, p21 Rac antibody, Rac family small GTPase antibody

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