

1. PRODUCT DESCRIPTION

GENIUL_4900013000

PEMAX Reagent, 2 vials of 0,5 mg

What this product does

This product is comprised of a mix of photo-reactive azide forms of phenanthridium and is designed for photo labelling of nucleic acids present in an aqueous suspension.

The yield of this PEMAX Reagent is highly influenced by the use of vPCR buffers developed by GeniUL. The combination of PEMAX Reagent and vPCR buffers allows extending the implementation of viability PCR technology, detecting cells with intact cell membrane structure and also detecting cells with capability to actively maintain bacterial homeostasis, as a result of active metabolism. With the use of vPCR buffers, a small amount of PEMAX Reagent is able to pass through undamaged cell membranes and depending to the metabolic state of cell it can then be returned to the exterior by the cell.

After the treatment of microbial aqueous suspension with vPCR buffers and PEMAX Reagent, DNA/RNA from active or functional cells with undamaged membrane will be free of labelling and will be detected only DNA/RNA from these cells by different analytical procedures such as PCR, flow cytometry or fluorescence microscopy.

The combination of PEMAX Reagent and vPCR Buffers is a technology developed by GeniUL, S.L.

<http://www.sciencedirect.com/science/article/pii/S0890850815000304>

Purity: >95%

Storage

Upon receipt, store in a lab fridge at 0-5°C. Protect from direct light.

Contents

PEMAX Reagent, 2 vials of 0,5 mg.

Additional Equipment and Consumable Required

- GeniUL Photoactivation systems:
 - PhAST Blue (Cat.No. 9000700)
 - PAUL System (Cat.No. 90001400)

- vPCR Buffers:

Standard Buffer (Cat.No. 4900018000)

Reaction Buffer + (Cat.No. 4900018001)

Anaerobic Buffer (Cat.No. 4900018002)

- Isothermal system for micro-tubes incubation:

Dark Box System (Cat.No. 90001200)

- Reaction tubes 2 Zip Bag (Containing 100 tubes each) (Cat.No. 4900019000)

- D-Bag system:

D-Bag Holder (Cat.No. 900099645)

D-Bag: 4 units/100 of active charcoal pellets each. Funnel Ø45 included (Cat.No.4900009500)

Microbiological state

Sterile product.

Specimen & Reagent preparation

Refer to procedure.

See section 2: Operating procedure.

Applicability statement

The amount of reagent contained in standard reactions (e.g. 50 µM) is sufficient to neutralize the DNA of at least $1 \cdot 10^5$ cells with damaged membranes. Other compounds present in the sample can interfere in different ways in the yield of the reaction. For this reason, if possible, one or more washing steps (e.g. by centrifugation-resuspension with appropriate buffer) are advisable before the use of the reagent tube.

This product has been formulated according to complain the range of viability dyes concentration used in public scientific works.

Centrifuge the 0,5 mg micro container to minimize the risk of reagent loss after opening.

Each vial contains 0,5 mg of PEMAX Reagent that must be dissolved in sterile water, to a desired stock concentration.

In order to ensure a long conservation time, it is advisable to aliquot the stock solution in several micro tubes (during this step protect the reagent from light). Store the aliquots in the dark at -20°C and minimize the number of freeze/thaw cycles.

Example:

- Solution stock preparation:

If 500 μ l are added to a 0,5 mg micro container, the final concentration of the stock solution will be 2000 μ M.

- Reaction:

If 12,5 μ l of the stock solution (2000 μ M) are added to 490 μ l of sample, the final concentration in the reaction will be 50 μ M.

40* assays can be performed with 0,5 mg micro container by using 50 μ M concentration and a final reaction volume of 500 μ l.

* Number of assays will vary with the final concentration used and/or final volumes reaction.

General Rules

Please, read carefully the MSDS of this product, before use.

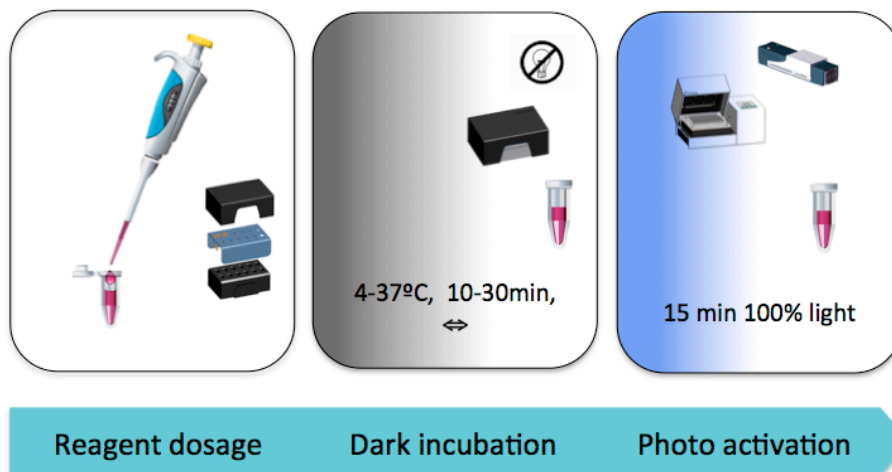
This product is sold for research purposes. It is not intended for food, drug, household, agricultural or cosmetic use. Its use must be supervised by a technically qualified, individual experienced, in handling potentially hazardous chemicals.

