SANTA CRUZ BIOTECHNOLOGY, INC.

p-PKAα/β/γ cat (Thr 198): sc-32968

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

The second messenger cyclic AMP (cAMP) mediates diverse cellular responses to external signals such as proliferation, ion transport, regulation of metabolism and gene transcription by activation of the cAMP-dependent protein kinase (cAPK or PKA). Activation of PKA occurs when cAMP binds to the two regulatory subunits of the tetrameric PKA holoenzyme resulting in release of active catalytic subunits. Three catalytic (C) subunits have been identified, designated Cα, Cβ and Cγ, that each represent specific gene products. Cα and Cβ are closely related (93% amino acid sequence similarity), whereas Cγ displays 83% and 79% similarity to Cα and Cβ, respectively. Activation of transcription upon elevation of cAMP levels results from translocation of PKA to the nucleus where it phosphorylates the transcription factor cAMP response element binding protein (CREB) on Serine 133, which in turn leads to TFIIB binding to TATA-box-binding protein TBP1, thus linking phospho-CREB to the Pol II transcription initiation complex. The phosphorylation at Threonine 198 is cAMP dependent.

REFERENCES

1. Beavo, J.A., et al. 1974. Activation of protein kinase by physiological concentrations of cyclic AMP. Proc. Natl. Acad. Sci. USA 71: 3580-3583.
2. Krebs, E.G., et al. 1980. Phosphorylation and dephosphorylation of enzymes. Annu. Rev. Biochem. 48: 923-959.

SOURCE

p-PKAα/β/γ cat (Thr 198) is a rabbit polyclonal antibody raised against a short amino acid sequence containing Thr 198 phosphorylated PKAα cat of human 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-32968 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

p-PKAα/β/γ cat (Thr 198) is recommended for detection of Thr 198 phosphorylated PKAα, β and γ cat of human origin and Thr 198 phosphorylated PKAα and β of mouse and rat origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], 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).

p-PKAα/β/γ cat (Thr 198)-R is also recommended for detection of correspondingly phosphorylated PKAα, β and γ cat in additional species, including equine, canine, bovine, porcine and avian.

Molecular Weight of PKAα cat: 40 kDa.

Molecular Weight of PKAβ cat: 53 kDa.

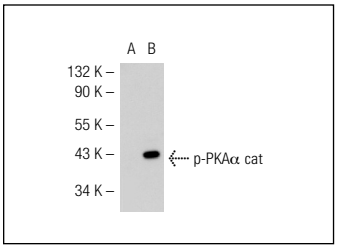
Molecular Weight of PKAγ cat: 39-40 kDa.

Positive Controls: PKAα cat (h): 293T Lysate: sc-111700.

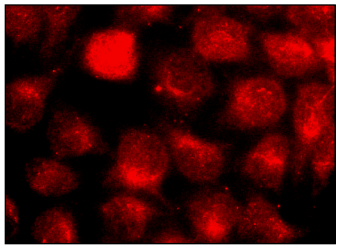
STORAGE

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

DATA



p-PKAα/β/γ cat (Thr 198): sc-32968. Western blot analysis of PKAα cat phosphorylation in non-transfected: sc-117752 (**A**) and human PKAα cat transfected: sc-111700 (**B**) 293T whole cell lysates.



p-PKAα/β/γ cat (Thr 198): sc-32968. Immunofluorescence staining of methanol-fixed HeLa cells showing nuclear and cytoplasmic localization.

SELECT PRODUCT CITATIONS

1. Priyadarshini, A., et al. 2009. Activation of both Mos and Cdc25 is required for G_2-M transition in perch oocyte. Mol. Reprod. Dev. 76: 289-300.
2. Leem, Y.H., et al. 2009. Repression of tau hyperphosphorylation by chronic endurance exercise in aged transgenic mouse model of tauopathies. J. Neurosci. Res. 87: 2561-2570.
3. Li, X.D., et al. 2010. Tongxinluo reduces myocardial no-reflow and ischemia-reperfusion injury by stimulating the phosphorylation of eNOS via the PKA pathway. Am. J. Physiol. Heart Circ. Physiol. 299: H1255-H1261.
4. Somvanshi, R.K., et al. 2011. Receptor specific crosstalk and modulation of signaling upon heterodimerization between β1-adrenergic receptor and somatostatin receptor-5. Cell. Signal. 23: 794-811.
5. Costa, R.R., et al. 2011. Luteinizing hormone (LH) acts through PKA and PKC to modulate T-type calcium currents and intracellular calcium transients in mice Leydig cells. Cell Calcium 49: 191-199.
6. Yang, G., et al. 2011. Amoxapine inhibits delayed outward rectifier K^+ currents in cerebellar granule cells via dopamine receptor and protein kinase A activation. Cell. Physiol. Biochem. 28: 163-174.
7. Liu, L., et al. 2012. Influenza A virus induces interleukin-27 through cyclooxygenase-2 and protein kinase A signaling. J. Biol. Chem. 287: 11899-11910.
8. Grossini, E., et al. 2012. CCK receptors-related signaling involved in nitric oxide production caused by gastrin 17 in porcine coronary endothelial cells. Mol. Cell. Endocrinol. 350: 20-30.
9. Liu, Y., et al. 2013. Opposing HDAC4 nuclear fluxes due to phosphorylation by β-adrenergic activated protein kinase A or by activity or Epac activated CaMKII in skeletal muscle fibres. J. Physiol. 591: 3605-3623.

RESEARCH USE

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