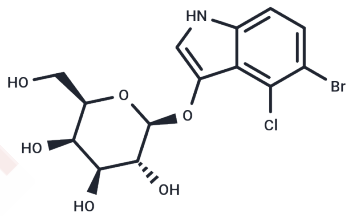
Data Sheet (Cat.No.T19075)

TargetMol

X-GAL

Chemical Properties



CAS No. : 7240-90-6

Formula: C14H15BrClNO6

Molecular Weight: 408.63

Storage: Keep away from direct sunlight,Store at low temperature
Powder: -20°C for 3 years | In solvent: -80°C for 1 year
Actual storage temperature shall be subject to the COA.

Biological Description

Description	X-GAL (BCIG) is a widely used chromogenic substrate for β-galactosidase, which cleaves X-GAL to produce an insoluble blue compound.
Targets(IC50)	Others,Glucosidase,glycosidase
In vitro	Instructions: I. Solution preparation Mother solution preparation: Prepare X-GAL stock solution: Dissolve X-GAL in anhydrous dimethylformamide (DMF) or dimethyl sulfoxide (DMSO) to prepare a 20 mg/mL stock solution. Note: Protect from light, dispense in small volumes (e.g. 50-100 μL), and store at -20°C. The storage time should not be too long to avoid degradation. II. Operation steps 1. Prepare color reaction mixture 1) For plate screening: Add X-GAL and IPTG (isopropyl-β-D-thiogalactoside) to LB agar plates. Common final concentrations: X-GAL 40 μg/mL, IPTG 0.1 mM. Add X-GAL and IPTG when the agar medium cools to about 50°C, mix well, and pour onto the plate. 2). For liquid color development: Add X-GAL and IPTG to the reaction buffer, the usual concentration is the same as for plate screening. 2. Experimental application Blue-white screening: 1) Transform the vector containing the reporter gene (such as lacZ or lacZα) into the host bacteria (such as E. coli DH5α). 2) Spread on a plate containing X-GAL and IPTG and culture at 37°C for 12-16 hours. 3) Screening results: Blue colonies indicate positive β-gal activity (lacZ expression), and white colonies indicate negative (lacZ is not expressed). Tissue staining: 1) After appropriate tissue fixation and permeabilization, use a reaction buffer containing X-GAL (usually PBS at pH 7.2-7.5, containing Mg^{2+}). 2) Incubate at 37°C for 12-24 hours, and observe the blue precipitate under a microscope for color development. The above information is based on published literature. Experimental procedures

In vitro	should be appropriately modified to meet specific research demands.

Solubility Information

Solubility	DMSO: 147 mg/mL (359.74 mM),Sonication is recommended. (< 1 mg/ml refers to the product slightly soluble or insoluble)
In vivo Formulation	10% DMSO+40% PEG300+5% Tween-80+45% Saline: 3.3 mg/mL (8.08 mM),Sonication is recommended. *Please add the solvents sequentially, clarifying the solution as much as possible before adding the next one. Dissolve by heating and/or sonication if necessary. Working solution is recommended to be prepared and used immediately. The formulation provided above is for reference purposes only. In vivo formulations may vary and should be modified based on specific experimental conditions.*

Preparing Stock Solutions

	1mg	5mg	10mg
1 mM	2.4472 mL	12.236 mL	24.472 mL
5 mM	0.4894 mL	2.4472 mL	4.8944 mL
10 mM	0.2447 mL	1.2236 mL	2.4472 mL
50 mM	0.0489 mL	0.2447 mL	0.4894 mL

Please select the appropriate solvent to prepare the stock solution, according to the solubility of the product in different solvents. Please use it as soon as possible.

Note: The dilution table applies only to solid products. For liquid products, please calculate the stock solution based on the stated concentration and/or density.

Reference

De Bono C, Lescroart F, Zaffran S. How to Study Gene Expression and Gain of Function of Hoxb1 in Mouse Heart Development. Methods Mol Biol. 2025;2889:121-137.

Gudeta DD, Zhao S, Aljahdali N, Foley SL. Coupling antitoxins and blue/white screening with parAB/resolvase mutation as a strategy for Salmonella spp. plasmid curing. Microbiol Spectr. 2024 Nov 5;12(11):e0122024.

Han S, et al. Rubinsky B, Chang TT. Irreversible Electroporation of the Liver Increases the Transplant Engraftment of Hepatocytes. J Surg Res. 2024 Jan;293:128-135.

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