

## Rabbit Polyclonal Anti-PDE5A antibody

Catalog Number: PD5A-101AP

Lot Number:

### General Information

|                                 |   |
|---------------------------------|---|
| <b>Product</b>                  | PDE5A Antibody  |
| <b>Description</b>              | cGMP-specific 3',5'-cyclic phosphodiesterase isoform 1 Antibody Affinity Purified   |
| <b>Accession #</b>              | Uniprot: O76074<br>NCBI: NP_001074.2  |
| <b>Verified Applications</b>    | CM, ELISA, ICC/IF, IHC-Fr, IHC-P, IP, WB  |
| <b>Species Cross Reactivity</b> | Human, Mouse, Pig, Rat  |
| <b>Host</b>                     | Rabbit  |
| <b>Immunogen</b>                | Synthetic peptide common to all PDE5A variants taken within amino acid region 120-170 on human PDE5A protein.   |
| <b>Specificity</b>              | This antibody detects 99 and 89 kDa PDE5A proteins in various tissues. This antibody does not cross-react with other PDE family members.  |
| <b>Alternative Nomenclature</b> | 5''-cyclic phosphodiesterase antibody, CGBPDE antibody, cGMP binding cGMP specific 3' 5' cyclic nucleotide phosphodiesterase antibody, cGMP-specific 3'' antibody, CN5A antibody, CN5N antibody, Pde5a antibody |

### Physical Properties

|   |  |
|---|--|
| <b>Quantity</b>                           | 100 µg   |
| <b>Volume</b>                             | 200 µl   |
| <b>Form</b>                               | Affinity Purified Immunoglobulins                    |
| <b>Immunoglobulin &amp; Concentration</b> | 0.55-0.60 mg/ml IgG in antibody stabilization buffer |
| <b>Storage</b>                            | Store at -20°C for long term storage.                |

### Recommended Dilutions

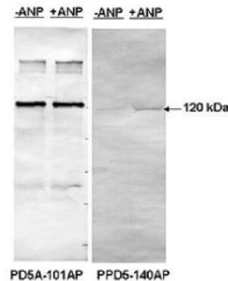
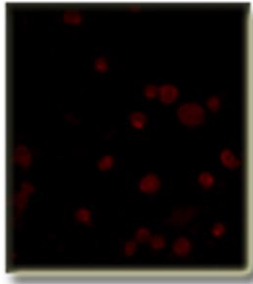
|                             |               |
|-----------------------------|---------------|
| <b>DOT Blot</b>             | 1:10,000      |
| <b>ELISA</b>                | 1:10,000      |
| <b>Immunocytochemistry</b>  | 1:250         |
| <b>Immunofluorescence</b>   | 1:250         |
| <b>Immunohistochemistry</b> | 1:250         |
| <b>Immunoprecipitation</b>  | 1:250         |
| <b>Western Blot</b>         | 1:500-1:1,000 |

## Related Products

## Catalog #

|                                      |             |
|--------------------------------------|-------------|
| <b>FITC-Conjugated</b>               | PD5A-FITC   |
| <b>HRP-Conjugated</b>                | PD5A-HRP    |
| <b>Anti-Recombinant PDE5A</b>        | PD5A-112AP  |
| <b>Phospho-PDE5A</b>                 | PPD5A-140AP |
| <b>Antigenic Blocking Peptide</b>    | P-PD5A      |
| <b>Western Blot Positive Control</b> | PC-PD5A     |

## Application Verification:



CM of cells expressing PDE5 with PD5A-101AP. 1:200 antibody dilution.

WB of recombinant GFP-PDE5A1 and Phospho-PDE5A antibody. Overexpressing cells were treated with or without ANP. Antibody dilution 1:500 in DiluObuffer. Blot was stripped with StripObuffer and reprobed with PPD5A-101AP.

Dilutions are for reference only. Applications not listed above are not necessarily precluded from working with this antibody. Investigators intending to use an application that has not been verified can request a complimentary sample.

## Overview:

The cyclic monophosphate nucleotides, cyclic adenosine monophosphate (cAMP) and cyclic guanosine monophosphate (cGMP) are found ubiquitously in mammalian cells and act as second messenger transducers to effect the intracellular actions of a variety of G-protein coupled receptors (GPCRs) for hormones, cytokines, and neurotransmitters. Cyclic nucleotides are important intracellular second messengers which play important role in a variety of signal transduction process. The cyclic nucleotides are hydrolyzed and compartmentalized by a family of enzymes called phosphodiesterases. One of the many phosphodiesterases that compartmentalized and hydrolyze cGMP in various tissues is phosphodiesterase type 5A (PDE5A). The cGMP is involved in nitric oxide signaling as well as cell signaling associated with natriuretic peptides and gulanlylins. Some of the intracellular binding sites for the cGMP include cyclic nucleotide gated ion channels, cGMP-dependent protein kinases, and cyclic GMP binding phosphodiesterases (cGB-PDEs). The cGB-PDEs include PDE2, PDE3, PDE5 and PDE10; the members of these families contain various structural and functional motifs that are conserved. Most of these proteins contain dimeric subunits that contain a highly conserved cGMP binding site and a phosphodiesterase catalytic site. The cGMP-specific phosphodiesterase type-5A (PDE5A) family is comprised of single gene with multiple splice variants (PDE5A1 and PDE5A2) generated by RNA splicing and use the of alternate initiation sites (1, 2). PDE5 is highly expressed in aorta, lungs, intestine, kidney adrenal gland, cerebellum, and cerebrum. In cerebellum, the PDE5 is highly expressed during neonatal development in Purkinje cells layer. PDE5 is also abundant in vascular smooth muscle regulating cGMP levels and vascular smooth muscle tonicity. In corpus cavernosum inhibition of PDE5 by sildenafil corrects erectile dysfunctions. The nitric oxide donor sodium nitroprusside (SNP) stimulate PDE5 activity by cGMP-dependent kinase phosphorylation (Rybalkin et. al., 2002; Murthy 2001). PDE5A1 has 875 amino acids (99.5 kDa). The amino terminal 142 amino acid of the PDE5 gene showed no sequence homology with other PDEs and also contained serine 92 that is phosphorylated by cGMP-kinases (McAllister et al., 93).

The PDE5-selective antibody (PD5A-101AP) was generated using cyclic peptide methodology that results in higher titer and specificity (3). The PDE5-selective antibodies are generated against peptides from unique sequences on the PDE5A gene. The affinity purified antibody labels 99 and 89 kDa PDE5A1 and PDE5A2 proteins using PDE5A WB positive controls (PC-PD5A). The PDE5A-specific antiserum has no cross reactivity against PDE5B protein or any other member of the fast growing family of PDEs. FabGennix can conjugate antibodies with enzymes, fluorescent probes upon request at extra charge. We provide well characterized antibodies to other PDE family members including family selective, family subtype-selective, and family subtype variant selective antibodies.

### References:

1. Lin et al. Phosphodiesterases as therapeutic targets. *Urology* 61; 685-691. 2003
2. Rybalkin SD., Rabalkina IG. Feil R., Hoffmann F., Beavo J. A. *J. Biol. Chem.* 277; 3310-3317, 2002.
3. Murthy K. S. *Biochem. J.* 360, 199-208, 2001.
4. McAllister –Lusas, Sonneberg W. K., et. al., *J. Biol. Chem. J. Biol. Chem.* 268; 22863-22871, 1993

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