



5-Bromo-4-Chloro-3-indolyl β -D-galactopyranoside; X-Gal

A chromogenic substrate for detecting coliforms and *E. coli* and also immunochemical, ELISA and blotting methods

X-Gal is a chromogenic substrate used in molecular biology and biochemistry to detect the activity of the enzyme β -galactosidase. X-Gal is an abbreviation for 5-bromo-4-chloro-3-indolyl β -D-galactopyranoside. It is colorless until it is hydrolyzed by β -galactosidase, which cleaved off the galactose group and leaves behind a blue precipitate of 5-bromo-4-chloro-3-hydroxyindole. This blue color is commonly used as a visual marker to indicate the presence of β -galactosidase activity in bacterial colonies or other biological samples. X-Gal is an indicator for *coliforms* and *E. coli* in culture media, as well as for the detection of them in municipal water supplies and food products. Furthermore, this insoluble blue precipitate is useful in immunochemical, ELISA, and blotting methods.

X-Gal can be used in conjunction with the inducer IPTG, which binds and inhibits the *lac* repressor thus inducing β -galactosidase expression. X-gal is the substrate of choice for blue-white selection of recombinant bacterial colonies with *lac+* genotype.

Cat. Number	ASC-1018
CAS Number	7240-90-6
MDL Number	MFCD00005666
Pubchem	310268573
Molecular Weight	408.64 gr/mol
Molecular Formula	C ₁₄ H ₁₅ BrClNO ₆
Storage Temperature	-20 °C
Form and Color	Crystalline powder / White to off-white
Solubility (5% w/v, DMF)	Soluble
Solution Appearance (50 mg/ml in DMF:MeOH, 1:1)	Clear, Colorless to light yellow
Assay (HPLC - anhydrous basis)	≥ 98%
Water Content	≤ 1%
FT-IR Spectrum	Corresponds to reference structure.
Specific Optical Rotation ([α] ₂₀ /D)	-60.5 - -62.5 ° (c=1, DMF:water at 1:1)
Synonym	5-Bromo-4-chloro-3-indolyl β -D-galactopyranoside (X-Gal) / X- β -D-Galactoside / BCIG