SANTA CRUZ BIOTECHNOLOGY, INC.

PKA Iα reg (20): sc-136231

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 Iα, Iβ, IIα and IIβ. The PKA Iα reg protein is a tissue-specific extinguisher that downregulates the expression of seven liver genes in hepatoma x fibroblast hybrids. Functional null mutations in the gene that codes for PKA Iα 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.

CHROMOSOMAL LOCATION

Genetic locus: PRKAR1A (human) mapping to 17q24.2; Prkar1a (mouse) mapping to 11 E1.

SOURCE

PKA Iα reg (20) is a mouse monoclonal antibody raised against amino acids 1-381 representing full length PKA Iα reg of human origin.

PRODUCT

Each vial contains 200 µg IgG_1 in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-136231 P (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

APPLICATIONS

PKA Iα reg (20) is recommended for detection of PKA Iα reg of mouse, rat, human and canine origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000) and immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)]; not recommended for immunoprecipitation.

Suitable for use as control antibody for PKA Iα reg siRNA (h): sc-39162, PKA Iα reg siRNA (m): sc-39163, PKA Iα reg shRNA Plasmid (h): sc-39162-SH, PKA Iα reg shRNA Plasmid (m): sc-39163-SH, PKA Iα reg shRNA (h) Lentiviral Particles: sc-39162-V and PKA Iα reg shRNA (m) Lentiviral Particles: sc-39163-V.

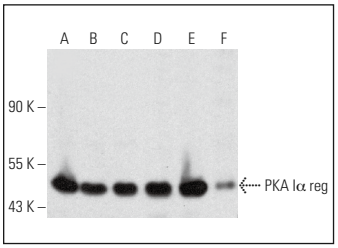
Molecular Weight of PKA Iα reg: 43 kDa.

Positive Controls: CCRF-CEM cell lysate: sc-2225, SW-13 cell lysate: sc-24778 or PKA Iα reg (m3): 293T Lysate: sc-110206.

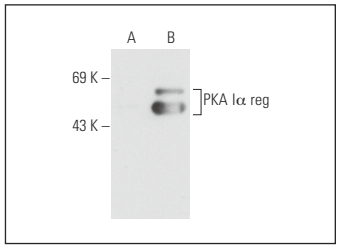
STORAGE

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

DATA



PKA Iα reg (20): sc-136231. Western blot analysis of PKA Iα reg expression in CCRF-CEM (**A**), SW-13 (**B**), NCI-H1299 (**C**), U-87 MG (**D**) and Neuro-2A (**E**) whole cell lysates and mouse brain tissue extract (**F**).



PKA Iα reg (20): sc-136231. Western blot analysis of PKA Iα reg expression in non-transfected: sc-117752 (**A**) and mouse PKA Iα reg transfected: sc-110206 (**B**) 293T whole cell lysates.

SELECT PRODUCT CITATIONS

1. Hammerschmidt, A., et al. 2012. Binding of regulatory subunits of cyclic AMP-dependent protein kinase to cyclic CMP agarose. PLoS ONE 7: e39848.
2. Savitski, M.M., et al. 2014. Tracking cancer drugs in living cells by thermal profiling of the proteome. Science 346: 1255784.
3. Wolter, S., et al. 2015. cCMP causes caspase-dependent apoptosis in mouse lymphoma cell lines. Biochem. Pharmacol. 98: 119-131.
4. Xu, X., et al. 2018. Liraglutide regulates the viability of pancreatic α-cells and pancreatic β-cells through cAMP-PKA signal pathway. Life Sci. 195: 87-94.
5. Chen, S.J., et al. 2019. Continuous exposure of isoprenaline inhibits myoblast differentiation and fusion through PKA/ERK1/2-FOXO1 signaling pathway. Stem Cell Res. Ther. 10: 70.
6. Cilleros-Mañé, V., et al. 2020. The M_2 muscarinic receptor, in association to M1, regulates the neuromuscular PKA molecular dynamics. FASEB J. 34: 4934-4955.
7. Kiran, S., et al. 2022. Cannabinoid receptor 2 (CB2) inverse agonist SMM-189 induces expression of endogenous CB2 and protein kinase A that differentially modulates the immune response and suppresses experimental colitis. Pharmaceutics 14: 936.
8. Polishchuk, A., et al. 2023. Synaptic retrograde regulation of the PKA-induced SNAP-25 and Synapsin-1 phosphorylation. Cell. Mol. Biol. Lett. 28: 17.
9. Yao, X., et al. 2023. Tectorigenin targets PKACα to promote GLUT4 expression in skeletal muscle and improve insulin resistance *in vitro* and *in vivo*. Int. J. Biol. Sci. 19: 1579-1596.

RESEARCH USE

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