Invitrogen™
life technologies

BL21-AI™ Competent Cells–maximum expression with tightest regulation

BL21-AI™ One Shot® Chemically Competent *E. coli* give you:

- Tightest T7 regulation
- High yields of protein
- Convenient One Shot® format

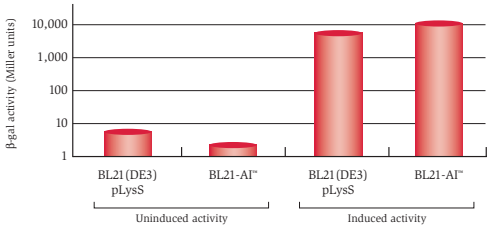
Tightly regulated, highly inducible

BL21-AI™ One Shot® Competent *E. coli* is an arabinose-inducible strain designed to give you the maximum protein expression with the tightest regulation available from a T7 expression system. It's the only strain that gives you both tight regulation and high yields, making it great for high-level expression of toxic proteins. Because it has the tightly regulated arabinose-inducible *araBAD* promoter upstream of the T7 RNA polymerase gene, you can use it with any T7 promoter-based vector. All that in the convenient, cost-effective One Shot® format.

Turn on expression

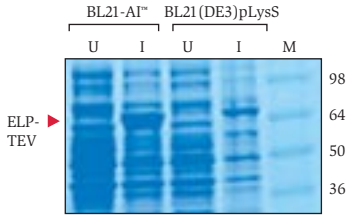
The results dramatically demonstrate the effectiveness of BL21-AI™ *E. coli*. To show tight regulation and high inducibility, the *lacZ* gene was cloned into the T7-based pET-201 and expressed in BL21-AI™ and BL21(DE3)pLysS strains. In the uninduced state, BL21-AI™ *E. coli* yielded the lowest levels of β-galactosidase expression, whereas in the induced state BL21-AI™ gave the highest levels of expression (Figure 1). In addition to the lowest basal expression, BL21-AI™ *E. coli* yield higher protein levels than the BL21(DE3)pLysS strain (Figure 2).

Figure 1 - Regulation of β-galactosidase expression in BL21-AI™ and BL21(DE3)pLysS



BL21-AI™ *E. coli* offers lower basal (uninduced) and higher induced levels of T7 RNA polymerase mediated gene expression than BL21(DE3)pLysS. Cells were induced by adding arabinose (0.2% w/v) and IPTG (1 mM) for BL21-AI™, and IPTG (1 mM) for BL21(DE3)pLysS.

Figure 2 - Expression of a toxic protein in BL21-AI™ and BL21(DE3)pLysS



Expression of a toxic protein is enhanced in BL21-AI™ when compared to BL21(DE3)pLysS. A model toxic protein, elastin-like peptide-TEV protease fusion (ELP-TEV), was expressed from pET11b. BL21-AI™ *E. coli* was either uninduced (U) or induced (I) with 0.1% arabinose and 1 mM IPTG. BL21(DE3)pLysS was either un-induced (U) or induced (I) with 1 mM IPTG.

Give it a shot

With BL21-AI™ One Shot® Chemically Competent *E. coli*, you get a complete kit that you can depend on for top performance. Each One Shot® kit contains 21 individual tubes of competent cells, 6 ml of S.O.C. medium, and pUC18 positive control. You only thaw the cells you need. No efficiency-zapping freeze-thaw cycles. No money wasted on unused cells. Perform your transformation directly in the tube and get great results every time.

Take control

Use BL21-AI™ with any T7 promoter-containing vector for tightly controlled, high-level protein expression. You'll get the regulation and yield your experiment requires. Call and order today.

Product	Efficiency*	Quantity	Cat. no.
BL21-AI™ One Shot® Chemically Competent *E. coli*	> 1 x 10^8	20 x 50 µl	C6070-03

* Transformation efficiency is calculated as cfu/µg of supercoiled pUC18 plasmid.

Genotype: F$^-$ *ompT hsdS*$_B$(r_B^- m_B^-) *gal dcm araB::T7RNAP-tetA*.

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