

PKA α cat (B-5): sc-28316

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 A (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 PKA α cat (C α), PKA β cat (C β) and PKA γ cat (C γ). Each subunit represents specific gene products. PKA α cat and PKA β cat are closely related (93% amino acid sequence similarity), whereas PKA γ cat displays 83% and 79% similarity to PKA α cat and PKA β cat, 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 α cat (B-5) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 322-351 at the C-terminus of PKA α of human origin.

PRODUCT

Each vial contains 200 μ g IgG₁ kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-28316 P, (100 μ g peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

APPLICATIONS

PKA α cat (B-5) is recommended for detection of PKA α catalytic subunit of mouse, rat and human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1,000), 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), 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 β and γ subunits. PKA α cat (B-5) is also recommended for detection of PKA α catalytic subunit in additional species, including equine, bovine and porcine.

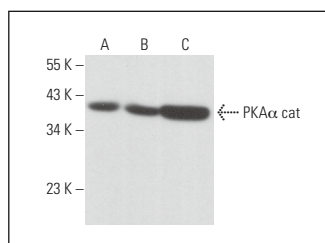
Suitable for use as control antibody for PKA α cat siRNA (h): sc-36240, PKA α cat siRNA (m): sc-36241, PKA α cat siRNA (r): sc-156094, PKA α cat shRNA Plasmid (h): sc-36240-SH, PKA α cat shRNA Plasmid (m): sc-36241-SH, PKA α cat shRNA Plasmid (r): sc-156094-SH, PKA α cat shRNA (h) Lentiviral Particles: sc-36240-V, PKA α cat shRNA (m) Lentiviral Particles: sc-36241-V and PKA α cat shRNA (r) Lentiviral Particles: sc-156094-V.

Molecular Weight of PKA α cat: 40 kDa.

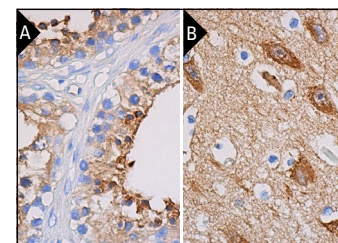
RECOMMENDED SUPPORT REAGENTS

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. 4) Immunohistochemistry: use m-IgG κ BP-HRP: sc-516102 with DAB, 50X: sc-24982 and Immunohistomount: sc-45086, or Organo/Limonene Mount: sc-45087.

DATA



PKA α cat (B-5): sc-28316. Western blot analysis of PKA α cat expression in MCF7 (A), MDA-MB-231 (B) and DU 145 (C) whole cell lysates.



PKA α cat (B-5): sc-28316. Immunoperoxidase staining of formalin fixed, paraffin-embedded human testis tissue showing cytoplasmic staining of cells in seminiferous ducts (A). Immunoperoxidase staining of formalin fixed, paraffin-embedded human cerebral cortex tissue showing cytoplasmic staining of neuronal cells and neuropil staining (B).

SELECT PRODUCT CITATIONS

- Valenti, D., et al. 2011. Deficit of complex I activity in human skin fibroblasts with chromosome 21 trisomy and overproduction of reactive oxygen species by mitochondria: involvement of the cAMP/PKA signalling pathway. *Biochem. J.* 435: 6796-6788.
- Iwano, S., et al. 2015. PCTK1 regulates integrin-dependent spindle orientation via protein kinase A regulatory subunit KAP0 and myosin X. *Mol. Cell. Biol.* 35: 1197-1208.

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.



See **PKA α cat (A-2): sc-28315** for PKA α cat antibody conjugates, including AC, HRP, FITC, PE, and Alexa Fluor[®] 488, 546, 594, 647, 680 and 790.