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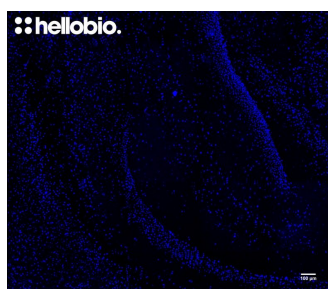
# DATASHEET

Hoechst 33342

## Product overview

<b>Name</b>	Hoechst 33342
<b>Cat No</b>	HB0787
<b>Alternative names</b>	H33342, Bisbenzimidazole H 33342
<b>Biological action</b>	Dyes & stains
<b>Purity</b>	>98%
<b>Description</b>	Blue fluorescent DNA stain. Cell permeable. Nuclear stain.

## Images



## Biological Data

### Biological description

#### Overview

Blue fluorescent DNA stain that is commonly used in fluorescent microscopy. It is frequently used as a nuclear stain to stain nuclei. It is excited by UV light.

Hoechst 33342 is cell permeable and has greater cell permeability than [Hoechst 33258](#). The stain can be used on both live and fixed cells and is often used as an alternative to [DAPI](#).

Hoechst 33342 binds to the AT-rich regions of the minor groove in DNA which renders it specific for nuclear chromatin. Its fluorescent intensity depends on the DNA content, chromatin structure and the position of the cell within the cell cycle.

#### Uses and applications

There is little fluorescent overlap with other commonly used small-molecule fluorophores / fluorescent proteins that emit in the green / red range. This makes it suitable for a wide range of applications.

#### Counterstain

Hoechst 33342 is commonly used as a counterstain in fluorescent imaging.

## Cell cycle studies / Apoptosis

Hoechst 33342 can stain the condensed nuclei of apoptotic cells to allow the identification of chromatin condensation and fragmentation. It is commonly used with **propidium iodide** to distinguish normal/live apoptotic and dead cell populations. It can additionally be used in conjunction with **arcidine orange** (AO) to distinguish apoptotic cells.

Incorporation of **BrdU** into DNA has a quenching effect on Hoechst fluorescence. Hoechst 33342 is also used in combination with BrdU to monitor cell cycle progression.

## Stem cells

Combination of the Hoechst 33342 stain with surface-marker phenotyping allows the characterisation of a sub-population of stem cells termed the 'side population' (SP).

### Application notes

#### #Protocol 1: Hoechst 33342 staining of mouse brain sections.

- 400µm mouse brain sections were cut using a vibratome and were incubated in carbogen bubbled artificial cerebral spinal fluid (aCSF).
- Sections were incubated in 1µg/ml Hoechst 33342 in aCSF for 20 minutes at 37°C before being washed for 10 minutes in aCSF.
- Sections were imaged on a Leica SP8 AOBS confocal laser scanning microscope using the 405nm laser line.

## Solubility & Handling

### Storage instructions Solubility overview Important

-20 °C

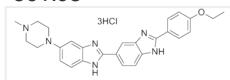
Soluble in water, and in DMSO

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 Molecular Weight Chemical structure

2-(4-ethoxyphenyl)-6-[6-(4-methylpiperazin-1-yl)-1H-benzimidazol-2-yl]-1H-benzimidazole  
561.93



### Molecular Formula CAS Number PubChem identifier SMILES InChi

C<sub>27</sub>H<sub>28</sub>N<sub>6</sub>O.3HCl

875756-97-1

1464

CCOC1=CC=C(C=C1)C2=NC3=C(N2)C=C(C=C3)C4=NC5=C(N4)C=C(C=C5)N6CCN(CC6)C  
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### InChiKey MDL number

PRDFBSVERLRRMY-UHFFFAOYSA-N

MFCD00012678

## References

### Labeling nuclear DNA with hoechst 33342.

Chazotte B (2011) Cold Spring Harb Protoc 2011(1)

PubMedID [21205857](#)

### Hoechst 33342 stain and u.v. laser exposure do not induce genotoxic effects in flow-sorted boar spermatozoa.

Parrilla I *et al* (2004) Reproduction 128(5)

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### Phototoxicity of Hoechst 33342 in time-lapse fluorescence microscopy.

Purschke M *et al* (2010) Photochem Photobiol Sci 9(12)

PubMedID [20931137](#)

