Store at -20°C

#2461

Phospho-Rac1/cdc42 (Ser71) Antibody

☑ 100 µl
(10 western blots)

Cell Signaling TECHNOLOGY®

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rev. 1/19/10

Entrez-Gene ID #5879
Swiss-Prot Acc. #P63000

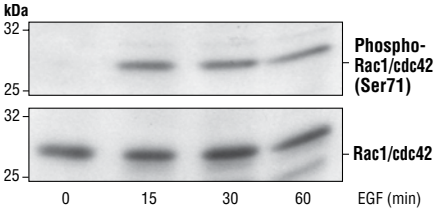
Applications	Species Cross-Reactivity*	Molecular Wt.	Source
W Endogenous	H, (M, R)	28 kDa	Rabbit**

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).

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).

Source/Purification: Polyclonal antibodies are produced by immunizing animals with a synthetic phospho-peptide (KLH-coupled) corresponding to residues surrounding Ser71 of human Rac1/cdc42. Antibodies are purified by protein A and peptide affinity chromatography.



Western blot analysis of extracts from A431 cells treated with EGF for the indicated times, using Phospho-Rac1/cdc42 (Ser71) Antibody (upper) or Rac1/cdc42 antibody (lower).

Selected Application References:

John, G.R. et al. (2004) Interleukin-1β Induces a Reactive Astroglial Phenotype via Deactivation of the Rho GTPase-Rock Axis. *J. Neurosci.* 24 (11), 2837-2845. Application: W.

Background References:

(1) Wennerberg, K. and Der, C.J. (2004) *J. Cell Sci.* 117, 1301–1312.

(2) Bernards, A. and Settleman, J. (2004) *Trends Cell Biol.* 14, 377–385.

(3) Rossman, K.L. et al. (2005) *Nat. Rev. Mol. Cell Biol.* 6, 167–180.

(4) Kwon, T. et al. (2000) *J. Biol. Chem.* 275, 423–428.

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.*

***Species cross-reactivity is determined by western blot.**

****Anti-rabbit secondary antibodies must be used to detect this antibody.**

Recommended Antibody Dilutions:
Western Blotting 1:1000

For application specific protocols please see the web page for this product at www.cellsignal.com.

Please visit www.cellsignal.com for a complete listing of recommended companion products.

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

Applications Key: **W**—Western **IP**—Immunoprecipitation **IHC**—Immunohistochemistry **ChIP**—Chromatin Immunoprecipitation **IF**—Immunofluorescence **F**—Flow cytometry **E-P**—ELISA-Peptide
Species Cross-Reactivity Key: **H**—human **M**—mouse **R**—rat **Hm**—hamster **Mk**—monkey **Mi**—mink **C**—chicken **Dm**—D. melanogaster **X**—Xenopus **Z**—zebrafish **B**—bovine **Dg**—dog **Pg**—pig **Sc**—S. cerevisiae **Ce**—C. elegans **Hr**—horse **All**—all species expected Species enclosed in parentheses are predicted to react based on 100% homology.