SANTA CRUZ BIOTECHNOLOGY, INC.

PKAγ cat (A-4): sc-514087

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 PKAα cat or Cα, PKAβ cat/Cβ and PKAγ cat/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 PKAα cat and PKAβ 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 TFIIB binding to TATA-box-binding protein TBP1, thus linking phospho-CREB to the Pol II transcription initiation complex.

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.
3. Maldonado, F., et al. 1988. CAMP-dependent protein kinase, α-catalytic subunit. Nucleic Acids Res. 16: 8189-8190.
4. Gonzalez, G.A., et al. 1989. Cyclic AMP stimulates somatostatin gene transcription by phosphorylation of CREB at serine 133. Cell 59: 675-680.

CHROMOSOMAL LOCATION

Genetic locus: PRKACG (human) mapping to 9q21.11; Prkaca (mouse) mapping to 8 C3.

SOURCE

PKAγ cat (A-4) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 322-350 at the C-terminus of PKAγ cat of human origin.

PRODUCT

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

PKAγ cat (A-4) is available conjugated to agarose (sc-514087 AC), 500 µg/ 0.25 ml agarose in 1 ml, for IP; to HRP (sc-514087 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-514087 PE), fluorescein (sc-514087 FITC), Alexa Fluor® 488 (sc-514087 AF488), Alexa Fluor® 546 (sc-514087 AF546), Alexa Fluor® 594 (sc-514087 AF594) or Alexa Fluor® 647 (sc-514087 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-514087 AF680) or Alexa Fluor® 790 (sc-514087 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

Blocking peptide available for competition studies, sc-514087 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

APPLICATIONS

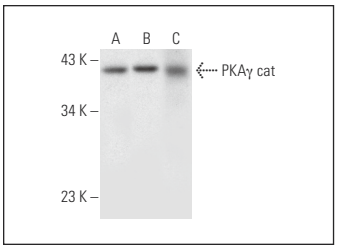
PKAγ cat (A-4) is recommended for detection of PKAγ catalytic subunit of mouse, rat, human and mink origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500), 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).

Suitable for use as control antibody for PKAγ cat siRNA (h): sc-36236, PKAγ cat siRNA (m): sc-36237, PKAγ cat shRNA Plasmid (h): sc-36236-SH, PKAγ cat shRNA Plasmid (m): sc-36237-SH, PKAγ cat shRNA (h) Lentiviral Particles: sc-36236-V and PKAγ cat shRNA (m) Lentiviral Particles: sc-36237-V.

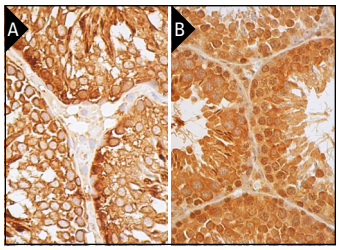
Molecular Weight of PKAγ cat: 40 kDa.

Positive Controls: PC-3 cell lysate: sc-2220, Hs 181 Tes whole cell lysate: sc-364779 or human testis extract: sc-363781.

DATA



PKAγ cat (A-4): sc-514087. Western blot analysis of PKAγ cat expression in PC-3 (**A**) and Hs 181 Tes (**B**) whole cell lysates and human testis tissue extract (**C**).



PKAγ cat (A-4): sc-514087. Immunoperoxidase staining of formalin fixed, paraffin-embedded mouse testis tissue showing cytoplasmic and nuclear staining of cells in seminiferous ducts and Leydig cells. Blocked with 0.25X UltraCruz® Blocking Reagent: sc-516214. Detection reagents used: m-IgGκ BP-B: sc-516142 and ImmunoCruz® ABC Kit: sc-516216 (**A**). Immunoperoxidase staining of formalin fixed, paraffin-embedded rat testis tissue showing cytoplasmic and nuclear staining of cells in seminiferous ducts. Blocked with 0.25X UltraCruz® Blocking Reagent: sc-516214. Detection reagents used: m-IgGκ BP-B: sc-516142 and ImmunoCruz® ABC Kit: sc-516216 (**B**).

SELECT PRODUCT CITATIONS

1. 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.

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.