# MTS Cell Proliferation Assay Kit

## Introduction

MTS Cell Proliferation Assay Kit is a widely used cell proliferation and toxicity assay kit. MTS, a novel tetrazolium salt, can be reduced by succinate dehydrogenase in the mitochondria of living cells to the water-soluble formazan crystals. The amount of formazan can be quantified by measuring the absorbance at 490 nm upon solubilization and is proportional to the number of living cells.

Compared with the widely used MTT Assay Kit, this kit does not need to remove the culture medium, nor to use a solvent to dissolve the formazan, which is more convenient to use, and can avoid the experimental error caused by taking away part of the formazan when removing the medium. The kit is very flexible and can be continuedly incubated after detection for better color rendering. At the same time, this kit is safe for use, highly sensitive and has a good linear range.

## Components and Storage

| Components | K2250-500T | K2250-2500T |
|---|---|---|
| **MTS Solution** | 10 mL | 50 mL |
| **PMS Solution** | 0.5 mL | 2.5 mL |

Store the kit at -20°C away from light and moisture, stable for 1 year. For frequent use, the kit can be stored at 4°C away from light and moisture, stable for 6 weeks.

## Protocol

1. **The MTS working solution preparation:** Mix MTS Solution and PMS Solution in a ratio of 20:1 to make an MTS working solution. Unused MTS working solution can be aliquoted into single-use volumes and stored at -20°C away from light, avoiding repeated freeze/thaw cycles.

***Note:** MTS Solution and PMS Solution are light-sensitive, it is necessary to protect them from light during preparation and use (it can be wrapped in tin foil). If you want to store this kit at 4°C for frequent use, you should prepare the MTS working solution before each test. The prepared unused MTS working solution needs to be stored at -20°C in the dark.

2. **Cell culture:** For 96-well plates, seed cells at a density of 5-100x$10^3$ cells/well in 100 µL culture medium. Treat cells with the interested drug for a desired period. Prepare parallel wells as the background control (only containing medium) and negative control (containing medium, cells and the same volume of solvent for the interested drug).

*Note: The optimal number of cells seeded in each well varies depending on the cell types.

3. **MTS incubation:** Add 20 μL MTS working solution per well, and incubate at 37°C for 1-4 h.

*Note: The optimal incubation time varies depending on the cell types.

4. **Detection:** Measure the absorbance (A) at 490 nm with a microplate reader. If the 490 nm filter is not available, a 450-540 nm filter can also be used.

5. **Analysis:** Calculate cell viability with the following equation

$$\text{Cell viability (\%)} = [(A_{\text{Treatment sample}} - A_{\text{Background control}}) / (A_{\text{Negative control}} - A_{\text{Background control}})] \times 100$$

## Note

1. When cells are cultured for long periods, the corner and edge wells of the 96-well plate are prone to liquid evaporation. It is recommended to fill the surrounding moat with sterile water, medium, or PBS. Meanwhile, place the plate near the water source in the incubator.
2. MTS Solvent may solidify at low temperatures, please equilibrate to room temperature or a 20-25ºC water bath for a few moments until completely thawed before using.
3. For your safety and health, please wear lab coats and gloves during the experiment.
4. For research use only. Not to be used in clinical diagnostic or clinical trials.

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