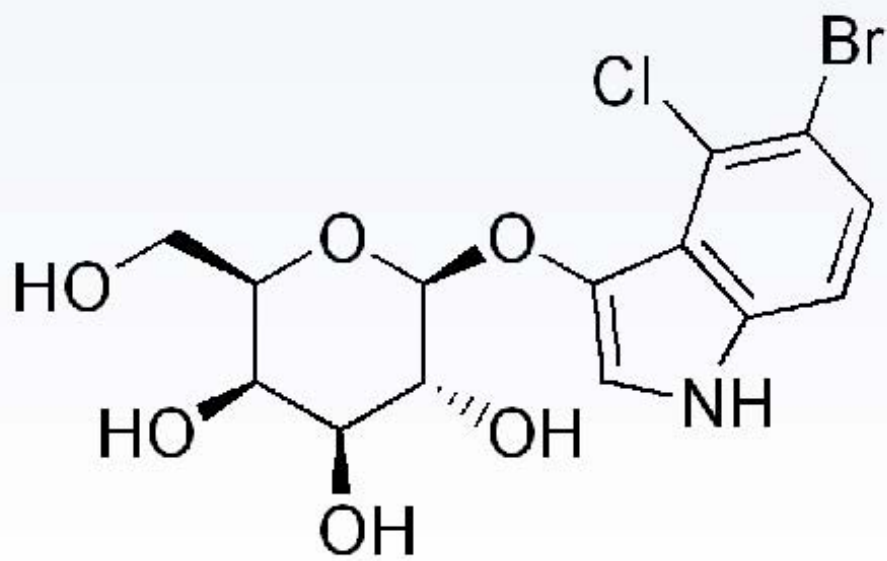


# X-Gal

## Product Sheet and Protocol



The **X-Gal** substrate is metabolized by the  $\beta$ -galactosidase enzyme into an insoluble blue precipitate. It is ideal for staining transformed bacteria and LacZ transfected or infected cells, tissues and organisms. The quality and purity of the X-Gal substrate is essential to obtain high-quality and reliable results.

**List of X-Gal products:**

Catalog Number	Description	Weight
XG11000	X-Gal	1 g

Use the table above to determine the appropriate catalog number for your needs. You can order these products by contacting us. This product is also available in larger quantities (2g, 5g, 10g etc.). Please contact us for a quotation at [order@ozbiosciences.com](mailto:order@ozbiosciences.com). For all other supplementary information, do not hesitate to contact our dedicated technical support ([tech@ozbiosciences.com](mailto:tech@ozbiosciences.com)).

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## 1. Description

### 1.1. Introduction and characteristics

Congratulations on your purchase of the **X-Gal product!**

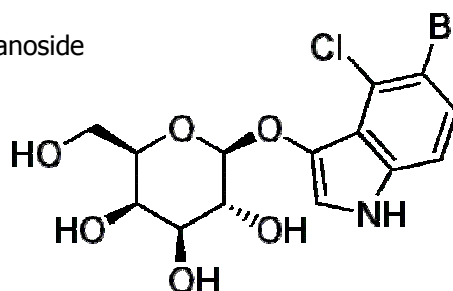
**X-Gal** is a synthetic  $\beta$ -Galactoside that is hydrolyzed by the  $\beta$ -Galactosidase enzyme into a blue precipitate. Consequently, bacteria, cells, tissues or organisms expressing  $\beta$ -galactosidase appear blue following fixation and incubation with X-Gal substrate. Blue-stained cells can be visualized by microscopy.

#### **Main Features are:**

- High purity > 99%
- Good solubility and great sensitivity
- Perfect for cells, tissues and organism staining
- Easy to use

#### **X-Gal:**

- *Chemical Name:* 5-bromo-4-chloro-3-indolyl- $\beta$ -D-galactopyranoside
- *Molecular Formula:* C<sub>14</sub>H<sub>15</sub>BrClNO<sub>6</sub>
- *Molecular weight:* 408.63 g/mol
- *CAS Number:* 7240-90-6
- *Molecular biology grade and premium pure.*
- *Molecular Structure:*



### 1.2. Kit content

X-Gal is provided in a 1.0g/vial. This product is also available in larger quantities (2g, 5g, 10g etc.). Please contact us for a quotation at [order@ozbiosciences.com](mailto:order@ozbiosciences.com)

### 1.3. Stability and Storage

X-Gal is sensitive to strong oxidizing agent, moisture and light.

#### **Storage (powder)**

Upon receipt and for long-term use, store the powder in a tightly closed and desiccated container at -20°C. X-Gal is stable for at least 2 years at -20°C if stored properly. We recommend warming the desiccator to room temperature for at least one hour prior to removing the X-Gal. X-Gal is hygroscopic and it is critical to avoid any condensation of water on the X-Gal crystals.

#### **Storage (solution)**

X-Gal stock solution can also be prepared in a number of solvents but the preferred solvent for biological experiments is dimethylformamide (DMF). Fresh DMSO can also be used and highest quality DMSO is critical. Many problems associated with X-gal experiments can be traced to the use of old or lower quality DMSO. Therefore, for most experiments we recommend that you dissolve X-Gal to a final concentration of 20 mg/ml in DMF. X-Gal solution is stable for at least 1 year at -20°C in the dark.

#### **Shipping condition**

The X-Gal is shipped at room temperature (stable for at least one or two weeks).

## 2. Applications

- Cells, tissues and organisms staining
- Lac Z reporter gene assays
- Transfection/transduction with Lac Z reporter gene and Lac Z-fusion constructs
- Blue/white colony screening assay, discern recombinant (white) from non-recombinant (blue) colonies
- Detection of  $\beta$ -galactosidase activity in immunological and histochemical procedures.

