

## PRODUCT INFORMATION

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**Product Name :** Competent Cell DH5 $\alpha$   
**Code No. :** DS220  
**Size :** 100  $\mu$ l  $\times$  10  
**Competency :**  $> 2 \times 10^8$  cfu/ $\mu$ g (pBR322)  
**Supplied product :** SOC medium, 1 ml  $\times$  10

*This product is research use only*

### Description :

Competent Cells from BioDynamics Laboratory Inc. are manufactured by sophisticated procedure and under stringent quality control. Competent Cell of *E coli* strain DH5 $\alpha$  is one of the standard competent cells for molecular biology applications. The DH5 $\alpha$  cell has mutation of  $\phi$ 80*lacZ* $\Delta$ M15 and lacks *lacI*<sup>q</sup> gene, which allows blue-white color screening of transformants with X-gal (IPTG is not required).

### Genotype of *E coli* strain DH5 $\alpha$ :

*supE44,  $\Delta$ lacU169( $\phi$ 80*lacZ* $\Delta$ M15), *hsdR17, recA1, endA1, gyrA96, thi-1, relA1**

### Quality Control :

Transformation was carried out according to the method described in this Product Information using supercoiled pBR322 plasmid. Transformants were plated on LB plates containing 50  $\mu$ g/ml ampicillin. The efficiency was confirmed to be greater than  $2 \times 10^8$  cfu/ $\mu$ g.

### Storage condition :

Stable at -80°C with little or no loss in transformation efficiency for 12 months from the date of receipt.

Competent Cells are sensitive to variation in temperature. Must be stored at - 80 °C. Upon receipt, store the Competent Cell DH5 $\alpha$  in freezer at - 80 °C directly from a dry ice shipping box and store SOC medium at room temperature (Freezing preservation at - 80 °C is also possible ).

### Handling of competent cells :

- Competent cells are sensitive to mechanical shock. Excessive mixing should be avoided. Mix flicking the tube.
- After thawing competent cells on ice, cells tend to lose transformation efficiency gradually. Transformation should be started immediately following thawing cells on ice.
- Use of refrozen competent cells is not recommended.

### Composition of SOC medium supplied :

|           |                               |
|-----------|-------------------------------|
| 20 g/L    | tryptone                      |
| 5 g/L     | yeast extract                 |
| 0.5 g/L   | NaCl                          |
| 0.186 g/L | KCl                           |
| 2.4 g/L   | MgSO <sub>4</sub> , anhydrous |
| 4 g/L     | glucose                       |

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### Transformation Procedure :

- Materials to be supplied by user
  - LB plates with antibiotic
  - Ice bucket with ice
  - 15 ml sterilized-polypropylene culture tubes
  - 42°C water bath
  - 37°C shaker
  - Sterile spreader
  - 37°C incubator

If blue-white screening is required to select transformants,

- 20 mg/ml X-Gal in dimethylformamide (DMF)

### ● Transformation

1. Thaw the competent cells on ice (100 µl in a tube of each transformation).
2. Add DNA sample\* directly into the competent cells and mix by flicking gently.
  - \* The volume of DNA sample should not exceed 5 % of that of competent cell (i.e. 5 µl).
3. Incubate the tube on ice for 20 minutes.
4. Heat Shock the cell by placing a tube in 42°C water bath for 45 seconds. Do not mix or shake.
5. Remove tube from the 42°C bath and place them on ice for 2 min.
6. Transfer cell to 15 ml sterilized culture tubes containing 0.9 ml of SOC medium (pre-warmed at room temperature to 37°C). Culture the cell at 37°C for 1 hr in a shaker.
7. Spread aliquot of the cell to a LB agar plate containing appropriate antibiotic.

If blue-white color screening is required, spread 25 µl of 20 mg/ml X-Gal on the LB agar plates and allow the reagent to absorb 30 minutes prior to inoculating cells. As DH5α does not have *lacI<sup>q</sup>*, IPTG is not required basically.

8. Incubate the plate at 37°C overnight.

### Reference:

Sambrook, J. and Russell, D.W. (2001) Molecular Cloning: A Laboratory Manual, 3rd ed., Cold Spring Harbor Laboratory Press, Cold Spring Harbor, NY.

### Related Products:

|        |                              |       |                               |
|--------|------------------------------|-------|-------------------------------|
| DS110  | DNA Ligation Kit ver. 2      | DS210 | Competent Cell JM109          |
| DS220L | Competent Cell DH5α Large    | DS225 | Jet Competent Cell (DH5α)     |
| DS240  | Competent Cell BL21          | DS250 | Competent Cell BL21(DE3)      |
| DS255  | Zip Competent Cell BL21(DE3) | DS260 | Competent Cell BL21(DE3)pLysS |