

# PKA $\alpha$ cat (C-20): sc-903

## 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 C $\alpha$ , C $\beta$  and C $\gamma$ , that each represent specific gene products. C $\alpha$  and C $\beta$  are closely related (93% amino acid sequence similarity), whereas C $\gamma$  displays 83% and 79% similarity to C $\alpha$  and C $\beta$ , 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 TFIIIB binding to TATA-box-binding protein TBP1, thus linking phospho-CREB to the pol II transcription initiation complex.

## CHROMOSOMAL LOCATION

Genetic locus: PRKACA (human) mapping to 19p13.12; Prkaca (mouse) mapping to 8 C3.

## SOURCE

PKA $\alpha$  cat (C-20) is an affinity purified rabbit polyclonal antibody raised against a peptide mapping at the C-terminus of PKA $\alpha$  cat of human origin.

## PRODUCT

Each vial contains 100  $\mu$ g IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-903 P, (100  $\mu$ g peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

## APPLICATIONS

PKA $\alpha$  cat (C-20) is recommended for detection of PKA $\alpha$  catalytic subunit of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2  $\mu$ g per 100-500  $\mu$ g of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500), immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000); partially cross-reactive with  $\beta$  and  $\gamma$  subunits.

PKA $\alpha$  cat (C-20) is also recommended for detection of PKA $\alpha$  catalytic subunit in additional species, including equine, canine, bovine and porcine.

Suitable for use as control antibody for PKA $\alpha$  cat siRNA (h): sc-36240, PKA $\alpha$  cat siRNA (m): sc-36241, PKA $\alpha$  cat shRNA Plasmid (h): sc-36240-SH, PKA $\alpha$  cat shRNA Plasmid (m): sc-36241-SH, PKA $\alpha$  cat shRNA (h) Lentiviral Particles: sc-36240-V and PKA $\alpha$  cat shRNA (m) Lentiviral Particles: sc-36241-V.

Molecular Weight of PKA $\alpha$  cat: 40 kDa.

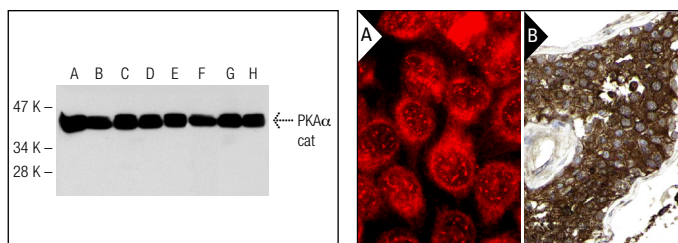
## STORAGE

Store at 4 $^{\circ}$  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.

## DATA



PKA $\alpha$  cat (C-20): sc-903. Western blot analysis of PKA $\alpha$  catalytic subunit expression in mouse brain extract (A), NIH/3T3 (B), KNRK (C), Mv 1 Lu (D), MDCK (E), MCF7 (F), PC-3 (G) and A549 (H) whole cell lysates.

PKA $\alpha$  cat (C-20): sc-903. Immunofluorescence staining of methanol-fixed HeLa cells showing cytoplasmic and nuclear localization (A). Immunoperoxidase staining of formalin fixed, paraffin-embedded human testis tissue showing cytoplasmic staining of cells in ductus deferens and Leydig cells. Kindly provided by The Swedish Human Protein Atlas (HPA) program (B).

## SELECT PRODUCT CITATIONS

- Pfeifer, A., et al. 1996. Intestinal secretory defects and dwarfism in mice lacking cGMP-dependent protein kinase II. *Science* 274: 2082-2086.
- Ribeiro, R.A., et al. 2010. Taurine supplementation: involvement of cholinergic/phospholipase C and protein kinase A pathways in potentiation of Insulin secretion and Ca<sup>2+</sup> handling in mouse pancreatic islets. *Br. J. Nutr.* 104: 1148-1155.
- Xiao, H., et al. 2011. Chromatin accessibility and transcription factor binding at the PPAR $\gamma$ 2 promoter during adipogenesis is protein kinase A-dependent. *J. Cell. Physiol.* 226: 86-93.
- Almeida, M.Q., et al. 2011. Integrated genomic analysis of nodular tissue in macronodular adrenocortical hyperplasia: progression of tumorigenesis in a disorder associated with multiple benign lesions. *J. Clin. Endocrinol. Metab.* 96: E728-E738.
- Pace, T.W., et al. 2011. Activation of cAMP-protein kinase A abrogates STAT5-mediated inhibition of glucocorticoid receptor signaling by interferon- $\alpha$ . *Brain Behav. Immun.* 25: 1716-1724.
- Kostenko, S., et al. 2011. Serine residue 115 of MAPK-activated protein kinase MK5 is crucial for its PKA-regulated nuclear export and biological function. *Cell. Mol. Life Sci.* 68: 847-862.
- Estrany, M.E., et al. 2011. Isocaloric intake of a high-fat diet modifies adiposity and lipid handling in a sex dependent manner in rats. *Lipids Health Dis.* 10: 52.



Try **PKA $\alpha$  cat (A-2): sc-28315** or **PKA $\alpha$  cat (C-7): sc-48412**, our highly recommended monoclonal alternatives to PKA $\alpha$  cat (C-20). Also, for AC, HRP, FITC, PE, Alexa Fluor<sup>®</sup> 488 and Alexa Fluor<sup>®</sup> 647 conjugates, see **PKA $\alpha$  cat (A-2): sc-28315**.