## 3. Protocol Examples

The instructions given below represent successfully applied protocols. They can be used as guidelines to quickly achieve very good staining. Optimal conditions do vary according to cell cultures, bacteria, tissues and assay sensitivity and the final quantity of X-Gal might have to be adjusted to achieve best results.

### 3.1. Preparation of X-Gal stock solution

1. Dissolve 100 mg of X-Gal into 4 or 5mL of dimethylformamide (DMF).
2. Divide into 1mL aliquots (preferably into amber tubes).
3. Store X-Gal in the dark. You can either use amber vials or wrap tubes in aluminum foil.
4. Store at -20°C

*\*Solution does not need to be filtered*

### 3.2. Preparation of X-Gal for Prokaryotic cells

1. Prepare LB/agar or similar medium by standard methods.
2. After autoclaving allow the bottle containing the agar to cool for 20 min. and then place it into a water bath at 48°C.
3. Allow the agar to equilibrate to the 48°C temperature for an appropriate period of time, which is dependent on the volume of the solution.
4. Add 1/100th volume of the 2% X-Gal in DMF and gently swirl the medium.
5. Add other components such as antibiotic or IPTG to the agar medium.
6. Pour the agar into petri dishes and allow solidifying for at least 20 min. at room temperature.
7. After plating your bacteria, incubate at 37°C overnight until blue color develops.

### 3.3. Preparation of X-Gal for Eukaryotic cells and tissues

There are many protocols used for X-gal with eukaryotic cells, tissues and organisms. If you don't have a favorite protocol we recommend that you visit the following web sites:

<http://www.cshprotocols.org/>

<http://www.protocol-online.org/>

<http://www.scientistsolutions.com/Science-Forum.aspx>

In addition, you may find an appropriate protocol for your needs in "Current Protocols in Molecular Biology" (Wiley Intersciences).

**Otherwise, do not hesitate to contact us at [tech@ozbiosciences.com](mailto:tech@ozbiosciences.com) for X-Gal staining of cells and tissues.**

## 4. Related Products

Description	Reference
<b>Magnetofection Technology</b>	
Mega Magnetic Plate	MF14000
Super Magnetic Plate	MF10000
Magnetic Plate 96-magnets	MF10096
PolyMag 1mL ( <i>for all nucleic acids</i> )	PN31000
PolyMag Neo 1mL ( <i>for all nucleic acids</i> )	PG61000
CombiMag 1mL ( <i>to boost transfection reagent</i> )	CM21000
SilenceMag 1mL ( <i>for siRNA application</i> )	SM11000
NeuroMag 1mL ( <i>for transfection of neurons</i> )	NM51000
ViroMag 1mL ( <i>for all viral applications</i> )	VM41000
ViroMag R/L 1mL ( <i>for retrovirus and Lentivirus</i> )	RL41000
AdenoMag 1mL ( <i>for adenovirus</i> )	AM71000
SelfMag Amino Kit	SA10000
SelfMag Carboxy Kit	SC20000
FluoMag-P 100µL	FP10100
FluoMag-C 100µL	FC10100
FluoMag-S 100µL	FS10100
FluoMag-V 100µL	FV10100
<b>Protein Delivery Systems</b>	
Ab-DeliverIN 1 mL	AI21000
Pro-DeliverIN 1 mL	PI11000
<b>Lipofection Technology (lipid-based reagents)</b>	
Lullaby siRNA transfection reagent	LL71000
DreamFect Gold Transfection reagent 1mL	DG81000
DreamFect Transfection reagent 1mL	DF41000
EcoTransfect Transfection Reagent 1mL	ET11000
VeroFect Transfection Reagent 1mL	VF61000
FlyFectin Transfection Reagent 1mL	FF51000
<b>CaPO Transfection Kit</b>	CP90000
<b>Plasmids pVectOZ</b>	
pVectOZ-CAT 25µg	PL00010
pVectOZ-GFP 25µg	PL00020
pVectOZ-LacZ 25µg	PL00030
pVectOZ-Luc 25µg	PL00040
pVectOZ-SEAP 25µg	PL00050
<b>Gene &amp; Protein Tools</b>	
Bradford – Protein Assay Kit	BA00100
GeneBlaster selection kit	GB20010
β-Galactosidase (ONPG) assay kits	GO10001
β-Galactosidase (CPRG) assay kits	GC10002
X-Gal Staining Kit	GX10003

Our dedicated and specialized technical support group will be pleased to answer any of your request and to assist you in your experiments. Do not hesitate to contact us for all complementary information and remember to visit our website in order to stay inform on our last breakthrough technologies and updated on our complete product list. <http://www.ozbiosciences.com>.

## Purchaser Notification

### Limited License

The purchase of the **X-Gal** product grants the purchaser a non-transferable, non-exclusive license to use the kit and/or its separate and included components (as listed in section 1, Kit Contents). This reagent is intended **for internal research only** by the buyer. Such use is limited to the use described in the product manual. In addition, research only use means that this kit and all of its contents are excluded, without limitation, from resale, repackaging, or use for the making or selling of any commercial product or service without the written approval of OZ Biosciences.

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### Product Use Limitations

The **X-Gal** product and all of its components are developed, designed, intended, and sold for research use only. They are not to be used for human diagnostic or included/used in any drug intended for human use. All care and attention should be exercised in the handling of the kit components by following proper research laboratory practices.

For more information, or for any comments on the terms and conditions of this License, please contact:

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