

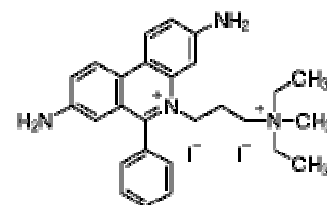
## Propidium Iodide (PI), 1.0 mg/mL

*Cell Staining*

**Catalogue Number:** CD057

**Product Description:** An intercalating agent and a fluorescent molecule with a molecular mass of 668.4 Da that can be used to stain DNA. When excited by 488nm of laser light, it can be detected with 562-588nm band pass filter. Flow cytometry is used to evaluate cell viability or DNA content in cell cycle analysis. It can be used to differentiate necrotic, apoptotic and normal cells. Propidium Iodide is the most commonly used dye to quantitatively assess DNA content.

Propidium iodide (PI) binds to DNA by intercalating between the bases with little or no sequence preference and with a stoichiometry of one dye per 4–5 base pairs of DNA. PI also binds to RNA, necessitating treatment with nucleases to distinguish between RNA and DNA staining. Once the dye is bound to nucleic acids, its fluorescence is enhanced 20- to 30-fold, the fluorescence excitation maximum is shifted ~30–40 nm to the red and the fluorescence emission maximum is shifted ~15 nm to the blue. Although its molar absorptivity (extinction coefficient) is relatively low, PI exhibits a sufficiently large Stokes shift to allow simultaneous detection of nuclear DNA and fluorescein-labeled antibodies, provided the proper optical filters are used. PI is suitable for fluorescence microscopy, confocal laser scanning microscopy, flow cytometry, and fluorometry.



**Application:** PI is membrane impermeant and generally excluded from viable cells. PI is commonly used for identifying dead cells in a population and as a counterstain in multicolor fluorescent techniques. The counterstaining protocols below are compatible with a wide range of cytological labeling techniques—direct or indirect antibody-based detection methods, mRNA in situ hybridization, or staining with fluorescent reagents specific for cellular structures. These protocols can be modified for tissue staining.

**Synonyms:** 3,8-Diamino-5-[3-(diethylmethylammonio)propyl]-6-phenylphenanthridinium diiodide

**CAS Number:** 25535-16-4

**Formula:** C<sub>27</sub>H<sub>34</sub>I<sub>2</sub>N<sub>4</sub>

**Molecular Weight:** 668.39

**Pack Size:** 1 ml

**Storage:** 4°C

