GENE CHOICE
A Genesee Scientific Brand

GC5 Mix & Plate™ Competent Cells

Cat. No.	Size	Amount
42-652MG	1ml	10 x 100 µl (tubes)
42-655MG	4.8ml	96 x 50 µl (12 x 8-strip tubes)

Store at -70°C. FOR RESEARCH USE ONLY

General Description

GC5 Mix & Plate™ E. coli are premade chemically competent cells used for simple and highly efficient DNA transformation. GC5 Mix & Plate E. coli cells are made chemically competent by a unique method that completely eliminates the need for heat shock and related procedures. For transformation, DNA can be added directly to GC5 Mix & Plate cells, and the mixture spread directly to a culture plate - ***Mix & Plate!*** Transformation efficiencies typically range from 10^8-10^9 transformants/µg of pUC19 DNA, which make the cells optimal for cloning, sub-cloning, library construction, etc. Premade GC5 Mix & Plate cells are supplied as a pack of 10 convenient 100 µl/tube aliquots or in a 96-well format (12 x 8-tube strips) of 50 µl/tube.

Highlights

- Feature fast transformation kinetics: No heat shock, no lengthy incubations, no outgrowth procedures, no wait!
- High transformation efficiencies: 10^8-10^9 transformants/µg plasmid DNA.
- Simple: Mix DNA with cells for a few seconds and plate. *Mix & Plate!*

Genotype

F- φ80dlacZΔM15 Δ(lacZYA-argF)U169 deoR, recA1 endA1 hsdR17(rk- mk+ phoA supE44 λ- thi-1 gyrA96 relA1

Efficiency

≥ 10^8-10^9 transformants/µg of pUC19 DNA

Notes for High Efficiency Transformation

1. *E. coli* Strains

Different *E. coli* strains vary in their ability to be transformed with DNA. Strains like GC5, JM109, C600, and TG1 typically yield the highest transformation efficiencies.

2. Incubation Time

The "*Mix & Plate!*" procedure will work for most transformations using Ampicillin selection and not requiring outgrowth. The highest transformation efficiencies can be obtained by incubating the cells with DNA on ice for 2-5 minutes (60 minutes maximum) prior to plating.

3. Prewarming Culture Plates

Chilled plates will decrease GC5 Mix & Plate cell transformation efficiency. It is recommended that culture plates be pre-warmed to >20ºC (preferably 37ºC) prior to plating.

4. Addition of SOC Medium to Transformation Mixtures (Outgrowth)

When selecting with Kanamycin, Tetracycline, etc., an outgrowth performed in SOC medium is required for efficient transformation. In most cases, this step can be omitted when selecting with Ampicillin. After the transformation mixture has incubated on ice for 5-10 min, add 4 volumes of SOC (400 µl of SOC to 100 µl of transformation mixture) and incubate for 1 hour at 37ºC with gentle shaking at 200-300 rpm. Afterwards, spread the mixture directly onto pre-warmed culture plates. Reducing agents [e.g., DTT (Dithiothreitol) and 2-ME (β-mercaptoethanol)] are not required in this procedure.

Protocol

Pre-warm culture plates to 37ºC before starting. Since chemically competent cells are extremely sensitive to changes in temperature, transformation should be performed immediately after thawing.

Transformation Procedures

Single Tube Aliquots

1. To a tube of GC5 Mix & Plate cells thawed on ice, add 1-5 µl plasmid DNA, and then mix gently for a few seconds. (For Mix & Plate! Transformation, go to Step 3 directly. Ampicillin selection only.)

2. Immediately place on ice and incubate for 2-5 minutes (maximum 60 minutes).

3. Spread 50-100 µl onto a pre-warmed culture plate. Incubate the plate at the appropriate temperature (e.g., 37ºC) for the colonies to grow.

96-Well Format (8-Tube Strips)

1. To each tube of GC5 Mix & Plate cells thawed on ice, add 1-3 µl plasmid DNA, and then mix gently for a few seconds. (For Mix & Plate! Transformation, go to Step 3 directly. Ampicillin selection only.)

2. Immediately place on ice and incubate for 2-5 minutes (maximum 60 minutes).

3. Spread 25-50 µl of the mixtures onto pre-warmed culture plates. Incubate the plate at the appropriate temperature (e.g., 37ºC) for the colonies to grow.

Note: The procedures above are for plasmids containing Ampicillin resistant markers. If Kanamycin, Tetracycline, Chloramphenicol, Erythromycin or any non-lactamase selection markers are used, an outgrowth step is required prior to plating. (see Notes Section 2 and 4 regarding **Incubation Time** & **Outgrowth**).

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