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# **DATASHEET**

**IPTG** 

### **Product overview**

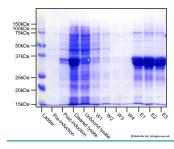
Name IPTG Cat No HB3941

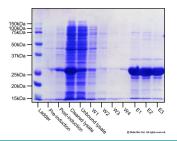
Alternative names Isopropylthiogalactoside

**Biological action** Inducer Purity >99%

**Description** Protein expression inducer. Frequently used with X-Gal in cloning procedures.

# **Images**





## **Biological Data**

**Biological description** 

As an allolactose mimic, IPTG can induce the lac operon and is therefore commonly used to induce protein expression.

**Application notes** 

IPTG is commonly used with X-Gal in blue/white screening for colony selection.

#Protocol 1: IPTG induction of protein production in E. coli

- BL21 *E. coli* were transformed with plasmids containing GST or a GST fusion protein under the control of the lac operon using standard protocols (see Froger and Hall., 2007).
- Transformed colonies were cultured in 2xYT medium containing 50µg/ml kanamycin (HB4429) at 10ml scale before this was transferred into 1L cultures and cultured at 37°C.
- Cells were cultured until OD<sub>600</sub> reached 0.6 before protein expression was induced with the adittion of 0.5mM IPTG and the temperature was reduced to 25°C.
- Cells were grown for a further 4 hours before being spun at 6,400g for 15 minutes at 4°C to
  pellet cells. This was then resuspended in lysis buffer (25mM Tris, 150mM NaCl, 10% glycerol,
  1% triton X-100, 1x protease inhibitors (HB9081), pH7.5), sonicated and allowed to solubilise
  before then being spun at 48,300g for 25 minutes at 4°C.
- The supernatent was removed and subsequently purified using glutathione beads.
- Samples from all stages of the protein production process were loaded onto a 15% acrylamide gel, run at 90/170V then transferred to PVDF (400mA/90 mins) before being visualised using Coomassie dye (HB0739).

# **Solubility & Handling**

Solubility overview Important Soluble in water (100 mM)

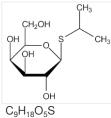
This product is for RESEARCH USE ONLY and is not intended for therapeutic or diagnostic use. Not

for human or veterinary use.

#### **Chemical Data**

Chemical name Molecular Weight Chemical structure Isopropyl-beta-D-thiogalactopyranoside

238.3



Molecular Formula
CAS Number
PubChem identifier

O[C@@H]1[C@H](O)[C@@H](O)[C@H](SC(C)C)O[C@@H]1CO

 $InChi \\ InChi = 1S/C9H18O5S/c1-4(2)15-9-8(13)7(12)6(11)5(3-10)14-9/h4-13H, \\ 3H2,1-2H3/t5-,6+,7+,8-,9+/m \\ 2H3/t5-,6+,7+,8-,9+/m \\ 2H3/t5-,7+,8-,9+/m \\ 2H3/t5-,8-,9+/m \\ 2H3/t5-,8-,9-/m \\ 2H3/t5-,$ 

1/s1

InChiKey BPHPUYQFMNQIOC-IVORRVBJSA-N

367-93-1

MDL number MFCD00063273
Appearance MFCD00063273
White crystalline powder

#### References

**SMILES** 

A self-inducible heterologous protein expression system in Escherichia coli

Briand L et al (2016) Sci Rep. 6

**PubMedID** 27611846

The E. coli pET expression system revisited-mechanistic correlation between glucose and lactose uptake

Wurm DJ et al (2016) Appl Microbiol Biotechnol 100(20)

PubMedID 27229726

Efficient and rapid procedure for blue-white screening of recombinant bacterial clones

Maas S (1999) Biotechniques 27(6)

**PubMedID** 10631489