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## DATASHEET

### X-Gal

## Product overview

|                   |   |
|-------------------|---|
| Name              | X-Gal   |
| Cat No            | HB4128  |
| Alternative names | Bromochloroindoxyl galactoside  |
| Biological action | Substrate   |
| Purity            | >99%  |
| Description       | Detects presence and activity of $\beta$ -galactosidase. Widely used in cloning applications. |

## Biological Data

### Biological description

#### Overview

X-Gal is a cell permeable, chromogenic substrate for  $\beta$ -galactosidase. It consists of galactose linked to a substituted indole.

$\beta$ -galactosidase hydrolyzes X-gal to release an insoluble, bright blue precipitate.

#### Uses

X-Gal is frequently used in molecular biology cloning applications to detect the activity of  $\beta$ -galactosidase.

It is often used with IPTG in blue/white screening for bacterial colony selection in which X-Gal provides a visual indication of the cellular expression of  $\beta$ -galactosidase.

## Solubility & Handling

### Storage instructions

+4°C

### Solubility overview

Soluble in DMSO (30 mg/ml)

### Important

This product is for RESEARCH USE ONLY and is not intended for therapeutic or diagnostic use. Not for human or veterinary use.

## Chemical Data

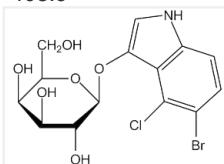
### Chemical name

5-Bromo-4-chloro-3-(beta-D-galactopyranosyloxy)indole

### Molecular Weight

408.6

### Chemical structure



### Molecular Formula

C<sub>14</sub>H<sub>15</sub>BrClNO<sub>6</sub>

### CAS Number

7240-90-6

### PubChem identifier

65181

### SMILES

C1=C(C(O[C@H]3[C@H](O)[C@@H](O)[C@@H](O)[C@@H](CO)O3)=CN2)C2=CC=C1Br

|            |  |
|------------|--|
| InChi      | InChI=1S/C14H15BrCINO6/c15-5-1-2-6-9(10(5)16)7(3-17-6)22-14-13(21)12(20)11(19)8(4-18)23-14/h1-3,8,11-14,17-21H,4H2/t8-,11+,12+,13-,14-/m1/s1 |
| InChiKey   | OPIFSICVWOWJMJ-LMNFNBGQSA-N  |
| MDL number | MFCD00005666   |
| Appearance | White to off-white powder. Clear, colourless to light yellow in solution   |

## References

### Substrates For Cytochemical Demonstration Of Enzyme Activity. I. Some Substituted 3-Indolyl-Beta-D-Glycopyranosides

Horwitz Jp *Et Al* (1964) J Med Chem 7  
PubMedID [14221156](#)

### Screening Bacterial Colonies Using X-gal and IPTG: $\beta$ -Complementation

Sambrook J *et al* (2006) CSH Protoc 2006  
PubMedID [22485386](#)

### Overview and assessment of the histochemical methods and reagents for the detection of $\beta$ -galactosidase activity in transgenic animals

Trifonov S *et al* (2016) Anat Sci Int 91(1)  
PubMedID [26394634](#)

### LacZ $\beta$ -galactosidase: structure and function of an enzyme of historical and molecular biological importance

Juers DH *et al* (2012) Protein Sci 21(12)  
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