Alpha-Select Chemically Competent Cells

Shipping: On Dry Ice

Batch No.: See Box

Catalog numbers

BIO-85027	≥10^9 cfu/µg of pUC19	- Gold
BIO-85026	≥10^8 cfu/µg of pUC19	- Silver
BIO-85046	≥10^8 cfu/µg of pUC19	- Silver
BIO-85025	≥10^7 cfu/µg of pUC19	- Bronze

BIOLINE
A Meridian Life Science® Company

Store at –80 °C

Storage and stability
α-Select Chemically Competent Cells are shipped on dry 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
Gold	1 mL (20 x 50 µL)	pUC19 (10 pg/µL)
Silver	2 mL (10 x 200 µL)	pUC19 (10 pg/µL)
	1 mL (20 x 50 µL)	pUC19 (10 pg/µL)
Bronze	2 mL (10 x 200 µL)	pUC19 (10 pg/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*ZΔM15λ$^-$

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 practices.

Notes
Manufactured under ISO 13485 quality standards. Research use only

Features

- Chemically Competent
- Variety of efficiencies: ≥10^7, ≥10^8, or ≥10^9 cfu/µg of pUC19
- Accommodates larger plasmids

Applications

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

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.

α-Select Competent Cells also provide *rec*A1 and *end*A1 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 °C and leave to thaw wet ice*.
2. If using BIO-85027, Transformation reactions can be performed in the same tubes in which competent cells are supplied. If using BIO-85025 or BIO-85026, thaw as many tubes as required, mix cells by very gently flicking, gently transfer 50 µL of cells into required number of chilled, sterile 1.5 mL tubes.

**Refreezing the unused cells is not recommend. If necessary , re-freeze cells on dry ice/ethanol bath prior to storage –80 °C. A drop in efficiency may result after refreezing.*

3. Add DNA solution (=5 µL per 50 µL 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 µL 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 50 µL aliquots, 40 seconds is recommended for maximum efficiency/
6. Replace tube(s) on ice for ~2 minutes.
7. Dilute transformation reaction(s) to 1 mL by addition of 900-950 µL SOC (SOC Medium: 2% Tryptone, 0.5% Yeast Extract, 0.4% glucose, 10 mM NaCl, 2.5 mM KCl, 10 mM $MgCl_2$ & 10 mM $MgSO_4$).
8. Shake tube(s) ~250 rpm for 60 minutes at 37 °C.
9. Plate by spreading 5-200 µL of cell transformation mixture on LB agar plates containing appropriate antibiotic and incubate overnight at 37°C.

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

Transformation Efficiency Calculation for Control Vector
For example:

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

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

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

Associated Products:

Product Name	Pack Size	Cat No
Quick-Stick Ligase	50 Reactions	BIO-27027
IPTG	5 g	BIO-37036
X-GAL	1 g	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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