

Product Data Sheet

Product Name: XTT (sodium salt)

Cat. No.: GC45172

Chemical Properties

Cas. No. 111072-31-2

SMILES COC(C=C([N+])([O-])=O)C(S([O-])(=O)=O)=C1)=C1N2N=C(C(NC3=CC=CC=C3)=O)N=[N+]2C4=CC(S([O-])(=O)=O)=C([N+])([O-])=O)C=C4OC.[Na+]

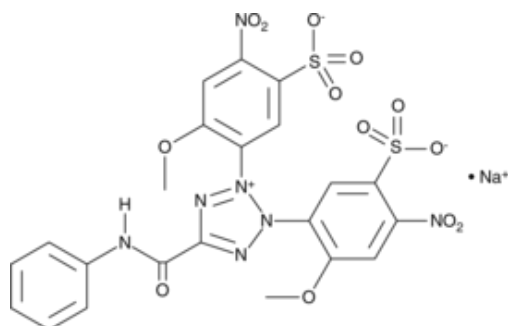
Formula $C_{22}H_{16}N_7O_{13}S_2 \cdot Na$ M.Wt 673.5

Solubility DMSO : 50 mg/mL (74.24 mM; ultrasonic and warming and heat to 80°C) Storage Store at 2-8°C

General tips For obtaining a higher solubility , please warm the tube at 37 °C and shake it in the ultrasonic bath for a while. Stock solution can be stored below -20°C for several months.

Shipping Condition Evaluation sample solution : ship with blue ice All other available size: ship with RT , or blue ice upon request.

Structure



Protocol

XTT (sodium salt) was used to measure cell viability [1] :

Reagent preparation:

(1) XTT (sodium salt) solution: Dissolve XTT (sodium salt) in warm culture medium to a concentration of 5mg/mL.

(2) PMS solution: phenazine methosulfate (PMS) was made up as 100mM solution in phosphate

Caution: Product has not been fully validated for medical applications. For research use only.

Tel: (909) 407-4943 Fax: (626) 353-8530 E-mail: tech@glpbio.com

Address: 10292 Central Ave. #205, Montclair, CA, USA

Product Data Sheet

buffered saline and stored at 4°C.

(3) Mix for use: When using, add PMS solution to the XTT solution to a final PMS concentration of 25µM.

Experimental procedure:

(1) Cell culture: Cells (e.g., T cell line HT-2) were seeded into a 96-well plate, with 100µL of culture medium per well, and incubate at 37°C for 40 hours.

(2) Add XTT/PMS solution: Add 25µL of XTT/PMS solution to each well and incubate at 37°C for 4–8 hours.

(3) Measure optical density: After incubation, measure the absorbance at 450nm using a microplate reader, with 650nm as the reference wavelength, and subtract the absorbance value of the blank control.

Precautions

(1) PMS and XTT solutions are recommended to be stored in the dark.

(2) XTT solution should be freshly prepared and is easier to dissolve in a 60°C water bath.

(3) The incubation time depends on the experimental requirements; prolonged incubation may lead to increased background noise.

(4) The shelf life of PMS solution is relatively short, and it is best to use it within 1 month.

References:

[1] Roehm NW, Rodgers GH, Hatfield SM, Glasebrook AL. An improved colorimetric assay for cell proliferation and viability utilizing the tetrazolium salt XTT. *J Immunol Methods*. 1991;142(2):257-265.

Background

XTT (sodium salt) is a highly water-soluble, low-cell-permeable, and non-toxic tetrazolium salt that serves as an indicator of cellular metabolic activity^[1]. In living cells, XTT (sodium salt) is reduced by mitochondrial dehydrogenases (such as succinate dehydrogenase) to form an orange water-soluble formazan product, thereby indirectly reflecting the metabolic activity and viability of the cells^[2]. The

Caution: Product has not been fully validated for medical applications. For research use only.

Tel: (909) 407-4943 Fax: (626) 353-8530 E-mail: tech@glpbio.com

Address: 10292 Central Ave. #205, Montclair, CA, USA

Product Data Sheet

maximum absorption wavelength of XTT (sodium salt) is 450-490nm; the absorbance is proportional to the number of living cells^[3]. XTT (sodium salt) is commonly used for colorimetric detection of cell viability and proliferation, and this reaction requires the participation of an electron-coupling agent (such as phenazine methosulfate (PMS) or menadione)^[4]. XTT (sodium salt) is typically used in cell toxicity, drug screening, antibacterial activity, and cell proliferation studies^[5-7].

References:

- [1] Lu JH, Chiu YT, Sung HW, et al. XTT-colorimetric assay as a marker of viability in cryoprocessed cardiac valve. *J Mol Cell Cardiol.* 1997;29(4):1189-1194.
- [2] Scudiero DA, Shoemaker RH, Paull KD, et al. Evaluation of a soluble tetrazolium/formazan assay for cell growth and drug sensitivity in culture using human and other tumor cell lines. *Cancer Res.* 1988;48(17):4827-4833.
- [3] Zhao Q, Ernst JT, Hamilton AD, Debnath AK, Jiang S. XTT formazan widely used to detect cell viability inhibits HIV type 1 infection in vitro by targeting gp41. *AIDS Res Hum Retroviruses.* 2002;18(14):989-997.
- [4] Roehm NW, Rodgers GH, Hatfield SM, Glasebrook AL. An improved colorimetric assay for cell proliferation and viability utilizing the tetrazolium salt XTT. *J Immunol Methods.* 1991;142(2):257-265.
- [5] Brosin A, Wolf V, Mattheus A, Heise H. Use of XTT-assay to assess the cytotoxicity of different surfactants and metal salts in human keratinocytes (HaCaT). A feasible method for in vitro testing of skin irritants. *Acta Derm Venereol.* 1997;77(1):26-28.
- [6] Alotaibi AM, Promdet P, Hwang GB, et al. Zn and N Codoped TiO₂ Thin Films: Photocatalytic and Bactericidal Activity. *ACS Appl Mater Interfaces.* 2021;13(8):10480-10489.
- [7] Petel R, Moskovitz M, Tickotsky N, Halabi A, Goldstein J, Houry-Haddad Y. Cytotoxicity and proliferative effects of Iodoform-containing root canal-filling material on RAW 264.7 macrophage and RKO epithelial cell lines. *Arch Oral Biol.* 2013;58(1):75-81.

Caution: Product has not been fully validated for medical applications. For research use only.

Tel: (909) 407-4943 Fax: (626) 353-8530 E-mail: tech@glpbio.com

Address: 10292 Central Ave. #205, Montclair, CA, USA