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DATASHEET

IPTG

Product overview

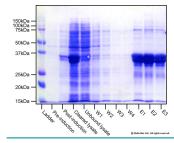
Name IPTG Cat No HB3941

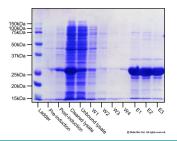
Alternative names Isopropylthiogalactoside

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 OD₆₀₀ 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

Storage instructions Storage of solutions

Shipping Conditions Important

+4°C Prepare and use solutions on the same day if possible. Store solutions at -20°C for up to one month if

storage is required. Equilibrate to RT and ensure the solution is precipitate free before use.

Stable for ambient temperature shipping. Follow storage instructions on receipt.

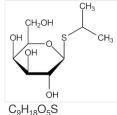
This product is for RESEARCH USE ONLY and is not intended for therapeutic or diagnostic use. Not

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**

656894 **SMILES**

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

In Chl = 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+12H3/t5-, 8-, 9+/m+12H3/t5-, 9+/m+12H3/t5

367-93-1

BPHPUYQFMNQIOC-IVORRVBJSA-N InChiKey

MDL number MFCD00063273 **Appearance** White crystalline powder

References

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