

# $\alpha$ -Select Silver Efficiency Chemically Competent Cells

Shipping: On Dry Ice    Catalog numbers  
Batch No.: See vial    BIO-85026  $\geq 10^8$  cfu/ $\mu$ g of pUC19  
BIO-85046  $\geq 10^8$  cfu/ $\mu$ g of pUC19



A Meridian Life Science® Company

Store at  $-80^{\circ}\text{C}$

## Storage and stability

$\alpha$ -Select Chemically Competent Cells are shipped on dry ice and stored at  $-80^{\circ}\text{C}$ .

## 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
Silver 2 mL (10 x 200 $\mu$ L)		pUC19 (10 pg/ $\mu$ L)
Silver 1 mL (20 x 50 $\mu$ L)		pUC19 (10 pg/ $\mu$ L)

## Genotype

F<sup>-</sup> *deoR endA1 recA1 relA1 gyrA96 hsdR17(r<sub>k</sub><sup>-</sup>, m<sub>k</sub><sup>+</sup>) supE44 thi-1 phoA  $\Delta$ (*lacZ*YA *argF*)U169  $\Phi$ 80/*lacZ* $\Delta$ M15 $\lambda$*

## 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

- Chemically Competent
- Different efficiencies available:  $\geq 10^7$ ,  $\geq 10^8$ , or  $\geq 10^9$  cfu/ $\mu$ g of pUC19
- Accommodates larger plasmids

## Applications

- Transformation of cloned DNA into bacterial cells
- Ideal for subcloning and generating cDNA libraries
- Blue/white color screening

## Description

$\alpha$ -Select Silver Competent Cells contain a *lacZ* marker that provides  $\alpha$ -complementation of the  $\beta$ -galactosidase gene for blue/white color screening. The cells are ideal for generating cDNA libraries and subcloning.

$\alpha$ -Select Silver Competent Cells also provide *recA1* and *endA1* markers to minimize recombination and enhance the quality of the plasmid DNA. pUC19 DNA is also provided as a positive control.

### Suggested Transformation Procedure for Optimal Results:

1. Remove cells from  $-80^{\circ}\text{C}$  and let thaw on wet ice.
2. Gently mix cells by lightly flicking tube. Aliquot  $\sim 50$ -100  $\mu$ L of cells into chilled, 17 x 100 mm 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  $-80^{\circ}\text{C}$  storage.
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 Control Vector (pUC19) in a separate tube.
4. Incubate on ice for 30 minutes.
5. Place tube(s) in  $42^{\circ}\text{C}$  water bath for  $\sim 30$  to 45 seconds without shaking. For 50  $\mu$ L aliquots in Falcon 2059 tubes, 30 seconds is recommended for maximum efficiency.
6. Replace tube(s) on ice for  $\sim 2$  minutes.
7. Dilute transformation reaction(s) to 1 mL by addition of 900-950  $\mu$ L SOC (SOC Medium: 2% Tryptone, 0.5% Yeast Extract, 0.4% glucose, 10 mM NaCl, 2.5 mM KCl, 10 mM MgCl<sub>2</sub> & 10 mM MgSO<sub>4</sub>).
8. Shake tube(s)  $\sim 200$  rpm for 60 minutes at  $37^{\circ}\text{C}$ .
9. Plate by spreading 5-200  $\mu$ L of cell transformation mixture on LB agar plates containing appropriate antibiotic and incubate overnight at  $37^{\circ}\text{C}$ .

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 Vector

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

### For example:

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

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

### Associated Products:

Product Name	Pack Size	Cat No
$\alpha$ -select Gold Chemically Competent Cells	1 mL	BIO-85027
$\alpha$ -select Bronze Chemically Competent Cells	2 mL	BIO-85025
Quick-Stick Ligase	50 Reactions	BIO-27027
IPTG	5g	BIO-37036
X-GAL	1g	BIO-37035

### Product Citations:

1. Zane, G. M., *et al. Appl. Environ. Microbiol.* **76(16)**, 5500-09 (2010).
2. Hornsey, M., *et al. J. Antimicrob. Chemother.* **65 (8)**, 1589-1593 (2010).
3. Broeham, G., *et al. Insect Biochem. Mol. Biol.* **40(3)**, 274-283 (2010).
4. Goldfinch, N., *et al. Vet. Res.* **41(5)**, 62 (2010).
5. Thaler, A. D., *et al. Conservation Gene. Res.* DOI: 10.1007/s12686-010-9174-9 (2010).
6. Allerston, C.K., *et al. Mol. Gene. Metab.* **98(1-2)**, 198-202 (2009).

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