Revision 1

Store at -20C

#2461

Phospho-Rac1/cdc42 (Ser71) Antibody

Cell Signaling TECHNOLOGY®

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For Research Use Only. Not for Use in Diagnostic Procedures.

Applications:	Reactivity:	Sensitivity:	MW (kDa):	Source/Isotype:	UniProt ID:	Entrez-Gene Id:
W	H	Endogenous	28	Rabbit	#P63000, #P60953	5879, 998

Product Usage Information

Application	Dilution
Western Blotting	1:1000

Storage

Supplied in 10 mM sodium HEPES (pH 7.5), 150 mM NaCl, 100 µg/ml BSA and 50% glycerol. Store at –20°C. Do not aliquot the antibody.

Specificity/Sensitivity

Phospho-Rac1/cdc42 (Ser71) Antibody detects endogenous levels of Rac1/cdc42 only when phosphorylated at serine 71. The antibody may also recognize phospho-RhoA (Ser73).

Species predicted to react based on 100% sequence homology

Mouse, Rat

Source / Purification

Polyclonal antibodies are produced by immunizing animals with a synthetic phosphopeptide corresponding to residues surrounding Ser71 of human Rac1/cdc42. Antibodies are purified by protein A and peptide affinity chromatography.

Background

Rac and Cdc42 are members of the Rho-GTPase family. In mammals, Rac exists as three isoforms, Rac1, Rac2 and Rac3, which are highly similar in sequence. Rac1 and Cdc42, the most widely studied of this group, are ubiquitously expressed. Rac2 is expressed in cells of hematopoietic origin, and Rac3, while highly expressed in brain, is also found in many other tissues. Rac and Cdc42 play key signaling roles in cytoskeletal reorganization, membrane trafficking, transcriptional regulation, cell growth and development (1). GTP binding stimulates the activity of Rac/Cdc42, and the hydrolysis of GTP to GDP through the protein's intrinsic GTPase activity, rendering it inactive. GTP hydrolysis is aided by GTPase activating proteins (GAPs), while exchange of GDP for GTP is facilitated by guanine nucleotide exchange factors (GEFs). Another level of regulation is achieved through the binding of RhoGDI, a guanine nucleotide dissociation inhibitor, which retains Rho family GTPases, including Rac and Cdc42, in their inactive GDP-bound state (2,3).
A putative Akt phosphorylation site at Ser71 of Rac1/cdc42 has been identified and confirmed by in vitro kinase assay (4). Phosphorylation at this site may inhibit GTP binding of Rac1, attenuating the signal transduction pathway downstream of Rac1 (4).

Background References

1. Wennerberg, K. and Der, C.J. (2004) *J Cell Sci* 117, 1301-12.
2. Bernards, A. and Settleman, J. (2004) *Trends Cell Biol* 14, 377-85.
3. Rossman, K.L. et al. (2005) *Nat Rev Mol Cell Biol* 6, 167-80.
4. Kwon, T. et al. (2000) *J Biol Chem* 275, 423-8.

Species Reactivity

Species reactivity is determined by testing in at least one approved application (e.g., western blot).

Western Blot Buffer

IMPORTANT: For western blots, incubate membrane with diluted primary antibody in 5% w/v BSA, 1X TBS, 0.1% Tween® 20 at 4°C with gentle shaking, overnight.

Applications Key

W: Western Blotting

Cross-Reactivity Key

H: Human

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Limited Uses

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