EZMTT™ High Sensitivity Cell Viability Assay

Cell Viability Assay

Cat. # CBA411

pack size: 1000 Assays

FOR RESEARCH USE ONLY.
NOT FOR USE IN DIAGNOSTIC PROCEDURES.
NOT FOR HUMAN OR ANIMAL CONSUMPTION.

Store at -20ºC

Data Sheet

Background

EZMTT™ high sensitivity cell viability assay is a novel monosulfonated tetrazolium salt, 2-(3-(2-methoxy-4-nitrophenyl)-2-(4-nitrophenyl)-2H-tetrazol-3-ium-5-yl) benzenesulfonate sodium salt (EZMTT). The EZMTT™ reagents provide highly sensitive and reproducible detection for oxidoreductase enzymes, indicators of cellular metabolic activity. Upon reacting with metabolic enzymes, EZMTT ™ is converted to a yellowish formazan that does not require a solubilization step and can be measure by absorbance at 450 nm. EZMTT ™ assay can be used for end-point cell viability, cytotoxicity (loss of viable cells), or cytostatic activity (shift from proliferation to quiescence) of potential medicinal or toxic agents.

Features and Benefits of EZMTT™ high sensitivity cell viability assay:

- Can be premixed with any media and then added to the cells
- EZMTT™ is more sensitive than the traditional MTT assays and can be used to detect metabolic activity of low-density cell cultures
- Reduction of EZMTT™ produces a water-soluble formazan dye, which does not require a solubilization step
- Can be used for end-point cell viability assay of mammalian as well as bacterial cells
- Stable, much less reactive with other antioxidants such as beta-Mercaptoethanol (BME)

Storage

Store EZMTT™ high sensitivity cell viability assay solution at -20°C, and protect from light.

Spectral Properties

Absorbance: 450 nm

Quality Control

Purity: ≥ 98% confirmed by TLC or NMR. Quality confirmed by NADH titration of the product, dose response to E. coli and A549 cell culture.

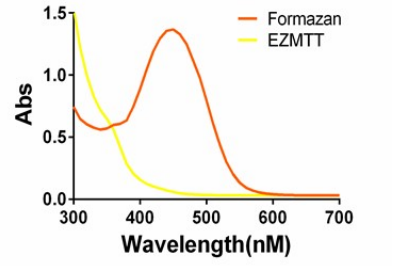

Figure 1: Absorbance spectra of EZMTT™ and its metabolic product, formazan.

Protocol

Assay Protocol

1. Detach Hela cells and seed different cell number (0, 1000, 2000, 5000, 10000) in each well of 96-well plate with 100 µl of 10% FBS DMEM in triplicates.
2. Incubate at 37ºC, 5% CO_2 for 3-4 hours or overnight. Then change the culture medium with 100 µl of 10% FBS DMEM (optional).
3. Thaw and Mix 50X EZMTT ™ cell viability assay solution with culture media (5-fold dilutions).
4. Add 10 µl of the 10X EZMTT ™ solution to each well of the plate (final 50-fold dilution).
5. Incubate the plate for 1-4 hours in the incubator.
   Measure the absorbance at 450 nm using a microplate reader.

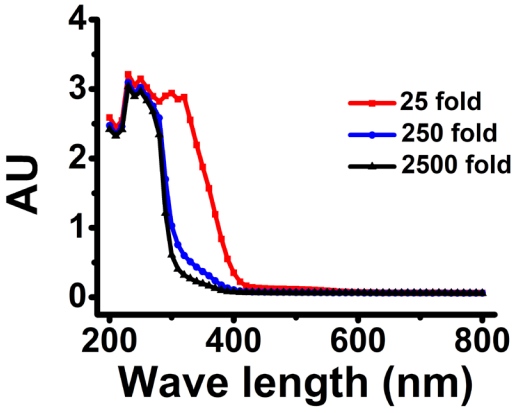

Figure 2. UV spectrum of EZMTT ™ that has been diluted for 25-fold (2X final), 250-fold (0.2X final), 2500-fold (0.02X final) in DMSO. Total volume 180 µL in 96 well plate. Detected by Flexstaton 3. The product has maximal absorption at 320 nm, as expected.

References

1. Zhang W, et al. *Mono-sulfonated tetrazolium salt-based NAD(P)H detection reagents suitable for dehydrogenase and real-time cell viability assays.* 2016. Anal Biochem. 509, 15 Sept 2016, 33-40.
2. Yu Y, et al. *Ebselen: Mechanisms of Glutamate Dehydrogenase and Glutaminase Enzyme Inhibition.* ACS Chem Bio. 2017, 12, 12, 3003-3011.

Rev.1.0/2020-06-09/CBA411MD

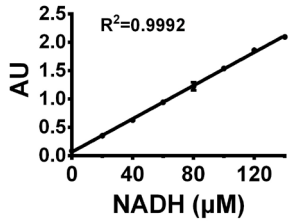

Figure 3. NADH (0-140 μM, final) titration of EZMTT ™ solution is a linear curve for absorption at 450 nm, as expected. A total volume of 200 μL in 96 well plate was used and detected by Flexstaton 3.

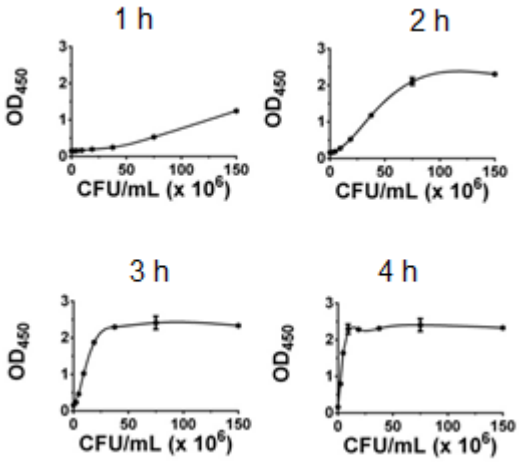

Figure 4. Dose response of E. coli ATCC25922 (0-150*10^6 cells/96well) to 1X EZMTT ™ high sensitivity cell viability assay for 1-4 hours.

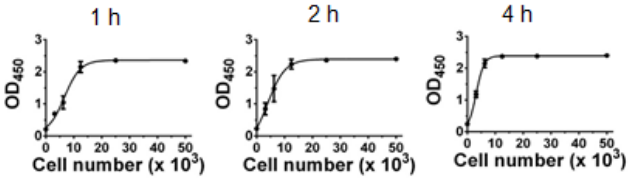

Figure 5. Dose response of A549 cells (0-5*10^4 cells/96well) to 1X EZMTT ™ high sensitivity cell viability assay for 1-4 hours.