Technical Data Sheet

XTT sodium salt

for molecular biology

Order number: 1261

The tetrazolium salt XTT (2,3-bis-(2-methoxy-4-nitro-5-sulfophenyl)-2H-tetrazolium-5-carboxanilide) is a colorless crystalline powder used in cell biology and biotechnology for cell-based colorimetric assays. XTT can be used to assess the viability of cells as a function of redox potential: Only actively respiring cells convert the water-soluble XTT into an orange formazan product that is also water-soluble. XTT is not cell permeable; reduction occurs at the cell surface by cellular NADH and an electron mediator. The number of metabolically active cells correlates with the amount of orange formazan formed, the absorbance of which is measured spectrophotometrically at 450 -600 nm.
Since the XTT assay does not require radioactive materials, cell fixation or cell permeabilization, the examined cells can be used for further analysis after the assay.

XTT is suitable for a wide range of cell types, including bacteria, fungi, yeasts, mammalian cells and plant cells. And thus represents a good alternative to MTT (Thiazolyl blue tetrazolium bromide). Unlike MTT, XTT does not need to be placed in solution prior to quantification, simplifying performance and reducing assay time. Although MTT is better metabolized by many cell lines, the sensitivity of the XTT assay is similar to that of the MTT assay when XTT is reduced in the presence of phenazine methosulfate (PMS). PMS has no effect on the turnover of XTT, i.e. the result is still proportional to cell viability.

Applications

XTT sodium salt is used as a vital dye to measure cellular metabolic activity and thus as an indicator of cell viability and proliferation. The XTT assay can be used to make statements about the effects of growth factors, cytokines, nutrients, drugs, potential toxins, etc. on cell viability. High-throughput screening can be performed with the XTT assay, making it an important tool for pharmaceutical research (keywords drug development and monitoring, cytotoxicity studies, drug safety).
XTT is also used in the medical field (e.g., in cancer research to monitor tumor cell growth or evaluate the efficacy of cancer therapies).
In addition, it plays a role in general cellular research whenever cell activity, toxicity or even apoptosis are to be investigated.

To prepare a stock solution for cell viability assays, we recommend dissolving 1 mg/ml of the XTT in cell culture medium (serum-free) or PBS (pH 7.2). Stock solutions should be used immediately, or frozen at -20°C.

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Storage and Stability

Even though XTT powder is stable for a long time at ambient temperature, we recommend 2-8°C (and protected from light) for long-term storage. Stock solutions of XTT are stable at -20°C for at least 6 months. If the XTT solution discolors or forms crystals, it must be discarded.

Related products

3490	DMEM with 4.5 g/l D(+)-Glucose, w/o L-Glutamine, Sodium pyruvate, with NaHCO3
1426	DMEM with 4.5g/l D(+)-Glucose, with L-Glutamine and NaHCO3, w/o Sodium pyruvate
1489	RPMI 1640 Medium w/o L-Glutamine, with 2.0 g/l NaHCO3
2111	RPMI 1640 Medium with L-Glutamine and 2.0 g/l NaHCO3, w/o Phenol red
2095	Fetal Calf Serum (FBS, origin South America) standard quality for cell biology
1175	D-PBS (10X) powder mixture w/o Ca and Mg for cell biology
1429	D-PBS (1X) w/o Ca and Mg (pH 7.4) for cell biology
1210	L-Glutamine for cell biology
1207	L-Arginine free base for cell biology
1204	L-Asparagine monohydrate for cell biology
1425	ß-Mercaptoethanol for biochemistry
1111	DTT for biochemistry
1261	Thiazolyl blue tetrazolium bromide (MTT) for biochemistry

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