# Propidium Iodide

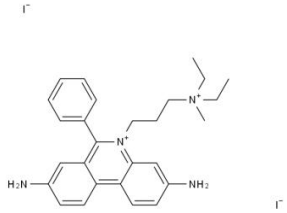
**Cat**: IP5030
**Storage**: Powder:2-8℃, 2 years;Insolvent：-20℃,6 months;-80℃,1 year (protect from light)

## Introduction

Propidium Iodide (PI) is a nucleic acid fluorescent dye. It can not penetrate the intact cell membrane, but can penetrate the cell membrane of dead cells and apoptotic cells in the middle and late stages to stain the nucleus. Therefore, PI is often used as a fluorescent probe for the detection of apoptosis or necrosis. In flow cytometry analysis, PI is often used in combination with other dyes such as Calcein-AM, Hoechst 33258 or Hoechst 33342 to distinguish between early and late apoptotic cells and dead cells. In addition, PI is also often used as a multi-color fluorescent dye.

## Parameter

CAS: 25535-16-4
Molecular Formula: $C_{27}H_{34}I_2N_4$
Molecular Weight: 668.39
Appearance: Red Solid
Solubility: Soluble in DMSO ≥10mg/mL;Soluble in Water ≥1mg/mL



## Protocols (*only for reference*)

### Preparation of stock solution

A stock solution of 1 mM was prepared with ultrapure water or DMSO. For example, 1 mg PI powder was dissolved in 1.4961 mL solvent.
Note :

a. Unused storage solution is recommended to be stored at -20℃ to avoid repeated freezing and thawing.
b. Moisture-absorbing DMSO has a significant effect on the solubility of the product, please use the newly opened DMSO.

### Preparation of working fluid

The stock solution was diluted with a suitable buffer ( such as serum-free medium or PBS, etc. ) to prepare a PI working solution of 10-50 μM.
Note :

a. The final concentration of the working solution is recommended to be optimized according to different cell lines and experimental systems.
b. When it is found that it is difficult to dissolve, appropriate ultrasonic treatment can be used to promote dissolution.
c. Please adjust the concentration of the working fluid according to the actual situation, and use it now.

### Cell staining

### Suspension cells

1. The cells were collected by centrifugation and washed twice with PBS for 5 minutes each time.

The cell density was 1 × $10^6$ / mL.

2. Add 1 mL working solution and incubate at room temperature for 5-10 min.
3. 400 xg, centrifuge for 3-4 min, discard the supernatant.
4. Add PBS to wash the cells twice, 5 min each time.
5. After resuspending cells with 1 mL serum-free medium or PBS, fluorescence microscopy or flow cytometry was used for observation.

**Adherent cells**

1. Adherent cells were cultured on sterile coverslips.
2. Remove the coverslip from the medium and remove the excess medium.
3. Add 100 μL PI working solution, gently shake it to completely cover the cells, and incubate for 5-30 minutes.
4. The PI working solution was removed and washed 2-3 times with the medium, 5 minutes each time, and observed using a fluorescence microscope.

Note : If flow cytometry is required, the cells need to be digested and resuspended with trypsin before staining.

**Note**

1. Fluorescent dyes all have quenching problems, please try to avoid light to slow down the fluorescence quenching.
2. PI has a certain irritation to the human body, please pay attention to appropriate protection.
3. For your safety and health, please wear experimental clothes and disposable gloves.
4. This product is for scientific research only. Do not use in medicine, clinical diagnosis or treatment, food and cosmetics. Do not store in ordinary residential areas.

**Related Literature**

[1]. Tan P, Wu C, Tang Q, Wang T, Zhou C, Ding Y, Fu H, Xu S, Feng Y, Zhang Y, Dai Q, Ma X. pH-Triggered Size-Transformable and Bioactivity-Switchable Self-Assembling Chimeric Peptide Nanoassemblies for Combating Drug-Resistant Bacteria and Biofilms. Adv Mater. 2023 Jul;35(29):e2210766. doi: 10.1002/adma.202210766. Epub 2023 Jun 5. PMID: 37143434.（IF：32.08）

[2]. Zhou Y, Huang J, Wang G, Zhai Z, Ahmed MU, Xia X, Liu C, Jin Y, Pan X, Huang Y, Wu C, Zhang X. Polymyxin B sulfate inhalable microparticles with high-lectin-affinity sugar carriers for efficient treatment of biofilm-associated pulmonary infections. Sci Bull (Beijing). 2023 Dec 30;68(24):3225-3239. doi: 10.1016/j.scib.2023.11.004. Epub 2023 Nov 2. PMID: 37973467.（IF：18.9）

**Note: See more information on http://www.solarbio.com/**