

# PKA $\beta$ cat (h6): 293 Lysate: sc-158858

## 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 p-CREB to the Pol II transcription initiation complex.

## REFERENCES

1. Beavo, J.A., Bechtel, P.J. and Krebs, E.G. 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. 1980. Phosphorylation and dephosphorylation of enzymes. *Annu. Rev. Biochem.* 48: 923-959.
3. Maldonado, F. and Hanks, S.K. 1988. cAMP-dependent protein kinase,  $\alpha$ -catalytic subunit. *Nucleic Acids Res.* 16: 8189-8190.
4. Gonzalez, G.A. and Montminy, M.R. 1989. Cyclic AMP stimulates somatostatin gene transcription by phosphorylation of CREB at Serine 133. *Cell* 59: 675-680.
5. Beebe, S.J., Salomonsky, P., Jahnsen, T. and Li, Y. 1990. cAMP-dependent protein kinase,  $\beta$ -catalytic subunit. *Mol. Endocrinol.* 4: 465-475.
6. Meinkoth, J.L., Alberts, A.S., Went, W., Fantozzi, D., Taylor, S.S., Hagiwara, M., Montminy, M. and Feramisco, J.R. 1993. Signal transduction through the cAMP-dependent protein kinase. *Mol. Cell. Biochem.* 127-128: 179-186.
7. Nordheim, A. 1994. CREB takes CBP to tango. *Nature* 370: 177-178.

## CHROMOSOMAL LOCATION

Genetic locus: PRKACB (human) mapping to 1p31.1.

## PRODUCT

PKA $\beta$  cat (h6): 293 Lysate represents a lysate of human PKA $\beta$  cat transfected 293 cells and is provided as 100  $\mu$ g protein in 200  $\mu$ l SDS-PAGE buffer.

## STORAGE

Store at -20° C. Repeated freezing and thawing should be minimized. Sample vial should be boiled once prior to use. Non-hazardous. No MSDS required.

## PROTOCOLS

See our web site at [www.scbt.com](http://www.scbt.com) for detailed protocols and support products.

## APPLICATIONS

PKA $\beta$  cat (h6): 293 Lysate is suitable as a Western Blotting positive control for human reactive PKA $\beta$  cat antibodies. Recommended use: 10-20  $\mu$ l per lane.

Control 293 Lysate: sc-110760 is available as a Western Blotting negative control lysate derived from non-transfected 293 cells.

## RESEARCH USE

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