



## Product Insert

# ElectroSHOX Competent Cells

**Catalogue Numbers:**  
 BIO-85038       $\geq 10^{10}$  cfu/ $\mu$ g of pUC19

**Features**

- Efficient transformation of large plasmids (>30Kb)
- Highest efficiency available:  $>10^{10}$  cfu/ $\mu$ g pUC19
- *recA1* and *endA1* markers to minimize recombination events and improve the quality of plasmid DNA
- Lacks *E. coli* K restriction-modification system, to facilitate cloning of methylated genomic DNA
- Convenient 100 $\mu$ l aliquots

**Applications**

- Construction of cDNA and genomic DNA libraries
- Ideal for transformation of large plasmids (>30Kb)
- Blue/white color screening
- Construction of gene banks
- Efficient plasmid rescue from eukaryotic genomes

**Description**

ElectroSHOX Competent Cells are highly efficient *E. coli*, ideal for the construction of cDNA or genomic libraries using electroporation. The *lacZ* mutation allows blue/white color screening and  $\alpha$ -complementation of recombinants. The *recA1* and *endA1* markers minimize recombination events and improve the quality and yield of plasmid DNA. In order to facilitate cloning of methylated genomic DNA, ElectroSHOX lacks *E. coli* K restriction-modification systems, and is ideal for the transformation of large plasmids (>30Kb).

**Product Specifications**

Efficiency	Pack Size	Control DNA
$\geq 10^{10}$ cfu/ $\mu$ g of pUC19	1ml (10 x 100 $\mu$ l)	pUC19 (10pg/ $\mu$ l)

**Genotype:**  
 F *mcrA*  $\Delta$ (*mrr-hsdRMS-mcrBC*)  $\Phi$ 80*lacZ*  $\Delta$ M15  $\Delta$ *lacX74* *recA1* *endA1* *ara*  $\Delta$ 139  $\Delta$ (*ara, leu*)7697 *galU* *galK*  $\lambda$ -*rpsL* (Str<sup>R</sup>) *nutP*

**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 >4.5 ms and transformation efficiencies  $>10^9$  cfu/ $\mu$ g of pUC19 DNA.

**Storage Conditions:**  
 ElectroSHOX Competent Cells 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

- 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 -80°C and let thaw on ice.
3. Place 40-50 $\mu$ l of the competent cells into a chilled microcentrifuge tube. Add 1-5 $\mu$ l of sample DNA to cells. Thoroughly mix by gently pipetting and incubate on ice for approximately 1 minute.
4. 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 2 $\mu$ l of the provided pUC19 in a separate tube. Refreeze any unused cells and store at -80°C.
5. 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 0.1cm gap with an applied voltage of ~1800 (field strength of ~18 kV/cm).
6. Immediately dilute pulsed cells to 1ml with SOC medium and transfer to a sterile culture tube.
7. Gently shake culture tube ~200rpm for 60 minutes at 37°C.
8. Plate by spreading 5-200 $\mu$ l of cell transformation mixture on LB agar plates containing appropriate antibiotic and incubate overnight at 37°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 DNA**

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

**For example:**  
 For example, if 300 colonies were obtained after transforming 20pg of pUC19 and plating 5 $\mu$ l of the final 1ml transformation mixture, the calculated transformation efficiency would be:

$$\frac{300 \text{ cfu}}{20 \text{ pg pUC19}} \times \frac{10^6 \text{ pg}}{\mu\text{g}} \times \frac{1000 \mu\text{l}}{5 \mu\text{l}} = 3 \times 10^9 \text{ cfu/\mu g pUC19}$$

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