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Reagents, Chemicals & Kits

Cat #: 42-654

NSN #: 655000L068515

GC5™ Competent Cells – High Efficiency Cat #: 42-654

Unit Size: 1ml
Amount: 5 x 200µl
pUC19 control (10 pg/µL): 1 x 10µl
Storage: Store at -70°C. FOR RESEARCH USE ONLY

General Description

GC5 Competent Cells are chemically competent *E.coli* cells. The cells are transformed by heat-shock methods. These competent cells are resistant to the lytic bacteriophages T1 and T5.

GC5 Competent Cells are suitable for many molecular biology applications, like generating cDNA libraries from plasmid-based vectors or constructing gene banks. Blue/white screening for recombinants can be performed by including X-gal and IPTG in the agar plates.

The GC5 strain is sensitive to these common antibiotics: ampicillin, kanamycin, chloramphenicol and tetracycline. It is resistant to naladixic acid.

General Handling

- Competent cells are very sensitive to any change in temperature. Cells must be thawed on ice. The transformation should be started immediately after the cells are thawed.
- Competent cells must be treated gently. Mix cells by swirling or gently tapping the reaction tube. Do not mix by pipetting or vortexing.
- Once thawed, the cells should be used. Re-freezing thawed competent cells will result in a significant drop in transformation efficiency.

Genotype

F- ϕ80*lac*ZΔM15 Δ(*lac*ZYA-*arg*F)U169 *rec*A1 *end*A1 *hsd*R17(r_k -, m_{k+}) *pho*A *sup*E44 *thi*-1 *gyr*A96 *rel*A1 λ- *ton*A

Efficiency

≥ 10^9 transformants/µg pUC19 DNA

pUC19 DNA Storage Buffer

Control DNA is supplied in TE Buffer [10mM Tris-HCl pH 8.0, 0.1mM EDTA].

Notes on Ligation Reactions

Ligation reactions inhibit transformation. Less transformants are observed from ligation reactions than from transformations with plasmid DNA.

Use 0.5µL of a ligation reaction per 50µL of competent cells. For best results, either purify the ligation mixture by ethanol precipitation prior to transformation or dilute the ligation reaction 3-fold in TE buffer and use 1µL per 50µL competent cells.

Advance Preparations

- Equilibrate a non-shaking water bath to 42°C.
- Place SOC Medium at room temperature.
- Prepare LB agar plates with the appropriate antibiotic. If blue/white screening for recombinants is desired, the plates should include 40µg/mL X gal and 1mM IPTG.
- Agar plates should be placed in a 37°C incubator for about 30min. prior to plating.

Transformation Protocol for Chemically Competent GC5 Cells

1. Remove competent cells from -70°C and place directly in ice. Thaw cells for 5 to 10min.
2. Gently mix cells by tapping tube.
3. Add 1-50pg of DNA [or 1µL control DNA] into the 50µL competent cells. Swirl the pipettor tip through the cells while dispensing DNA. Gently tap tube to mix.
4. Place the tubes on ice for 30min.
5. Heat-shock the cells for 45sec. in a 42°C water bath. Do not shake.
6. Add 450µL of room temperature SOC medium to each transformation reaction.
7. Incubate at 37°C for one hour, with shaking (225 to 250rpm).
8. Spread on LB agar plates containing appropriate antibiotic (e.g., 100µg/mL ampicillin for control pUC19).
9. Incubate the plates at 37°C overnight (12 to 16 hours).

SOC Medium Formulation

2% Tryptone, 0.5% Yeast Extract, 0.4% glucose, 10mM NaCl, 2.5mM KCl, 5mM $MgCl_2$, 5mM $MgSO_4$.

Quality Control

Cells must have a transformation efficiency of ≥ 1.0 x 10^9 transformants/µg pUC19 DNA (non-saturating conditions). Cells must show resistance to T5 phage.

Toll Free: 800.789.5550 **Fax:** 888.789.0444 **Web:** www.geneseesci.com **Email:** support@geneseesci.com

Related Products

Description	Cat #	Size*
BL21 Competent Cells	42-600 42-601	20 x 50µl 5 x 200µl
BL21 (DE3) Competent Cells	42-602 42-603 42-604	20 x 50µl 5 x 200µl 96 x 20µl plate
BL21 (DE3)pLysS Competent Cells	42-606 42-607 42-608	20 x 50µl 5 x 200µl 96 x 20µl plate
Value Efficiency GC5™ Competent Cells	42-650	10 x 200µl
High Efficiency GC10™ Competent Cells	42-658 42-660	20 x 50µl 5 x 200µl
Thunderbolt™ GC10 ElectroCompetent Cells	42-664 42-666	5 x 80µl 5 x 100µl
High Efficiency JM109 Competent Cells	42-670	5 x 200µl
SOC Medium	42-750	10 x 10mL
X-gal	20-108	1 gram
IPTG	20-109	5 grams

*Additional sizes available. See www.geneseesci.com

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