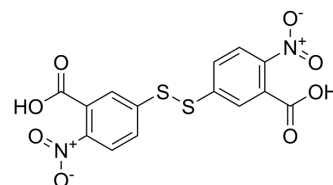


## DTNB

Cat. No.:	HY-15915
CAS No.:	69-78-3
Molecular Formula:	C <sub>14</sub> H <sub>8</sub> N <sub>2</sub> O <sub>8</sub> S <sub>2</sub>
Molecular Weight:	396.35
Target:	Biochemical Assay Reagents
Pathway:	Others
Storage:	Powder    -20°C    3 years 4°C    2 years In solvent   -80°C    2 years -20°C    1 year



### SOLVENT & SOLUBILITY

#### In Vitro

DMSO : 100 mg/mL (252.30 mM; ultrasonic and warming and heat to 60°C)  
 H<sub>2</sub>O : < 0.1 mg/mL (ultrasonic) (insoluble)

	Solvent Concentration	Mass	1 mg	5 mg	10 mg
Preparing Stock Solutions	1 mM		2.5230 mL	12.6151 mL	25.2302 mL
	5 mM		0.5046 mL	2.5230 mL	5.0460 mL
	10 mM		0.2523 mL	1.2615 mL	2.5230 mL

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

#### In Vivo

- Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline  
 Solubility: ≥ 2.08 mg/mL (5.25 mM); Clear solution
- Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)  
 Solubility: ≥ 2.08 mg/mL (5.25 mM); Clear solution
- Add each solvent one by one: 10% DMSO >> 90% corn oil  
 Solubility: ≥ 2.08 mg/mL (5.25 mM); Clear solution

### BIOLOGICAL ACTIVITY

#### Description

DTNB (Ellman's Reagent) is a chemical used to quantify the number or concentration of thiol groups<sup>[1]</sup>.

#### In Vitro

DTNB reacts with the free sulfhydryl side chain of cysteine to form an S-S bond between the protein and a thionitrobenzoic acid (TNB) residue<sup>[1]</sup>.  
 ?The main advantage of DTNB over alternative reagents (e.g., N-ethylmaleimide or iodoacetamide) is in the selectivity of this reagent and in the ability to follow the course of the reaction spectrophotometrically<sup>[1]</sup>.  
 ?Modification of Enzyme with DTNB:

?Modification of the SH groups of the enzyme is carried out by reacting 10  $\mu$ L of 10 mM DTNB solution (about a 20-fold molar excess) at room temperature with 0.6 mL of enzyme solution (0.807 mg/mL) in 80 mM phosphate buffer, pH 8.0, containing 1 mM EDTA, which has been dialyzed previously against the same buffer solution for 24 h. The number of SH groups is estimated from the increase of absorbance at 410 nm using a molar extinction coefficient of 13,600  $M^{-1}cm^{-1}$  for thionitrobenzoate ions liberated.

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

## CUSTOMER VALIDATION

- Biomaterials. 2022 Jul 21;287:121688.
- Carbohydr Polym. 2023 Dec 16, 121689.
- STAR Protoc. 2022, 3(4): 101921.

See more customer validations on [www.MedChemExpress.com](http://www.MedChemExpress.com)

## REFERENCES

[1]. T Nagaoka, et al. DTNB modification of SH groups of isocitrate dehydrogenase from Bacillus stearothermophilus purified by affinity chromatography. J Biochem. 1977 Jan;81(1):71-8.

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

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