α-Select Chemically Competent Cells
Bacteriophage T1-Resistant

Shipping: On Dry Ice

Exp. Date: See vial

Batch No.: See vial

Catalog numbers

BIO-85029 ≥10^8 cfu/µg of pUC19 (Silver Efficiency)

BIO-85030 ≥10^9 cfu/µg of pUC19 (Gold Efficiency)

BIOLINE
A Meridian Life Science® Company

Store at –80°C

Storage and stability:
α-Select Chemically Competent Cells Bacteriophage T1-Resistant are shipped on Dry Ice and can be stored for up to 6 months at –80°C.

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$^-$ *deo*R *end*A1 *rec*A1 *rel*A1 *gyr*A96 *hsd*R17(r_k^-, m_k^+) *sup*E44 *thi*-1 *pho*A Δ(*lac*ZYA-*arg*F) U169 Φ80*lac*ZΔM15 I$^-$

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

Features

- Bacteriophage T1-Resistant chemically competent cells
- Two efficiencies: ≥10^8 or ≥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
- High quality plasmid preparation
- Hosting H13mp cloning vectors

Description

α-Select Competent Cells contain a *lac*Z marker that provides α -complementation of the ß-galactosidase gene for blue/white color screening. The cells are ideal for generating cDNA libraries and subcloning. α-Select Competent Cells also provide *rec*A1 and *end*A1 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.

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 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 DNA

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

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:

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

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

Product Citations:

1. Stat, M., et al. PLoS One **6(1)**, e15854 (2011)
2. Hornsey, M. et al. J. Antimicro. Agents **35(5)**, 478-81 (2010)
3. Almeida-Vega, S., et al. Am. J. Physiol. Gastrointest. Liver Physiol, **296**, 414-23 (2009)
4. Schultz, J. K., et al. J. Heredity **100(1)**, 25-33 (2009)
5. Catlow, K., et al. JBC **282**, 17069-77 (2007)
6. Donato, J.J., et al. PLoS Genet **2(9)**, e141 (2006)

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