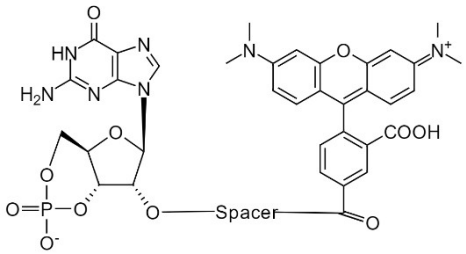
TAMRA-cGMP PDE type 5 substrate *Red Fluorescence*

Product Information

Name	**TAMRA-cGMP phosphodiesterase (PDE) V substrate *Red Fluorescence***
Catalog Number	FP-JQ7120, 0,5 µmol
Excitation / Emission	540/590 nm
Cutoff	570 nm
Recommended plate	Solid black



Storage: Unless otherwise specified, all unused stock solutions should be aliquoted into single-use portions and stored at –20 °C immediately after preparation. To maintain reagent integrity, avoid repeated freeze–thaw cycles. Minimize light exposure

WARNING: The following protocol is intended as a general guideline and may require adaptation to suit your specific experimental needs or conditions.

This red cGMP derivative is a selective substrate for phosphodiesterase type V (PDE V). It is ideally suited for assaying PDE V activity or screening PDE V inhibitors, particularly when used in combination with an anti-cGMP antibody in FRET or fluorescence polarization (FP) formats.

Phosphodiesterases (PDEs) are a family of enzymes responsible for degrading the second messenger molecules cyclic AMP (cAMP) and cyclic GMP (cGMP). By modulating the localization, duration, and amplitude of cyclic nucleotide signaling within subcellular domains, PDEs play a critical role in regulating signal transduction pathways.

Due to their distinct tissue distribution, structural diversity, and functional specificity, PDEs are attractive targets for pharmacological intervention. Inhibiting PDE activity can enhance or prolong physiological responses mediated by cAMP or cGMP by preventing their breakdown.

PDE inhibitors have emerged as promising therapeutic agents in various fields, including pulmonary arterial hypertension, coronary heart disease, dementia, depression, and schizophrenia. A well-known example is Sildenafil (Viagra), a selective PDE V inhibitor that enhances the vasodilatory effects of cGMP in the corpus cavernosum, and is widely used to treat erectile dysfunction.

Directions for Use

Preparation of Stock Solutions

To prepare a 1 mM stock solution of TAMRA-cGMP PDE V substrate:

1. Add 500 µL of DMSO to the vial containing 0.5 µmol of TAMRA-cGMP PDE V.
2. Mix gently until fully dissolved.

Preparation of Working Solutions

To prepare a 2X assay solution of TAMRA-Cyclic-3',5'-GMP PDE V substrate:

Dilute the 1 mM stock solution of TAMRA-Cyclic-3',5'-GMP PDE V substrate into your PDE assay buffer (e.g., 10 mM Tris-HCl, pH 7.4, 10 mM $MgCl_2$, 1 mM $MnCl_2$) to make a final concentration to 200-400 nM.

Note: Prepare only the amount required for immediate use. Do not store the working solution for future experiments.

Example Experimental Protocol

1. Reaction Setup
   Mix equal volumes of your PDE V standards or test samples with the 2X TAMRA-Cyclic-3',5'-GMP PDE V substrate assay solution.
   Incubate the mixture at room temperature for at least 1 hour.

2. Fluorescence Polarization Measurement
   Measure fluorescence polarization using an excitation/emission (Ex/Em) setting of 540/590 nm.

Bibliography

Sandner P. *et al.*, Effects of PDE5 Inhibitors and sGC Stimulators in a Rat Model of Artificial Ureteral Calculosis, *PLOS ONE* 10(10) (2015)

Ordering information

Catalog size quantites and prices may be found at http://www.fluoprobes.com
Please inquire for higher quantities (avaibility, shipment conditions).

For any information, please ask : Fluoprobes / Interchim; Hotline : +33(0)4 70 03 73 06

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