

## Calcein-AM

**Cat:** IC4630

**Storage:** Powder: -20°C, 1 year; Insolvent (mother liquid): -20°C, 6 months; -80°C, 1 year (protect from light)

### Introduction

Calcein-AM is a cellular staining reagent that fluorescently labels living cells. It penetrates the cell membrane and enters the cell, where it is sheared by intracellular esterases to form calcein, which is retained inside the cell and emits strong green fluorescence. Calcein-AM has low cytotoxicity compared to other similar reagents (e.g., BCECF, AM, and CFDA). Calcein has excitation and emission wavelengths of 490 nm and 515 nm, respectively.

Calcein-AM stains only living cells. As a nuclear stain, PI does not penetrate the cell membrane of living cells, but passes through the disordered region of the dead cell membrane to the nucleus and embeds itself in the cell's DNA double helix to produce a red fluorescence (excitation: 535 nm, emission: 617 nm), so PI stains only dead cells. Due to the fact that both Calcein and PI-DNA can be excited at 490 nm, fluorescence microscopy can be used to observe both live and dead cells simultaneously. Excited at 545 nm, only dead cells can be observed.

Based on the above characteristics, Calcein, AM and PI are often used in combination as a double stain for live and dead cells.

### Parameter

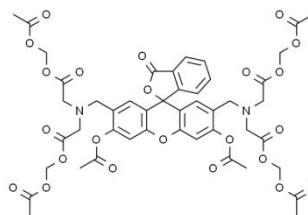
CAS: 148504-34-1

Molecular Formula: C<sub>46</sub>H<sub>46</sub>N<sub>2</sub>O<sub>23</sub>

Molecular Weight: 994.86

Appearance: Solid

Solubility: Soluble in DMSO ≥ 4mg/mL (Need ultrasonic)



### Protocols (only for reference)

#### 1. Preparation of storage solution

Prepare a 1 mM stock solution of Calcein-AM in DMSO. For example, 1 mg Calcein, AM powder was dissolved in 1.0052 mL DMSO.

Note:

- Unused storage solution is recommended to be stored in portions at -20°C to avoid repeated freezing and thawing.
- Moisture-absorbing DMSO has a significant effect on the solubility of the product, use freshly opened DMSO.

#### Preparation of working fluid

Dilute the reservoir solution with a suitable buffer (e.g., serum-free medium or PBS, etc.) to make a 1-50 μM Calcein-AM working solution.

**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 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 immediately after dissolution.
2. Add 1/10 cell culture medium volume of Calcein-AM solution to the cell culture medium.
  3. Incubate the cells at 37°C for 15-30 min.
  4. Wash the cells twice with PBS or appropriate buffer.
  5. Observe the cells with a fluorescence microscope with a 490 nm excitation wavelength and a 515 nm emission wavelength filter.

**Note**

1. All fluorescent dyes have quenching problems, please try to avoid light to slow down the fluorescence quenching.
2. If Calcein-AM is difficult to enter the cell, a surfactant such as Pluronic F127 can be used.
3. Calcein-AM solution at 1/10 concentration may also be used in place of the medium.
4. For your safety and health, please wear lab coat and disposable gloves.
5. This product is for scientific research use only. Do not use in medicine, clinical diagnosis or treatment, food and cosmetics. Do not store in ordinary residential areas.

**Related Literature**

- [1]. Wang Y, Zhang Y, Yang YP, Jin MY, Huang S, Zhuang ZM, Zhang T, Cao LL, Lin XY, Chen J, Du YZ, Chen J, Tan WQ. Versatile dopamine-functionalized hyaluronic acid-recombinant human collagen hydrogel promoting diabetic wound healing via inflammation control and vascularization tissue regeneration. *Bioact Mater.* 2024 Feb 14;35:330-345. doi: 10.1016/j.bioactmat.2024.02.010. PMID: 38379700. (IF: 18.9)
- [2]. Wan C, Wu Z, Ren M, Tang M, Gao Y, Shang X, Li T, Xia Z, Yang Z, Mao S, Zhou M, Ling W, Li J, Huo W, Huang X. In Situ Formation of Conductive Epidermal Electrodes Using a Fully Integrated Flexible System and Injectable Photocurable Ink. *ACS Nano.* 2023 Jun 13;17(11):10689-10700. doi: 10.1021/acsnano.3c01902. Epub 2023 May 16. PMID: 37191638. (IF: 18.02)

**Note: For more literature, please visit the Solarbio official website.**

**Related Products**

*IP5030 Propidium Iodide*