

PKA I α / β reg (G-6): sc-271446

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. Four different PKA regulatory subunits have been identified, designated I α , I β , II α and II β . The PKA I α reg protein is a tissue-specific extinguisher that downregulates the expression of seven liver genes in heptoma x fibroblast hybrids. Functional null mutations in the gene that codes for PKA I α reg cause Carney complex (CNC). CNC is an autosomal dominant multiple neoplasia syndrome. CNC is associated with a variety of characterized symptoms such as cardiac and other myxomas, spotty skin pigmentation, endocrine tumors and psammomatous melanotic schwannomas.

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. and Beavo, J.A. 1979. Phosphorylation and dephosphorylation of enzymes. *Annu. Rev. Biochem.* 48: 923-959.
3. Maldonado, F. and Hanks, S.K. 1988. cAMP-dependent protein kinase, α -catalytic subunit. *Nucleic Acids Res.* 16: 8189-8190.
4. Gonzalez, G.A. and Montminy, M.R. 1989. Cyclic AMP stimulates somatostatin gene transcription by phosphorylation of CREB at serine 133. *Cell* 59: 675-680.
5. Beebe, S.J., et al. 1990. cAMP-dependent protein kinase, β -catalytic subunit. *Mol. Endocrinol.* 4: 465-475.
6. Schneider, L.H., et al. 1991. Infra-additivity of combined treatments with selective D1 and D2 receptor antagonists for inhibiting sucrose reinforcement. *Brain Res.* 550: 122-124.
7. Meinkoth, J.L., et al. 1993. Signal transduction through the cAMP-dependent protein kinase. *Mol. Cell. Biochem.* 127-128: 179-186.
8. Nordheim, A. 1994. CREB takes CBP to tango. *Nature* 370: 177-178.
9. Kirschner, L.S., et al. 2000. Genetic heterogeneity and spectrum of mutations of the PRKAR1A gene in patients with the carney complex. *Hum. Mol. Genet.* 9: 3037-3046.

CHROMOSOMAL LOCATION

Genetic locus: PRKAR1A (human) mapping to 17q24.2, PRKAR1B (human) mapping to 7p22.3; Prkar1a (mouse) mapping to 11 E1.

SOURCE

PKA I α / β reg (G-6) is a mouse monoclonal antibody raised against amino acids 246-335 mapping within an internal region of PKA I α reg of human origin.

PRODUCT

Each vial contains 200 μ g IgG $_1$ kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

PKA I α / β reg (G-6) is recommended for detection of PKA I α of mouse, rat and human origin, and PKC β reg of human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2 μ g per 100-500 μ g 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).

PKA I α / β reg (G-6) is also recommended for detection of PKA I α and I β reg in additional species, including equine, canine, bovine and porcine.

Molecular Weight of PKA I α reg: 47 kDa.

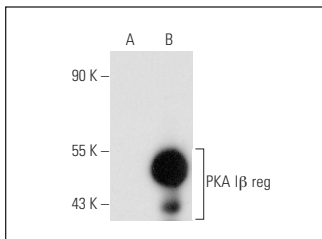
Molecular Weight of PKA I β reg: 51 kDa.

Positive Controls: PKA I β reg (h2): 293T Lysate: sc-112159, CCRF-CEM cell lysate: sc-2225 or WI-38 whole cell lysate: sc-364260.

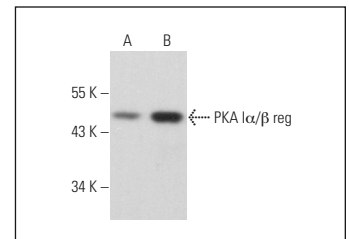
RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgG κ BP-HRP: sc-516102 or m-IgG κ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) Immunofluorescence: use m-IgG κ BP-FITC: sc-516140 or m-IgG κ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

DATA



PKA I α / β reg (G-6): sc-271446. Western blot analysis of PKA I β reg expression in non-transfected: sc-117752 (A) and human PKA I β reg transfected: sc-112159 (B) 293T whole cell lysates.



PKA I α / β reg (G-6): sc-271446. Western blot analysis of PKA I α / β reg expression in CCRF-CEM (A) and WI-38 (B) whole cell lysates.

SELECT PRODUCT CITATIONS

1. Grisan, F., et al. 2021. PKA compartmentalization links cAMP signaling and autophagy. *Cell Death Differ.* 28: 2436-2449.

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.