

# PDE11A (H-178): sc-98557

## BACKGROUND

cAMP and cGMP are 3',5'-cyclic nucleotides that function as second messengers in a wide variety of signaling pathways throughout the cell. The hydrolysis of cAMP and cGMP to their corresponding 5'-monophosphates (5'-AMP and 5'-GMP, respectively) is catalyzed by 3',5'-cyclic nucleotide phosphodiesterases (PDEs), which provide a means of downregulating cAMP and cGMP signaling. PDE11A (phosphodiesterase 11A), also known as PPNAD2, is a 934 amino acid cytoplasmic protein that belongs to the PDE family. Expressed as four isoforms that exhibit different tissue specificity, PDE11A contains two GAF domains through which it functions to catalyze the H<sub>2</sub>O-dependent conversion of cAMP and cGMP to their hydrolyzed forms. PDE11A activity is pH-dependent and is regulated by the binding of free cGMP (which acts as an allosteric activator) to the GAF domains, an event that stimulates enzyme activity. Defects in the gene encoding PDE11A are the cause of primary pigmented nodular adrenocortical disease type 2 (PPNAD2), a bilateral adrenal defect that leads to endocrine-related Cushing syndrome.

## REFERENCES

- Hetman, J.M., et al. 2000. Cloning and characterization of two splice variants of human phosphodiesterase 11A. *Proc. Natl. Acad. Sci. USA* 97: 12891-12895.
- Loughney, K., et al. 2005. 3',5'-cyclic nucleotide phosphodiesterase 11A: localization in human tissues. *Int. J. Impot. Res.* 17: 320-325.
- D'Andrea, M.R., et al. 2005. Expression of PDE11A in normal and malignant human tissues. *J. Histochem. Cytochem.* 53: 895-903.
- Horvath, A., et al. 2006. Adrenal hyperplasia and adenomas are associated with inhibition of phosphodiesterase 11A in carriers of PDE11A sequence variants that are frequent in the population. *Cancer Res.* 66: 11571-11575.
- Gross-Langenhoff, M., et al. 2006. cAMP is a ligand for the tandem GAF domain of human phosphodiesterase 10 and cGMP for the tandem GAF domain of phosphodiesterase 11. *J. Biol. Chem.* 281: 2841-2846.
- Horvath, A., et al. 2006. A genome-wide scan identifies mutations in the gene encoding phosphodiesterase 11A4 (PDE11A) in individuals with adrenocortical hyperplasia. *Nat. Genet.* 38: 794-800.

## CHROMOSOMAL LOCATION

Genetic locus: PDE11A (human) mapping to 2q31.2; Pde11a (mouse) mapping to 2 C3.

## SOURCE

PDE11A (H-178) is a rabbit polyclonal antibody raised against amino acids 373-535 mapping within the GAF1 domain of PDE11A of human origin.

## PRODUCT

Each vial contains 200 µg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

## RESEARCH USE

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

## APPLICATIONS

PDE11A (H-178) is recommended for detection of PDE11A 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).

PDE11A (H-178) is also recommended for detection of PDE11A in additional species, including equine, canine, bovine and avian.

Suitable for use as control antibody for PDE11A siRNA (h): sc-76095, PDE11A siRNA (m): sc-76096, PDE11A shRNA Plasmid (h): sc-76095-SH, PDE11A shRNA Plasmid (m): sc-76096-SH, PDE11A shRNA (h) Lentiviral Particles: sc-76095-V and PDE11A shRNA (m) Lentiviral Particles: sc-76096-V.

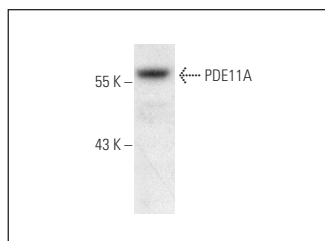
Molecular Weight of PDE11A isoforms: 65-78 kDa.

Positive Controls: Hep G2 cell lysate: sc-2227.

## RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use goat anti-rabbit IgG-HRP: sc-2004 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible goat anti-rabbit IgG-HRP: sc-2030 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 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 goat anti-rabbit IgG-FITC: sc-2012 (dilution range: 1:100-1:400) or goat anti-rabbit IgG-TR: sc-2780 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

## DATA



PDE11A (H-178): sc-98557. Western blot analysis of PDE11A expression in Hep G2 whole cell lysate.

## SELECT PRODUCT CITATIONS

- Dong, H., et al. 2010. Inhibition of PDE3, PDE4 and PDE7 potentiates glucocorticoid-induced apoptosis and overcomes glucocorticoid resistance in CEM T leukemic cells. *Biochem. Pharmacol.* 79: 321-329.

## STORAGE

Store at 4° C, \*\*DO NOT FREEZE\*\*. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.