SANTA CRUZ BIOTECHNOLOGY, INC.

# PKAα cat (H-8): sc-515039

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 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 PKAα cat (Cα), PKAβ cat (Cβ) and PKAγ cat (Cγ). Each subunit represents specific gene products. PKAα cat and PKAβ cat are closely related (93% amino acid sequence similarity), whereas PKAγ cat 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.

## CHROMOSOMAL LOCATION

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

## SOURCE

PKAα cat (H-8) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 31-48 near the N-terminus of PKAα cat of human origin.

## PRODUCT

Each vial contains 200 µg $IgG_{2a}$ 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-515039 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

## APPLICATIONS

PKAα cat (H-8) is recommended for detection of PKAα cat of mouse, rat and human 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 PKAα cat siRNA (h): sc-36240, PKAα cat siRNA (m): sc-36241, PKAα cat siRNA (r): sc-156094, PKAα cat shRNA Plasmid (h): sc-36240-SH, PKAα cat shRNA Plasmid (m): sc-36241-SH, PKAα cat shRNA Plasmid (r): sc-156094-SH, PKAα cat shRNA (h) Lentiviral Particles: sc-36240-V, PKAα cat shRNA (m) Lentiviral Particles: sc-36241-V and PKAα cat shRNA (r) Lentiviral Particles: sc-156094-V.

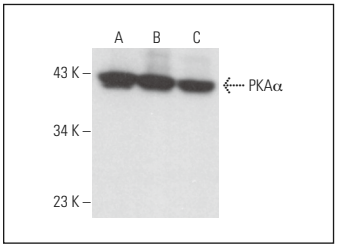
Molecular Weight of PKAα cat: 40 kDa.

Positive Controls: NTERA-2 cl.D1 whole cell lysate: sc-364181, HEL 92.1.7 cell lysate: sc-2270 or AN3 CA cell lysate: sc-24662.

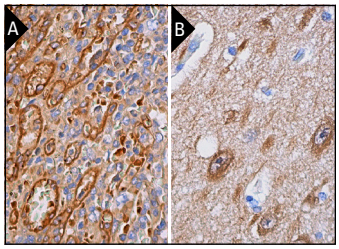
## RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ 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-IgGκ BP-FITC: sc-516140 or m-IgGκ 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-IgGκ BP-HRP: sc-516102 with DAB, 50X: sc-24982 and Immunohistomount: sc-45086, or Organo/Limonene Mount: sc-45087.

## DATA




PKAα cat (H-8): sc-515039. Western blot analysis of PKAα cat expression in NTERA-2 cl.D1 (**A**), AN3 CA (**B**) and HEL 92.1.7 (**C**) whole cell lysates.




PKAα cat (H-8): sc-515039. Immunoperoxidase staining of formalin fixed, paraffin-embedded human spleen tissue showing cytoplasmic staining of cells in white pulp and cells in red pulp and cytoplasmic and membrane staining of endothelial cells (**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


1. Hamed, O., et al. 2022. α and β catalytic subunits of cAMP-dependent protein kinase regulate formoterol-induced inflammatory gene expression changes in human bronchial epithelial cells. Br. J. Pharmacol. 179: 4593-4614.


## 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.

## PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.

CONJUGATES

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