



## Product Insert

# BIOBlue Chemically Competent Cells

### Catalogue Numbers:

BIO-85036             $\geq 10^8$  cfu/ $\mu$ g of pUC19  
 BIO-85037             $\geq 10^9$  cfu/ $\mu$ g of pUC19

### Features

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

### Applications

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

### Description

BIOBlue Chemically Competent Cells provide an ideal host for optimal preparation of both high-quality plasmid and Lambda phage vectors. The BIOBlue strain allows blue/white color screening through  $\alpha$ -complementation of the  $\beta$ -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.

BIOBlue 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/ $\mu$ g of pUC19.

### Product Specifications

<b>Efficiency</b>	<b>Pack Size</b>	<b>Control DNA</b>
$\geq 10^8$ cfu/ $\mu$ g of pUC19	1ml (10 x 100 $\mu$ l)	pUC19 (10pg/ $\mu$ l)
$\geq 10^9$ cfu/ $\mu$ g of pUC19	1ml (20 x 50 $\mu$ l)	pUC19 (10pg/ $\mu$ l)

### Genotype:

*recA1 endA1 gyrA96 thi-1 hsdR17 (r<sub>k</sub>m<sub>k</sub><sup>+</sup>) supE44 relA1 lac [F' proAB lacI<sup>Z</sup>ΔM15 Tn10(Tet<sup>r</sup>)]*

### Storage Conditions:

BIOBlue Chemically Competent Cells can be stored for 6 months at -80°C.

### Shipping Conditions:

On Dry Ice

### 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
T4 DNA Polymerase	500 Units	BIO-27035

### Notes

1. This product insert is a declaration of analysis at the time of manufacture.
2. Research Use Only.

### 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 ~50-100 $\mu$ l 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 storage at -80°C.
- 3) Add DNA solution ( $\leq 5\mu$ l per 50 $\mu$ l cells) to cell suspension and gently swirl tube(s) for a few seconds to mix. If a control is desired, repeat this step with 2 $\mu$ l of the provided pUC19 in a separate tube.
- 4) Incubate on ice for 30 minutes.
- 5) Place tube(s) in 42°C water bath for ~45 seconds without shaking.
- 6) Replace tube(s) on ice for ~2 minutes.
- 7) Dilute transformation reaction(s) to 1ml by addition of 900-950 $\mu$ l SOC. SOC Medium: 2% Tryptone, 0.5% Yeast Extract, 0.4% glucose, 10mM NaCl, 2.5mM KCl, 10mM MgCl<sub>2</sub> & 10mM MgSO<sub>4</sub>.
- 8) Shake tube(s) ~200 rpm for 60 minutes at 37°C.
- 9) Plate by spreading 5-200 $\mu$ l of cell transformation mixture on LB agar plates containing appropriate antibiotic and incubate overnight at 37°C.
  - When performing the pUC19 control transformation, plate 5 $\mu$ l of the transformation mixture on a LB agar plate containing 100 $\mu$ g/ml ampicillin. To facilitate cell spreading, place a pool of SOC (100 $\mu$ l) onto surface of plate prior to addition of transformation mixture.

### Transformation Efficiency Calculation for Control DNA

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

### For example:

If 40 colonies were obtained after transforming 20pg of pUC19 and plating 5 $\mu$ l of the final 1ml transformation mixture, the calculated transformation efficiency would be:

$$\frac{40 \text{ cfu}}{20 \text{ pg pUC19}} \times \frac{10^6 \text{ pg}}{\mu\text{g}} \times \frac{1000 \mu\text{l}}{5 \mu\text{l}} = 4 \times 10^8 \text{ cfu/\mu g pUC19}$$

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