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ProductInformation

3β-INDOLEACRYLIC ACID
Molecular Biology Reagent

Product No. **I 2273**
Store at room temperature

Product Description

3β-Indoleacrylic Acid (IAA) is used to induce high levels of expression of recombinant/fusion proteins under the control of the tryptophan (trp) promoter in plasmid expression systems.[1] As a tryptophan analog, IAA induces expression of the trp operon by effectively competing with the co-pressor tryptophan to bind the trp repressor protein. Using plasmid systems containing a trp promoter, recombinant proteins have been expressed at up to 50 fold higher levels than wild-type levels under the control of the respective natural promoters.[2] Typically, IAA is added to *E. coli* cultures (OD_{660} ~ 0.2) at concentrations ranging from 10 µg/ml to 100 µg/ml. These conditions, as well as harvest times, must be optimized for each unique expression system and gene of interest.

Preparation Instructions

Prepare stock solution of 2.5 mg/ml in 95% ethanol. Store stock solution at –20 °C.

Product Profile

Induces transcription of genes under the control of the trpE promoter.

Suitability Assay

Overnight cultures of *E. coli* strain DH5a containing a pATH plasmid vector construct containing the *E. coli* trpE promoter were grown in M9 medium containing ampicillin and tryptophan. The overnight culture was then diluted 1:10 with fresh M9 medium containing ampicillin, but lacking tryptophan, and grown for 1 hour at 37 °C. 3β-Indoleacrylic acid stock solution was then added to a concentration of 10 µg/ml. After 2-3 additional hours of further incubation at 37 °C, bacterial extracts were prepared and analyzed by SDS-PAGE. A band with increased intensity correlated to IAA induction.[3]

References

1. Koerner, T.J., *et al*., High-expression vectors with multiple cloning sites for construction of trpE-fusion genes: pATH vectors. Methods Enzymol., **194**, 477-490 (1991)
2. Wilson M.L. and Macnab R.M., Co-overproduction and localization of the Escherichia coli motility proteins motA and motB. J. Bacteriol., **172**, 3932-3939 (1990)
3. Ausubel, F.M. *et al*. (Eds.) *Current Protocols in Molecular Biology*, (John Wiley & Sons, NY, 1994), p. 16.5.1-16.5.6

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