ABTS diammonium salt

Cat. No.: HY-15902

CAS No.: 30931-67-0

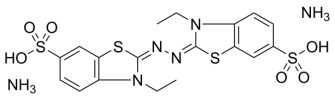
Molecular Formula: $C_{18}H_{24}N_6O_6S_4$

Molecular Weight: 548.68

Target: Fluorescent Dye

Pathway: Others

Storage: 4°C, sealed storage, away from moisture and light
* In solvent : -80°C, 2 years; -20°C, 1 year (sealed storage, away from moisture and light)



SOLVENT & SOLUBILITY

In Vitro

H_2O : ≥ 50 mg/mL (91.13 mM)
DMSO : 20.83 mg/mL (37.96 mM; Need ultrasonic)
* "≥" means soluble, but saturation unknown.

Preparing Stock Solutions

Solvent / Mass / Concentration	1 mg	5 mg	10 mg
1 mM	1.8226 mL	9.1128 mL	18.2256 mL
5 mM	0.3645 mL	1.8226 mL	3.6451 mL
10 mM	0.1823 mL	0.9113 mL	1.8226 mL

Please refer to the solubility information to select the appropriate solvent.

In Vivo

1. Add each solvent one by one: PBS
   Solubility: 50 mg/mL (91.13 mM); Clear solution; Need ultrasonic
2. Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline
   Solubility: ≥ 2.08 mg/mL (3.79 mM); Clear solution
3. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 2.08 mg/mL (3.79 mM); Clear solution
4. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.08 mg/mL (3.79 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

ABTS diammonium salt is a substrate for horseradish peroxidase (HRP) conjugate.

In Vitro

A micro-technique of enzyme-linked immunosorbent assay (ELISA) using ABTS, as a substrate for HRP conjugate is studied. In a comparative study among 4 substrates, namely; 5-aminosalicylic acid (5AS), O-phenylenediamine (OPD), O-tolidine (OT)

and ABTS, for HRP in terms of sensitivity, ABTS is the most sensitive, stable and the best in visuality by its bluish-green color [1]. ABTS is a typical peroxidase substrate. For purification and characterization peroxidase positive transformants are cultivated in large scale (XL) under conditions that yield active protein in the culture supernatant. After 160 h cultivation an activity of 55,000 U/L in relation to the substrate ABTS is achieved and the supernatant containing the peroxidase is harvested. With ABTS as substrate the peroxidase activity falls significantly when the H_2O_2 concentration rose above 0.125 mM, indicating that the enzyme is inhibited by H_2O_2. Maximum reaction rates depending upon substrate tested reache values between 31.2 and 125 μM[2].

MCE has not independently confirmed the accuracy of these methods. They are for reference only.

PROTOCOL

Kinase Assay [2]

Enzyme activity is determined photometrically using a temperature controlled multi-mode plate reader or alternatively in a UV/Vis spectrophotometer. Reactions are initiated by addition of the enzyme. Enzyme activity is measured over a period of 10 min at 25°C at the appropriate wavelength for the substrate. One unit (1 U) is defined as the amount of enzyme that converts 1 μmol substrate per minute. Various H_2O_2 concentrations (0-1250 μM, enzyme concentrations (0.27-54 nM) and substrate concentrations are used to determine the enzyme activity. The activity of rPsaDyP vs ABTS is determined in 100 mM sodium acetate buffer at pH 3.8 and a final H_2O_2 concentration of 125 μM. Production of the ABTS cation radical is studied at 420 nm (ε_{420} 36,000 L mol^{-1} cm^{-1})[2].

MCE has not independently confirmed the accuracy of these methods. They are for reference only.

CUSTOMER VALIDATION

- Biotechnol Bioeng. 2021 Nov 29.
- Appl Sci. 2023 Oct 25, 13(21), 11681.

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REFERENCES

[1]. Matsuda H, et al. Evaluation of ELISA with ABTS, 2-2'-azino-di-(3-ethylbenzthiazoline sulfonic acid), as the substrate of peroxidase and its application to the diagnosis of schistosomiasis. Jpn J Exp Med. 1984 Jun;54(3):131-8.

[2]. Lauber C, et al. Identification, heterologous expression and characterization of a dye-decolorizing peroxidase of Pleurotus sapidus. AMB Express. 2017 Aug 23;7(1):164.

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