Revision 1

Store at -20C

#4781

Phospho-PKA C (Thr197) Antibody

Cell Signaling TECHNOLOGY®

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For Research Use Only. Not for Use in Diagnostic Procedures.

Applications:	Reactivity:	Sensitivity:	MW (kDa):	Source/Isotype:	UniProt ID:	Entrez-Gene Id:
W	H M R Mk	Endogenous	42	Rabbit	#P17612	5566

Product Usage Information

Application	Dilution
Western Blotting	1:1000

Storage

Supplied in 10 mM sodium HEPES (pH 7.5), 150 mM NaCl, 100 µg/ml BSA and 50% glycerol. Store at –20°C. Do not aliquot the antibody.

Specificity/Sensitivity

Phospho-PKA C (Thr197) Antibody detects endogenous levels of PKA C (-alpha, -beta and -gamma) only when phosphorylated at Thr197. This antibody does not cross-react with PKA C phosphorylated at other sites.

Source / Purification

Polyclonal antibodies are produced by immunizing animals with a synthetic phosphopeptide corresponding to residues surrounding Thr197 of PKA C. Antibodies are purified by protein A and peptide affinity chromatography.

Background

The second messenger cyclic AMP (cAMP) activates cAMP-dependent protein kinase (PKA or cAPK) in mammalian cells and controls many cellular mechanisms such as gene transcription, ion transport, and protein phosphorylation (1). Inactive PKA is a heterotetramer composed of a regulatory subunit (R) dimer and a catalytic subunit (C) dimer. In this inactive state, the pseudosubstrate sequences on the R subunits block the active sites on the C subunits. Three C subunit isoforms (C-α, C-β, and C-γ) and two families of regulatory subunits (RI and RII) with distinct cAMP binding properties have been identified. The two R families exist in two isoforms, α and β (RI-α, RI-β, RII-α, and RII-β). Upon binding of cAMP to the R subunits, the autoinhibitory contact is eased and active monomeric C subunits are released. PKA shares substrate specificity with Akt (PKB) and PKC, which are characterized by an arginine at position -3 relative to the phosphorylated serine or threonine residue (2). Substrates that present this consensus sequence and have been shown to be phosphorylated by PKA are Bad (Ser155), CREB (Ser133), and GSK-3 (GSK-3α Ser21 and GSK-3β Ser9) (3-5). In addition, combined knock-down of PKA C-α and -β blocks cAMP-mediated phosphorylation of Raf (Ser43 and Ser259) (6). Autophosphorylation and phosphorylation by PDK-1 are two known mechanisms responsible for phosphorylation of the C subunit at Thr197 (7).

Background References

1. Montminy, M. (1997) *Annu. Rev. Biochem.* 66, 807-822.
2. Dell'Acqua, M.L. and Scott, J.D. (1997) *J. Biol. Chem.* 272, 12881-12884.
3. Tan, Y. et al. (2000) *J. Biol. Chem.* 275, 25865-25869.
4. Gonzalez, G.A. and Montminy, M.R. (1989) *Cell* 59, 675-680.
5. Fang, X. et al. (2000) *Proc. Natl. Acad. Sci. USA* 97, 11960-11965.
6. Dumaz, N. and Marais, R. (2003) *J. Biol. Chem.* 278, 29819 -29823.
7. Moore, M.J. et al. (2002) *J. Biol. Chem.* 277, 47878-47884.

Species Reactivity

Species reactivity is determined by testing in at least one approved application (e.g., western blot).

Western Blot Buffer

IMPORTANT: For western blots, incubate membrane with diluted primary antibody in 5% w/v BSA, 1X TBS, 0.1% Tween® 20 at 4°C with gentle shaking, overnight.

Applications Key

W: Western Blotting

Cross-Reactivity Key

H: Human **M:** Mouse **R:** Rat **Mk:** Monkey

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