SANTA CRUZ BIOTECHNOLOGY, INC.

PDE3A (2D7): sc-293446

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

Phosphodiesterases (PDE, also designated cyclic nucleotide phosphodiesterase) are important for the downregulation of the intracellular level of the second messenger cyclic adenosine monophosphate (cAMP) by hydrolyzing cAMP to 5'AMP. Phosphodiesterase type 3 isoforms, PDE3A and 3B, are expressed primarily in cardiovascular tissue and adipose tissue, respectively. PDE3A, is found in myocardium and platelets and PDE3B is found in lymphocytes. The PDE7A1 (HCP1) isozyme and the PDE7A2 proteins, alternate splice products of PDE7A, are highly expressed in skeletal muscle. PDE7B is most highly expressed in pancreas. The PDE family contains proteins that serve tissue-specific roles in regulation of lipolysis, glycogenolysis, myocardial contractility and smooth muscle relaxation.

REFERENCES

1. Bloom, T.J., et al. 1996. Identification and tissue-specific expression of PDE7 phosphodiesterase splice variants. Proc. Natl. Acad. Sci. USA 93: 14188-14192.
2. Han, P., et al. 1997. Alternative splicing of the high affinity cAMP-specific phosphodiesterase (PDE7A) mRNA in human skeletal muscle and heart. J. Biol. Chem. 272: 16152-16157.
3. Sheth, S.B., et al. 1997. Cyclic AMP phosphodiesterases in human lymphocytes. Br. J. Haematol. 99: 784-789.
4. Fisher, D.A., et al. 1998. Isolation and characterization of PDE8A, a novel human cAMP-specific phosphodiesterase. Biochem. Biophys. Res. Commun. 246: 570-577.
5. Gantner, F., et al. 1998. Phosphodiesterase profile of human B lymphocytes from normal and atopic donors and the effects of PDE inhibition on B cell proliferation. Br. J. Pharmacol. 123: 1031-1038.
6. Liu, H., et al. 1998. Expression of cyclic GMP-inhibited phosphodiesterases 3A and 3B (PDE3A and PDE3B) in rat tissues: differential subcellular localization and regulated expression by cyclic AMP. Br. J. Pharmacol. 125: 1501-1510.
7. Cheung, P.P., et al. 1998. Partial characterization of the active site human platelet cAMP phosphodiesterase, PDE3A, by site-directed mutagenesis. Arch. Biochem. Biophys. 360: 99-104.
8. Hetman, J.M., et al. 2000. Cloning and characterization of PDE7B, a cAMP-specific phosphodiesterase. Proc. Natl. Acad. Sci. USA 97: 472-476.

CHROMOSOMAL LOCATION

Genetic locus: PDE3A (human) mapping to 12p12.2; Pde3a (mouse) mapping to 6 G2.

SOURCE

PDE3A (2D7) is a mouse monoclonal antibody raised against amino acids 533-640 representing partial length PDE3A of human origin.

PRODUCT

Each vial contains 50 µg IgG_{2b} kappa light chain in 0.5 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

PDE3A (2D7) is recommended for detection of PDE3A of mouse, rat and human origin by Western Blotting (starting dilution 1:200, 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) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for PDE3A siRNA (h): sc-41592, PDE3A siRNA (m): sc-41593, PDE3A shRNA Plasmid (h): sc-41592-SH, PDE3A shRNA Plasmid (m): sc-41593-SH, PDE3A shRNA (h) Lentiviral Particles: sc-41592-V and PDE3A shRNA (m) Lentiviral Particles: sc-41593-V.

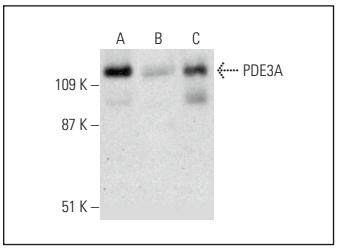
Molecular Weight of PDE3A: 110 kDa.

Positive Controls: HeLa whole cell lysate: sc-2200, A-10 cell lysate: sc-3806 or human heart extract: sc-363763.

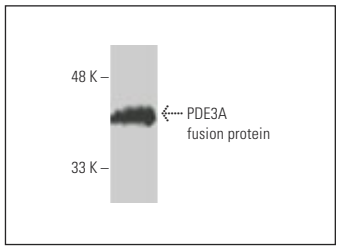
RECOMMENDED SUPPORT REAGENTS

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.

DATA



PDE3A (2D7): sc-293446. Western blot analysis of PDE3A expression in HeLa (**A**) and A-10 (**B**) whole cell lysates and human heart tissue extract (**C**).



PDE3A (2D7): sc-293446. Western blot analysis of human recombinant PDE3A fusion protein.

SELECT PRODUCT CITATIONS

1. Dillard, J., et al. 2020. Nitric oxide activates AMPK by modulating PDE3A in human pulmonary artery smooth muscle cells. Physiol. Rep. 8: e14559.

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.