



**Product Insert**  
**α-Select Electrocompetent Cells**

**Catalogue Number:**  
BIO-85028

**Features**

- Comparable to DH5α™ \*
- Electroporation grade
- >10<sup>9</sup>, transformation efficiency.
- Convenient 100µl aliquots
- Accommodate larger plasmids

**Applications**

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

**Description**

α-Select Competent Cells Electrocompetent contain a *lacZ* marker that provides α-complementation of the β-galactosidase gene for blue/white colour screening. The cells are ideal for generating cDNA libraries and subcloning. α-Select Competent Cells Electrocompetent 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.

**Product Specifications**

Efficiency	Pack Size	Control DNA
≥10 <sup>9</sup> cfu/µg of pUC19	1ml (10 x 100µl)	pUC19 (10pg/µl)

**Genotype:**  
*deoR endA1 recA1 relA1 gyrA96 hsdR17(r<sub>k</sub><sup>+</sup>m<sub>k</sub><sup>+</sup>) supE44 thi-1 Δ(lacZYA-argFV169) Φ80δlacZΔM15 F<sup>'</sup>*

**Lot Efficiency:**

This lot of electroporation competent cells was tested with an EquiBio Easyject Optima electroporator using a 0.1cm cuvette. Using settings recommended by the manufacturer and protocol as described below, actual pulse times were >4.5ms and transformation efficiencies >10<sup>9</sup> cfu /µg pUC19 DNA.

**Storage Conditions:**

α-Select Competent Cells Electrocompetent should be stored at -70°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) Pre-chill electroporation cuvettes, electroporation chamber (if applicable), and microcentrifuge tubes on ice.
- 2) Remove cells from -70°C and thaw on ice.
- 3) Place 40-50µl of the competent cells into a chilled microcentrifuge tube. Add 1-5µl of sample DNA to cells. Thoroughly mix by gently pipetting and incubate on ice for approximately 1 minute. Note: For optimal results, sample DNA should be in sterile H<sub>2</sub>O or low ionic strength buffer such as TE. If a control is desired, repeat this step with 2µl of the provided pUC19 in a separate tube. Refreeze any unused cells and store at -70° C.
- 4) Transfer cell mixture into a pre-chilled cuvette and pulse using settings recommended by manufacturer of electroporator. As a general guideline, maximum transformation efficiency is normally attained using cuvettes with a 0.1 cm gap with an applied voltage of ~1800 (field strength of ~18 kV/cm).
- 5) Immediately dilute pulsed cells to 1ml with SOC medium and transfer to a sterile culture tube. SOC: 2% Tryptone, 0.5% Yeast Extract, 0.4% glucose, 10mM NaCl, 2.5mM KCl, 10mM MgCl<sub>2</sub> & 10mM MgSO<sub>4</sub>
- 6) Gently shake culture tube ~200rpm for 60 minutes at 37°C.
- 7) 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 Efficiency** =  $\frac{\text{\# colonies (colony forming units)}}{\text{pg pUC19 transformed DNA}} \times \frac{10^6 \text{ pg}}{\mu\text{g}} \times \frac{\text{Final volume } (\mu\text{l}) \text{ of transformation mix}}{\text{Volume plated } (\mu\text{l})}$

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**

**For example:**

If 300 colonies were obtained after transforming 20pg of pUC19 and plating 5µl of the final 1ml transformation mixture, the calculated transformation efficiency would be:

$$300\text{cfu} \times 10^6\text{pg} \times 1000\mu\text{l} = 3 \times 10^9 \text{ cfu}/\mu\text{g of pUC19}$$

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