MTT Solution (5 mg/mL, Sterile)

Cat. No.: M1509558 | Pack size: 5 mL; 10 mL | Storage: Protected from light, Store at -20°C | CAS No.: 298-93-1

Product Introduction

The MTT colorimetric method is a technique for detecting cell viability and proliferation. The principle of the MTT assay is that succinate dehydrogenase in the mitochondria of viable cells can reduce exogenous MTT to water-insoluble blue-purple formazan, which then deposits inside the cells; this reaction does not occur in dead cells. In the presence of dimethyl sulfoxide (DMSO), a specific solvent, formazan can be completely dissolved. Subsequently, the absorbance can be measured at wavelengths around 490 nm or 570 nm using a microplate reader. The higher the cell proliferation rate and quantity, the higher the absorbance value; conversely, the stronger the cytotoxicity, the lower the absorbance value.

Usage Instructions

1. Collect cells cultured to the logarithmic growth phase, and digest the cells with a routine trypsin solution (digestion is not required for suspension cells).

2. Perform low-speed centrifugation to collect the cell pellet. Resuspend the cell pellet in the culture medium to prepare a single-cell suspension, and then count the cells.

3. Seed the cells into a 96-well culture plate with a volume of 200 µL per well; the recommended seeding density is generally 3,000-10,000 cells per well. Fill the edge wells of the 96-well plate with sterile PBS or water. Meanwhile, set up zero-adjustment wells (containing culture medium, MTT, and DMSO) and control wells (containing cells, drug dissolution medium of the same concentration, culture medium, MTT, and DMSO).

4. Incubate the cells at 37 °C in a 5% CO_2 atmosphere until the end of the treatment. Add 20 µL of 5 mg/mL MTT solution to each well and continue incubation for 4 hours. (If the culture medium contains components that can react with MTT, remove the culture medium and wash the cells 2-3 times with sterile PBS before adding the MTT solution.)

5. Terminate the culture and carefully aspirate the culture medium from each well. For suspension cells, perform centrifugation before aspirating the culture supernatant.

6. Add 150 µL of dimethyl sulfoxide (DMSO) to each well, and shake the plate at low speed on a shaker for 10 minutes to ensure complete dissolution of the formazan crystals.

7. Select a wavelength of 490 nm, measure the absorbance value of each well using an enzyme-linked immunosorbent assay (ELISA) reader, and record the results.

Precautions

1. Minimize repeated freeze-thaw cycles of the 5 mg/mL MTT solution to prevent inactivation. Do not use the solution if it turns grayish-green.

2. When conducting the assay using a 96-well plate, pay attention to the issue of evaporation if the cell culture period is prolonged.

3. MTT solution may solidify at low temperatures. Before use, place it at room temperature or in a 20-25 °C water bath until it is completely dissolved.

4. An optical microscope can be used to check whether the formazan has been completely dissolved.

5. Avoid bacterial contamination as much as possible during cell culture.

6. For your safety and health, wear a lab coat and disposable gloves during operation.

7. This product is for research use only and is prohibited for any other purposes.

Specifications

Attribute	Value
Synonyms	MTT Solution
Specifications & Purity	BioReagent, for cell culture, sterile, 5 mg/mL
Stability And Storage	Store at -20°C long term (12 months). Store in the dark.
Storage Conditions	Protected from light, Store at -20°C
Shipped In	Ice chest + Ice pads. This product requires cold chain shipping. Ground and other economy services are not available.

Names and Identifiers

Attribute	Value
CAS Number	298-93-1
Isomeric SMILES	CC1=C(SC(=N1)[N+]2=NC(=NN2C3=CC=CC=C3)C4=CC=CC=C4)C.[Br-]
WGK Germany	3

Attribute	Value
RTECS	XF8060000
Alternate CAS	2348-71-2
Molecular Weight	414.32
Beilstein	4081397
EC Number	206-069-5
Reaxy-Rn	3825277
Reaxys-RN_link_address	https://www.reaxys.com/reaxys/secured/hopinto.do?context=S&query=IDE.XRN=3825277&ln=

Chemical and Physical Properties

Attribute	Value
Melt Point (°C)	195°C

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Limitations & Disclaimer

- For Research Use Only (RUO). Not for use in human or animal diagnostics, therapeutics, or in vivo applications. Not for food, cosmetic, or household use.
- This product is not a CE-marked in vitro diagnostic device under IVDR (EU) 2017/746 and is not an FDA-cleared device under 21 CFR. Use is restricted to verified businesses, institutions, and qualified professionals for research and development purposes.
- Where this product is classified as hazardous under CLP (EC) 1272/2008 or OSHA HCS (29 CFR 1910.1200), the product Safety Data Sheet (SDS) takes precedence over this document for handling, storage, and disposal information.
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