Follow the general procedures of a molecular biology laboratory, especially those aimed at preventing cross-contamination. It is advisable to use micro-pipette tips with filter and the use of gloves and personal protection. The use of biological safety cabinets is recommended if you believe that your sample handling system can generate aerosols.

Users should make independent decisions regarding completeness of the information based on all sources available.

GeniUL shall not be held liable for any damage resulting from handling or contact with the above product.

2. OPERATING PROCEDURE



Step	Action
1	Add sample in a sterile transparent micro-tube (Reaction tubes)
2	Centrifuge the sample and eliminate the supernatant
3	Resuspend the cell pellet with vPCR buffer suitable for microorganism to study
4	Add PEMAX Reagent stock solution in the right concentration to obtain the desired final concentration in the reaction. Protect from light (Dark Box System)
5	Homogenizes the sample with the aid of a vortex or a micro-pipette
6	Incubate on darkness at optimum microorganism growth temperature during at least 30 minutes. <i>The incubation temperature is related to microorganism type. During this step if you don't have an isothermal mixer, complete the procedure by the means of a vortex.</i>
7	Proceed with the photoactivation step in PhAST Blue or PAUL System (100% 15 min)

After step 7 the sample is ready for nucleic acid extraction-purification using routine procedures. The sample is also ready to the following steps of your fluorescence microscopy method. If you use flow cytometry detection methods probably you will need an additional sample-washing step.

Most of commercial kits start DNA extraction with sample volumes of 200 µl; if you need to work with the entire sample volume you must do an additional step of centrifugation and supernatant elimination.

Waste liquids can retain certain levels of Phenanthridium derivatives dyes with reversible DNA interaction. For this reason, as happens with other DNA staining reagents, these residues should be handled with care and managed according good laboratory practices and follow the MSDS. For this

purpose we recommend to fix these residues using our D-Bag System: D-Bag Holder (Cat. No. 900099645) and Decontaminating Bag (Cat. No. 490009500).

3. FREQUENTLY ASKED QUESTIONS

For additional questions about our products read our Doc. Code 450000025.

4. WARRANTY AND DISCLAIMER OF LIABILITY

GeniUL warrants that this product is free from defects in materials and workmanship through the expiration date printed on the label and only if the following are complied with:

- (1) The product is used according to the guidelines and instructions set.
- (2) GeniUL does not warrant its product against any and all defects when: the defect is as a result of material or workmanship not provided by GeniUL; defects caused by misuse or use contrary to the Instructions supplied, or if the product is contaminated by improper handling or storage.
- (3) All warranties of merchantability and fitness for a particular purpose, written, oral, expressed or implied, shall extend only for a period of one year from the manufacturing date. There are no other warranties that extend beyond those described in this document.
- (4) GeniUL does not undertake responsibility to any purchaser of its product for any undertaking, representation or warranty made by any dealers or distributors selling its products beyond those herein expressly expressed unless expressed in writing by an officer of GeniUL.
- (5) GeniUL does not assume responsibility for incidental or consequential damages, including, but not limited to responsibility for loss of use of this product, removal or replacement labour, loss of time, inconvenience, and expenses for telephone calls, shipping expenses, loss or damage to property or loss of revenue, personal injuries or wrongful death.
- (6) GeniUL reserves the right to replace or allow credit for any modules returned under this warranty.

5. OTHER INFORMATION

This product has been released for evaluation and research purposes

Some applications, in which Phenantridinium can be used, may be covered by patents issued and applicable in the United States, Japan and certain other countries. The use of this product not contains any external license or right for their commercial use.

The use of this product for vPCR, is covered by patent pending request belonging to GeniUL. The customers that received this product can use it for research and evaluation purposes without infringing our intellectual property rights.

It is not intended for food, drug, household, agricultural or cosmetic use. Its use must be supervised by a technically qualified individual experienced in handling potentially hazardous chemicals. Users should

make independent decisions regarding completeness of the information based on all sources available. GeniUL shall not be held liable for any damage resulting from handling or contact with the above product.

6. CONTACT AND SUPPORT

If you have questions or experience problems with this or any other product of GeniUL, please contact our technical support staff (see details on www.geniul.com). Our scientists are committed to provide assistance quickly and effectively. We also would like to you contact us if you have suggestions to improve our product performance or the use of our products in new forms or applications.

Instruments Útils de Laboratori GeniUL, S.L.

Edifici GAIA - Parc UPC
Rambla Sant Nebridi 22
08222 Terrassa (Barcelona)
Spain
T. (+34) 93 619 03 12 / F. (+34) 93 274 01 44
geniul@geniul.com