0.4% Trypan Blue Solution (TBS2008)

Catalog	Unit Size
TBS2008	100ml

Description

Tribioscience Trypan Blue Solution (0.4%) is a vital stain used to assess cell viability by the dye exclusion test. It is commonly applied during routine hemocytometer-based cell counting in subculturing and can also be used whenever rapid and accurate cell viability assessment is needed. The dye exclusion principle relies on the fact that viable cells with intact membranes do not absorb impermeable dyes such as Trypan Blue, while non-viable cells with damaged membranes readily take up the dye.

Application

- Cell viability and cytotoxicity assays.
- Manual cell counting using a hemocytometer.
- Assessment of cell membrane integrity.
- Routine quality control in cell culture workflows.

Main Features

- Ready-to-use 0.4% solution.
- Rapid and reliable discrimination between live and dead cells.
- Compatible with a wide range of mammalian cells types.
- Suitable for routine laboratory use.
- Consistent performance and high reproducibility.

Storage

Store at room temperature.

Directions for Use

Prepare cell suspension

- Ensure the cell suspension is mostly single cells (<10% clusters).
- If necessary, dilute the sample in PBS, HBSS, or D-PBS to achieve an appropriate cell density.

Mix cells with Trypan Blue

- Dilute the cell suspension 1:1 with 0.4% Trypan Blue solution.
  Note: Trypan Blue binds to serum proteins. If the background is too dark, use HBSS or D-PBS for dilution instead.

Load the hemocytometer

- Place the coverslip on the hemocytometer chamber.
- Carefully fill the chamber with the Trypan Blue–treated cell suspension.
  Note: Do not overfill or underfill the chamber.

Incubate

- Allow the cells to incubate for 1–2 minutes at room temperature.
- For longer incubation, place the hemocytometer in a humid chamber.
  Important: Do not exceed 30 minutes; viable cells may begin to take up the stain after this time.

Count cells

- Place the hemocytometer under a microscope.
- Count cells in four 1×1 mm squares of a single chamber and calculate the average number of cells per square.
  Guidelines:
  - 20–50 cells per square is ideal.
  - 50 cells → dilute the suspension further.
  - <20 cells → use undiluted sample.

Calculate cell concentration and viability

- Cell count per mL:
  $\text{Cells/mL} = \text{Average count per square} \times \text{dilution factor} \times 10^4$
- Cell viability (%):
  $$\text{Viability (\%)} = \frac{\text{Number of viable (unstained) cells}}{\text{Total cells (viable + non-viable)}} \times 100$$

Relative Products

1xPBS (TBS5003)
2% BSA in PBS (TBS5048)
2% BSA in TBST (TBS5049-2)
5% BSA in TBST (TBS5049-5)
30% BSA (TBS8031)
0.1% BSA ELISA Assay Buffer (TBS5057
PBST (TBS5011)
TBS (TBS5008)
TBST (TBS5008T)
0.5M EDTA Solution (TBS5040)
Antigen retrieval Citrate Solution-pH6.0(TBS5077)
Protein Assay Kit (Catalog# TBS2005)
Protein Lysis Buffer (Catalog# TBS5001)
Urea Solution (TBS5037)
Ammonium Sulfate Solution (Catalog# TBS5038)
MOPS Buffer (Catalog# TBS5041)

This product is for research use only.

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