PRODUCT INFORMATION

PDE2A (human, recombinant; aa 215-900)

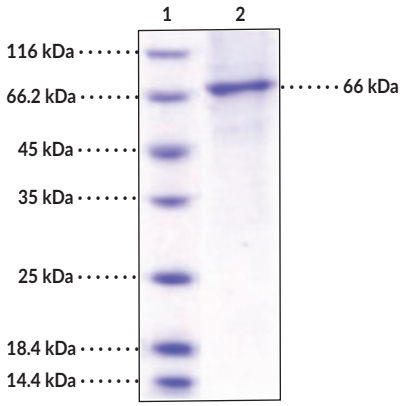
Item No. 32037

Overview and Properties

Synonyms:	CGS-PDE, CGMP-Dependent 3',5'-Cyclic Phosphodiesterase, Cyclic GMP-Stimulated Phosphodiesterase, Phosphodiesterase 2A, CGMP-Stimulated
Source:	Recombinant human C-terminal His-tagged PDE2A expressed in insect cells
Amino Acids:	215-900
Molecular Weight:	80 kDa
Storage:	-80°C (as supplied)
Stability:	≥1 year
Purity:	≥90% estimated by SDS-PAGE
Supplied in:	Lyophilized from sterile 20mM Tris, pH 7.4, with 500 mM sodium chloride and 10% glycol
Endotoxin Testing:	<1.0 EU/µg, determined by the LAL endotoxin assay

Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

Image



Lane 1: MW Markers
Lane 2: PDE2A (human, recombinant; aa 215-900)

Figure 1: SDS-PAGE Analysis of PDE2A (human, recombinant; aa 215-900)

CAYMAN CHEMICAL
1180 EAST ELLSWORTH RD
ANN ARBOR, MI 48108 · USA
PHONE: [800] 364-9897
[734] 971-3335
FAX: [734] 971-3640
CUSTSERV@CAYMANCHEM.COM
WWW.CAYMANCHEM.COM

PRODUCT INFORMATION

Description

Phosphodiesterase 2A (PDE2A) is a cGMP-stimulated cyclic nucleotide phosphodiesterase that hydrolyzes cGMP and cAMP.[1] It is a 941-amino acid protein comprised of an N-terminal domain (1-214), GAF-A domain (215-372), GAF-B domain (393-541), and a catalytic domain (579-941) and functions as a homodimer.[2] PDE2A is expressed in the brain and to a lesser extent in heart, placenta, lung, skeletal muscle, kidney, spleen, and pituitary.[3] Upon cGMP binding to the GAF-B domain, PDE2A is activated and hydrolyzes cAMP and cGMP to regulate cell signaling.[1] *PDE2A* mRNA levels are reduced in postmortem amygdala from patients with schizophrenia, bipolar disorder, and major depressive disorder compared with healthy controls.[4] PDE2A brain activity is increased in the *Fmr1*$^{-/-}$ mouse model of fragile X syndrome and administration of the selective PDE2A inhibitor BAY 60-7550 (Item No. 10011135) restores axonal length and spine maturation and attenuates social discriminatory and vocalization deficits in *Fmr1*$^{-/-}$ young mice.[5] Adenovirus shRNA knockdown of *Pde2a* attenuates bronchoalveolar lavage fluid (BALF) neutrophilia, reduces lung levels of inducible nitric oxide synthase (iNOS), and increases lung cAMP levels in a mouse model of acute lung injury.[6] Cayman's PDE2A (human, recombinant; aa 215-900) protein consists of 706 amino acids and has a calculated molecular weight of 80 kDa. By SDS-PAGE, under reducing conditions, the apparent molecular mass of the protein is 66 kDa.

References

1. Zhang, C., Lueptow, L.M., Zhang, H.-T., *et al.* The role of phosphodiesterase-2 in psychiatric and neurodegenerative disorders. *Phosphodiesterases: CNS Functions and Diseases.* Zhang, H.T., Xu, Y., and O'Donnell, J.M., editors, *Springer International Publishing AG* (2017).
2. Pandit, J., Forman, M.D., Fennell, K.F., *et al.* Mechanism for the allosteric regulation of phosphodiesterase 2A deduced From the X-ray structure of a near full-length construct. *Proc. Natl. Acad. Sci. USA* **106(43)**, 18225-18230 (2009).
3. Stephenson, D.T., Coskran, T.M., Wilhelms, M.B., *et al.* Immunohistochemical localization of phosphodiesterase 2A in multiple mammalian species. *J. Histochem. Cytochem.* **57(10)**, 933-949 (2009).
4. Farmer, R., Burbano, S.D., Patel, N.S., *et al.* Phosphodiesterases PDE2A and PDE10A both change mRNA expression in the human brain with age, but only PDE2A changes in a region-specific manner with psychiatric disease. *Cell. Signal.* **70**, 109592 (2020).
5. Maurin, T., Melancia, F., Jarjat, M., *et al.* Involvement of phosphodiesterase 2A activity in the pathophysiology of fragile X syndrome. *Cereb. Cortex* **29(8)**, 3241-3252 (2019).
6. Rentsendorj, O., Damarla, M., Aggarwal, N.R., *et al.* Knockdown of lung phosphodiesterase 2A attenuates alveolar inflammation and protein leak in a two-hit mouse model of acute lung injury. *Am. J. Physiol. Lung Cell. Mol. Physiol.* **301(2)**, 161-170 (2011).

CAYMAN CHEMICAL
1180 EAST ELLSWORTH RD
ANN ARBOR, MI 48108 · USA
PHONE: [800] 364-9897
[734] 971-3335
FAX: [734] 971-3640
CUSTSERV@CAYMANCHEM.COM
WWW.CAYMANCHEM.COM