



# Cdc42 (dN-17): sc-26305

## BACKGROUND

Rho GTPases are molecular switches that regulate many essential cellular processes, including Actin dynamics, cell adhesion, cell-cycle progression and transcription. Cdc42, a small GTPase, regulates Actin polymerization, elongation of cell shape and cell signaling through interactions with many different downstream effector proteins. Most of these effector proteins contain a Cdc42-binding domain, called a CRIB domain. The evolutionarily conserved multi-protein complex, Cdc42-Par6-Par3-atypical protein kinase C (aPKC), is involved in the assembly of tight junctions and in polarization of *Drosophila melanogaster* epithelia. Cdc42<sup>-</sup> epithelial cells fail to elongate into a columnar cell shape and cannot maintain a monolayered epithelial structure. Also in *Drosophila*, growth cone pathfinding and filopodial dynamics are mediated separately by Cdc42 activation. In addition to regulating kinase activity, another important function of Cdc42 is to recruit Mbt (mushroom bodies tiny) to adherens junctions, suggesting a role for Mbt as a downstream effector of Cdc42 in photoreceptor cell morphogenesis.

## REFERENCES

1. Crawford, J.M., Harden, N., Leung, T., Lim, L. and Kiehart, D.P. 1998. Cellularization in *Drosophila melanogaster* is disrupted by the inhibition of Rho activity and the activation of Cdc42 function. *Dev. Biol.* 204: 151-164.
2. Genova, J.L., Jong, S., Camp, J.T. and Fehon, R.G. 2000. Functional analysis of Cdc42 in Actin filament assembly, epithelial morphogenesis, and cell signaling during *Drosophila* development. *Dev. Biol.* 221: 181-194.
3. Pirone, D.M., Carter, D.E. and Burbelo, P.D. 2001. Evolutionary expansion of CRIB-containing Cdc42 effector proteins. *Trends Gen.* 17: 370-373.
4. Choi, S.C. and Han, J.K. 2002. *Xenopus* Cdc42 regulates convergent extension movements during gastrulation through Wnt/Ca<sup>2+</sup> signaling pathway. *Dev. Biol.* 244: 342-357.
5. Kim, M.D., Kolodziej, P. and Chiba, A. 2002. Growth cone pathfinding and filopodial dynamics are mediated separately by Cdc42 activation. *J. Neurosci.* 22: 1794-1806.
6. Hurd, T.W., Gao, L., Roh, M.H., Macara, I.G. and Margolis, B. 2003. Direct interaction of two polarity complexes implicated in epithelial tight junction assembly. *Nat. Cell Biol.* 5: 137-142.
7. Schneeberger, D. and Raabe, T. 2003. Mbt, a *Drosophila* PAK protein, combines with Cdc42 to regulate photoreceptor cell morphogenesis. *Development* 130: 427-437.

## SOURCE

Cdc42 (dN-17) is an affinity purified goat polyclonal antibody raised against a peptide mapping near the N-terminus of Cdc42 of *Drosophila melanogaster* origin.

## PRODUCT

Each vial contains 200 µg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-26305 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

## APPLICATIONS

Cdc42 (dN-17) is recommended for detection of Cdc42 of *Drosophila melanogaster* origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000) and immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Molecular Weight of Cdc42: 25 kDa.

## RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use donkey anti-goat IgG-HRP: sc-2020 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible donkey anti-goat IgG-HRP: sc-2033 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use donkey anti-goat IgG-FITC: sc-2024 (dilution range: 1:100-1:400) or donkey anti-goat IgG-TR: sc-2783 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

## STORAGE

Store at 4° C, \*\*DO NOT FREEZE\*\*. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

## RESEARCH USE

For research use only, not for use in diagnostic procedures.

## PROTOCOLS

See our web site at [www.scbt.com](http://www.scbt.com) or our catalog for detailed protocols and support products.