



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 have been recognized to be a chromogenic substrate that used in the molecular biology and biochemistry fields for detecting enzyme β -galactosidase's activity. They abbreviate X-Gal as 5-bromo-4-chloro-3-indolyl β -D-galactopyranoside, which basically, it's colorless until β -galactosidase hydrolyzing it, cleaving away galactose group and leaving a blue precipitate of 5-bromo-4-chloro-3-hydroxyindole behind. This blue color is often utilized as a visual marker symbolizing the presence of β -galactosidase activity in bacterial colonies otherwise in different biological sample.

As well as X-Gal is an timely indicator for coliforms and *E. coli* in culture media and it aids in the detection of Such organisms in municipal water supply and foods product. Moreover, this insoluble blue precipitate found helping in immunochemical, ELISA and in blotting methods.

Adding to it, X-Gal might be used together with an inducer IPTG, which binds and inhibits the lac, repressor thusly inducing β -galactosidase expression. X-gal therefore serves as substrate of choice for blue-white selection in recombinant bacterial colonies having 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