



## Product Insert

# α-Select Chemically Competent Cells Bacteriophage T1-Resistant

### Catalogue Numbers:

BIO-85029       $\geq 10^8$  cfu/μg of pUC19 (Silver Efficiency)  
 BIO-85030       $\geq 10^9$  cfu/μg of pUC19 (Gold Efficiency)

### Features

- Bacteriophage T1-Resistant chemically competent cells
- Two efficiencies:  $\geq 10^8$  or  $\geq 10^9$  cfu/μg of DNA
- Accommodate larger plasmids

### Applications

- Blue/white color screening
- Construction of gene banks
- Generation of cDNA libraries using plasmid-derived vectors
- Blue/white color screening
- High quality plasmid preparation
- Hosting H13mp cloning vectors

### Description

α-Select Competent Cells contain a *lacZ* marker that provides α-complementation of the β-galactosidase gene for blue/white color screening. The cells are ideal for generating cDNA libraries and subcloning. α-Select Competent Cells also provide *recA1* and *endA1* markers to minimize recombination and enhance the quality of plasmid DNA. pUC19 DNA is also provided as a positive control.

Both Silver and Gold Efficiency Chemically Competent Cells are available as bacteriophage T1-Resistant strains. Many laboratories have experienced bacteriophage T1 outbreaks, as T1 attacks *E. coli* and spreads rapidly. α-Select T1-Resistant cells protect samples from bacteriophage infection.

### Product Specifications

Efficiency	Pack Size	Control DNA
Silver	2ml (10 x 200μl)	pUC19 (10pg/μl)
Gold	1ml (20 x 50μl)	pUC19 (10pg/μl)

### 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 Δ(lacZYA-argF)U169 Φ80lacZΔM15 λ<sup>-</sup>*

### Storage Conditions:

α-Select Competent Cells Bacteriophage T1-Resistant 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

### Note

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 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 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 900-950μl 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) at ~200rpm 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 DNA

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

### 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:

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

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