ROCK2 (Human), Active

Recombinant protein expressed in Sf9 cells

Cat# CY-SPR11

Lot No.
5 µg 0.1 µg/µl

Background:

ROCK2 is a ubiquitously expressed serine/threonine kinase localized in the nucleus that regulates cytokinesis, smooth muscle contraction, the formation of actin stress fibers and focal adhesions, and the activation of the c-fos serum response element (1). ROCK2 is an immediate downstream target of the small GTPase RhoA. ROCK2 may play a pivotal role in cardiovascular diseases such as vasospastic angina, ischemic stroke, and heart failure. Inhibition of ROCKs by statins or other selective inhibitors leads to the upregulation and activation of endothelial nitric oxide synthase (eNOS) and reduction of vascular inflammation and atherosclerosis (2).

Product Description:

Recombinant human ROCK2 (5-554) was expressed by baculovirus in Sf9 insect cells using an N-terminal GST tag. The gene accession number is NM_004850.

Gene Aliases:

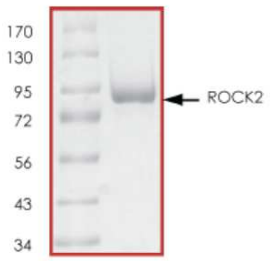
KIAA0619; ROCK-II; ROKalpha

Formulation:

Recombinant protein stored in 50mM Tris-HCl, pH 7.5, 150mM NaCl, 0.25mM DTT, 0.1mM EGTA, 0.1mM EDTA, 0.1mM PMSF, 25% glycerol.

Purity & Molecular Weight:

The purity was determined to be >90% by densitometry. Approx. MW 88kDa.



Storage:

Store product at –70 °C. For optimal storage, aliquot target into smaller quantities after centrifugation and store at recommended temperature. For most favorable performance, avoid repeated handling and multiple freeze/thaw cycles.

Stability:

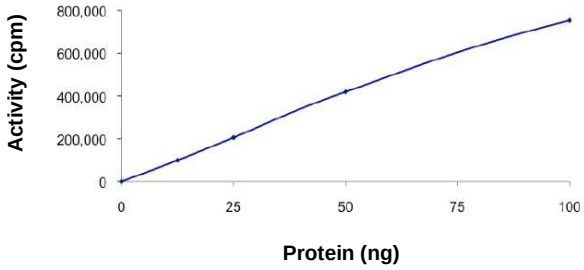
1 year at –70 °C from date of shipment.

This product is for research use only and is not intended for use in humans.

For Reference Purpose Only!

Specific Activity:

The specific activity was determined to be 358 nmol /min/mg as per Activity Assay Protocol.



Activity Assay Protocol:

Assay activity of the kinase in a 25 µL reaction consisting of 5 µL of 5 X Kinase Assay Buffer, 10 µL of 1 mg/ml the Substrate Solution, 5 µL of diluted kinase and 5 µL of 250 µM ATP solution containing [gamma ^{32}P] ATP (0.167 µCi/µL). Start the reaction by adding the ATP solution. Incubate for 15 minutes at 30°C. Terminate the reaction by spotting 20 µL of the reaction mixture onto phosphocellulose P81 paper. Air-dry the P81 paper and sequentially wash 4 times for approximately 10 minutes each in 1% phosphoric acid with constant gentle stirring. Count the P81 paper in a liquid scintillation counter.

Substrate Solution:

S6K synthetic peptide substrate (KRRRLASLR) diluted in distilled H_2O to a final concentration of 1mg/ml.

5 X Kinase Assay Buffer:

25mM MOPS, pH 7.2, 12.5mM β-glycerol-phosphate, 25mM $MgC1_2$, 5mM EGTA, 2mM EDTA. Add 0.25mM DTT to Kinase Assay Buffer prior to use.

References:

1.Zhao, Z. et al: Rho-associated kinases play a role in endocardial cell differentiation and migration. Dev Biol. 2004 Nov 1;275(1):183-91.

2.Noma, K. et al: Physiological role of ROCKs in the cardiovascular system. Am J Physiol Cell Physiol. 2006 Mar;290(3):C661-8.

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