Bio*Blue* Chemically Competent Cells

Shipping: On Dry Ice

Batch No.: See vial

Catalog numbers

BIO-85036 ≥10^8 cfu/µg of pUC19

BIO-85037 ≥10^9 cfu/µg of pUC19

Store at –80°C

Storage and stability:
Bio*Blue* Chemically Competent Cells are shipped on Dry/Blue Ice and stored at –80°C.

Expiry
When stored under the recommended conditions and handled correctly, full activity of the cells is retained until the expiry date on the outer box label.

Product Specifications:

Efficiency	Pack Size	Control Vector
≥10^8 cfu/µg of pUC19	2ml (10 x 200µl)	pUC19 (10pg/µl)
≥10^9 cfu/µg of pUC19	1ml (20 x 50µl)	pUC19 (10pg/µl)

Genotype:
*recA*1 *endA*1 *gyrA*96 *thi*-1 *hsdR*17($r_k^-m_k^+$) *supE*44 *relA*1 *lac* [F' *proAB lacI*^{q}ZDM15 Tn10(Tet^r)]

Safety precautions
This product is for R&D use only, not for human use, or any other use. Please refer to the material safety data sheet for information regarding hazards and safe handling practice.

Notes
Research Use Only.

Features

- Maintenance of F' episome facilitated by antibiotic resistance, eliminating the need to select on minimal media plates
- Available in two efficiencies: ≥10^8 or ≥10^9 cfu/µg of pUC19

Applications

- Single-stranded plasmid rescue
- Ideal strain for preparation of high-quality plasmid DNA
- Routine cloning, using λ DNA or plasmid vectors
- Blue/white color screening

Description

BIO*Blue* Chemically Competent Cells provide an ideal host for optimal preparation of both high-quality plasmid and Lambda phage vectors. The BIO*Blue* strain allows blue/white color screening through α-complementation of the ß-galactosidase gene. The endA1 phenotype allows production of high-quality plasmid DNA. Single-stranded DNA can be produced from plasmids containing a phage f1 origin.

BIO*Blue* is also an excellent host for M13 and related filamentous phage, and supports blue/white plaque screening and phage production. Maintenance of the F' episome in this strain is facilitated via selection with tetracycline, unlike strains such as JM101 which require growth on minimal media. This strain is available in efficiencies of both >10^8 and >10^9 cfu/µg of pUC19.

Suggested Transformation Procedure for Optimal Results:

1. Remove cells from –80°C and let thaw on wet ice.
2. Gently mix cells by lightly flicking tube. Aliquot ~50-100µl of cells into chilled, 17 x 100mm polypropylene tube(s), e.g., Falcon 2059. Unused cells may be refrozen, but a small drop in efficiency may result. For optimal recovery, refreeze cells in a dry ice/ ethanol bath prior to -80°C storage.
3. Add DNA solution (≤5µl per 50µl cells) to cell suspension and gently swirl tube(s) for a few seconds to mix. If a control is desired, repeat this step with 2µl of the provided Control Vector (pUC19) in a separate tube.
4. Incubate on ice for 30 minutes.
5. Place tube(s) in 42°C water bath for ~30 to 45 seconds without shaking. For 50µl aliquots in Falcon 2059 tubes, 30 seconds is recommended for maximum efficiency.
6. Replace tube(s) on ice for ~2 minutes.
7. Dilute transformation reaction(s) to 1ml by addition of 900-950µl SOC. SOC Medium: 2% Tryptone, 0.5% Yeast Extract, 0.4% glucose, 10mM NaCl, 2.5mM KCl, 10mM $MgCl_2$ & 10mM $MgSO_4$.
8. Shake tube(s) ~200 rpm for 60 minutes at 37°C.
9. Plate by spreading 5-200µl of cell transformation mixture on LB agar plates containing appropriate antibiotic and incubate overnight at 37°C.

When performing the pUC19 control transformation, plate 5µl of the transformation mixture on a LB agar plate containing 100µg/ml ampicillin. To facilitate cell spreading, place a pool of SOC (100µl) onto surface of plate prior to addition of transformation mixture.

Transformation Efficiency Calculation for Control Vector

$$\text{Transformation Efficiency (cfu/µg pUC19 DNA)} = \frac{\text{\# colonies (colony forming units)}}{\text{pg pUC19 transformed}} \times \frac{10^6\,\text{pg}}{\text{µg}} \times \frac{\text{Final volume (µl) of transformation mix}}{\text{Volume plated (µl)}}$$

For example:
If 40 colonies were obtained after transforming 20pg of pUC19 and plating 5µl of the final 1ml transformation mixture, the calculated transformation efficiency would be:

$$\frac{40\text{cfu}}{20\text{pg pUC19}} \times \frac{10^6\,\text{pg}}{\text{µg}} \times \frac{1000\text{µl}}{5\text{µl}} = 4 \times 10^8 \text{ cfu/µg pUC19}$$

Associated Products:

Product Name	Pack Size	Cat No
T4 DNA Ligase	500 Units	BIO-27026
Quick-Stick Ligase	50 Reactions	BIO-27027
IPTG	5g	BIO-37036
X-GAL	1g	BIO-37035

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