

DATASHEET

Propidium Iodide

Product overview

Name	Propidium Iodide
Cat No	HB0820
Alternative names	PI
Biological description	Propidium iodide (PI) is a widely used red-fluorescent intercalating agent that binds and labels nucleic acids.

Propidium iodide is membrane impermeant and is therefore frequently used to selectively identify dead cells and is commonly used in flow cytometry to evaluate cell viability.

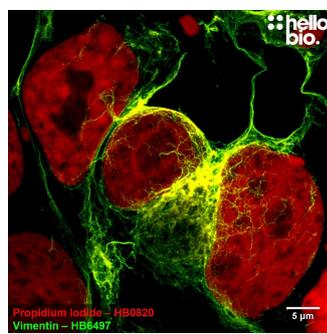
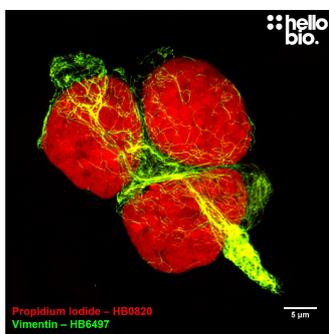
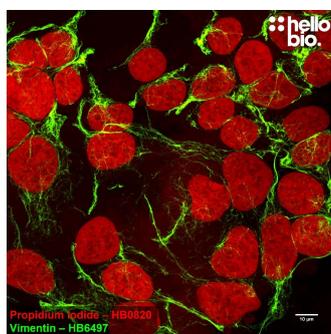
Propidium iodide (PI) is often used in flow cytometry, fluorescent microscopy and confocal laser scanning microscopy applications.

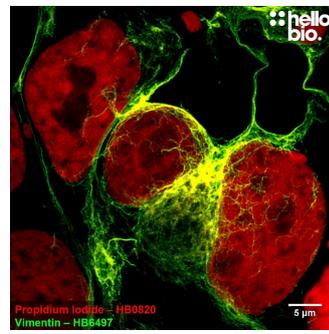
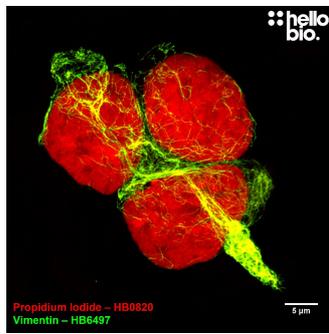
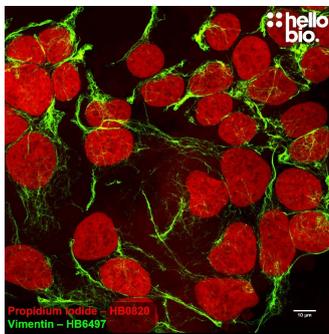
Frequently used with **Oxazole Yellow (YP1)** when staining for apoptotic and necrotic cells as apoptotic cells remain impermeant to propidium iodide but permeable to Oxazole Yellow (YP1).

Once bound to the nucleic acids, its fluorescence is enhanced 20- to 30-fold. Wavelength Maxima: Excitation ~535nm, Emission ~617nm

Biological action	Dyes & stains
Purity	>97%
Description	Red-fluorescent cell viability stain

Images





Biological Data

Application notes

#Protocol 1: Propidium iodide counterstaining of HEK293T cells

- HEK293T cells were cultured on coverslips in 10% FBS in DMEM and fixed with 4% PFA. Immunocytochemistry was performed following our [ICC protocol](#) using an anti-vimentin monoclonal antibody at 1 µg/ml.
- Propidium iodide working solution was prepared consisting of 1 µg/ml Propidium Iodide and 10 µg/ml RNase A and incubated with cells for 30 minutes at room temperature.
- Following washing with PBS, coverslips were mounted and imaged using a confocal microscope using either a 532nm or 514nm laser for excitation

Solubility & Handling

Storage instructions

+4 °C

Solubility overview

Soluble in water (5 mM)

Important

This product is for RESEARCH USE ONLY and is not intended for therapeutic or diagnostic use. Not for human or veterinary use.

Chemical Data

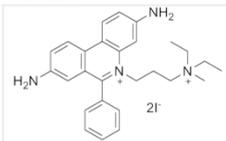
Chemical name

2,7-Diamino-9-phenyl-10 (diethylaminopropyl)-phenanthridium iodide methiodide

Molecular Weight

668.39

Chemical structure



Molecular Formula

C₂₇H₃₄I₂N₄

CAS Number

25535-16-4

PubChem identifier

104981

SMILES

CC[N+](C)(CC)CCC[N+]=C2C=C(C=CC2=C3C=CC(=CC3=C1C4=CC=CC=C4)N).[I-].[I-]

InChiKey

XJMOSONTPMZWPB-UHFFFAOYSA-M

MDL number

MFCD00011921

Appearance

Purple solid

Excitation

535nm

Emission

617nm

References

Analysis of apoptosis by propidium iodide staining and flow cytometry.

Riccardi C *et al* (2006) Nat Protoc 1(3)

PubMedID [17406435](#)

The DNA intercalators ethidium bromide and propidium iodide also bind to core histones.

Banerjee A *et al* (2014) FEBS Open Bio 4

PubMedID [24649406](#)

DNA staining for fluorescence and laser confocal microscopy.

Suzuki T *et al* (1997) J Histochem Cytochem 45(1)

PubMedID [9010468](#)
