

Trypan Blue Staining Kit, 0.4%

Catalog No.: RA20107

Basic Information

Product name	Trypan Blue Staining Kit, 0.4%
Sizes	50 mL, 100 mL
Storage	2–8 °C
Shipping	Shipped with ice pack
Validity	12 months

Product Introduction

Trypan blue (also known as congo blue or trypan blue) has the molecular formula $C_{34}H_{24}N_6Na_4O_{14}S_4$, a molecular weight of 960.81, and CAS number 72-57-1. It is an anionic dye. Trypan blue cannot penetrate the intact plasma membrane of living cells; therefore viable cells remain unstained, exhibiting the so-called dye-exclusion phenomenon. In contrast, dead cells have increased membrane permeability, allowing the dye to enter and stain the cytoplasm blue. This property makes trypan blue the most frequently used agent for assessing cell viability. Loss of membrane integrity is generally accepted as an indicator of cell death. The effect is opposite to that of neutral red. Thus, trypan blue staining offers a simple and rapid way to distinguish live and dead cells, and is one of the most commonly used vital-dye methods in tissue and cell culture.

EnkiLife Trypan Blue Staining Solution (0.4%) is routinely used to evaluate plasma-membrane integrity and cell survival. Viable cells exclude the dye and remain colorless, whereas non-viable cells are stained pale blue. Trypan blue can also be phagocytosed by macrophages and is therefore suitable for in-vivo staining of these cells. After staining, direct counting under a microscope or photography followed by image analysis permits accurate quantification of viability; 0.4% is the most frequently used concentration.

Materials Required (Not Supplied)

1. PBS.
2. Hemocytometer, microscope.

Experimental procedure

1. Harvest cells: For adherent cells, digest with trypsin-EDTA solution and collect. For suspension cells,

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collect directly. Pellet cells by centrifugation at 1 000–2 000 g for 1 min, discard supernatant, and resuspend the cell pellet in 1 mL PBS.

2. Trypan blue staining: Transfer 100 µL cell suspension to a 1.5 mL or 0.5 mL tube, add 100 µL Trypan Blue Stain (0.4%), mix gently, and allow to stand for 3 min (staining time may be extended if necessary, but should not exceed 10 min).

3. Cell counting: Load stained cells into a hemocytometer and count. For accurate quantification, count at least 500 cells per sample, recording both total cells and blue (non-viable) cells.

Cell Viability Calculation

Cell viability (%) = [(Total cells – Blue cells) / Total cells] × 100%

Notes

1. Trypan Blue Stain (0.4%) is slightly irritating to humans; handle with appropriate precautions.
2. Note that apoptotic bodies may occasionally exclude trypan blue.
3. Use reagents promptly after opening to ensure consistent performance.
4. Wear a laboratory coat and disposable gloves for personal safety.

This product is for research use only!