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GENAXXON bioscience

Chemically competent *E.coli* cells

For convenient and easy transformation of DNA into *E.coli*.

Version: 25092005

Product	Cat#	Package size
Chemically competent cells TZ101α; 10 x 0.1mL	M3434.0010	10 transformations
Chemically competent cells TZ101α; 20 x 0.1mL	M3434.0020	20 transformations
Chemically competent cells TZ101α; 96 x 0.05mL (in 96 well plate).	M3434.0096	96 transformations
Chemically competent cells for large / toxic plasmids; TZ102α, 10 x 0.1mL	M3435.0010	10 transformations
Chemically competent cells for large / toxic plasmids; TZ102α	M3435	Other pack sizes on request.
Chemically competent cells TZ101α; 10 x 0.1mL Transformation efficiency > 1 x 10(9) cfu/µg.	M3459.1010	10 transformations
Chemically competent cells TZ101α; 2 x 0.5mL Transformation efficiency > 1 x 10(9) cfu/µg.	M3459.5010	10 transformations

Manual Contents

Subject	Page
Introduction	1
TZ101 α chemically competent cells	2
TZ102 α chemically competent cells	2
High Efficiency chemically competent cells	3
Properties of Genaxxon Cloning Hosts	3
Transformation Protocol	4
Transformation Protocol for Critical Applications	4
Precautions	4
Advantage(s) of chemically competent cells	5
Abbreviations	6
Related Products	7
Warranties & Disclaimer	8

Introduction

Your cloning and transformation results can only be as good as your competent cells – that is nothing new.

Preparing high quality competent cells is:

- not easy
- not always reproducible
- not always successful
- and in any case very time consuming

With Genaxxon competent cells you can be sure having all the time access to competent cells of highest quality, guaranteeing best results.

If you want even more convenience and security Genaxxon offers a combination of competent cells, cloning and ligation kits and ligation control kits offering tools from ligation to expression of proteins.

Abbreviations

L, mL, µL	**Litres, milli litres, micro litres respectively**
g, µg, ng	**grams, micro grams, nano grams respectively**
LB	**Luria Bertani medium**
TE	**Tris-EDTA (10 mM Tris-HCl, pH8.1, 1 mM EDTA)**
RT	**Room temperature (18°C – 24°C)**
cfu	

Related products / overview

• Alligator Ligationskit	M3430
• Alligator Ligationskit with competent cells	M3431
• Genaxxon T4 DNA Ligase	M3027
• Genaxxon pMBL TA Cloning Kit	M3164
• Genaxxon Insert Inspector	M3458
• Genaxxon DNA Gelextraction Kit	S5344
• Genaxxon JustSpin Gel Extraction Columns	S5337
• Genaxxon SpinClean Spin Columns	S5304
• Genaxxon T4 DNA Ligase	M3027

Notes on Warranties and Disclaimer

Genaxxon is dedicated to your success and every batch of this product is tested with an extensive routine procedure to make sure that it meets all your needs. However, it has neither been developed nor tested for a specific application.

This product is for research use only. For *in vitro* use only

Genaxxon's liability with respect to any product is limited to the replacement of the product. No other warranties are provided by Genaxxon. Genaxxon is not liable to any direct, indirect, incidental or consequential damage arising out of or in connection with the use of any of Genaxxon products.

Advantage of chemically competent cells

- Easy transformation of cells (only one pipetting step).
- Due to less pipetting steps contamination risk and error rate are reduced.
- Reaction time: max. 25 minutes (very often only 5 minutes instead of 20 minutes on ice are enough).
- No cross contamination by spoiled electroporation cuvettes.
- No additional equipment necessary (no Electroporator).
- No expensive electroporation cuvettes necessary.
- For “Heatshock” a simple waterbath or heating block can be used (even hot water from the tap can be used).
- A variable and, if necessary a big sample volume can be used.
  (up to 10µL sample is no problem at all)
- High ionic strength does not influence the procedure.
  (ligation reaction contain high salt concentrations!!!)
- No total loss of sample as with electroporation (short-circuit) can occur.
- Transformation efficiency of > 1 x 10^8 is enough for most, even more complicated / demanding applications (No need for expensive high competent cells (10^9).

Advantage of electro-competent cells

- Electrocompetent cells are available with higher transformation efficiency.
- Transformation process faster (about 5 minutes, if everything works well).

It’s up to you to decide

Application(s)

Chemically competent cells for routine transformations

TZ101 α

- Strain suitable for most applications.
- Blue/white screening possible.
- Due to *rec*A mutation reduction of recombination events.
- *end*A mutation ensures improved DNA plasmid quality.

Transformation efficiency > 1 x 10^8 cfu/µg

Genotype:
F’/ endA1 hsdR17 glnV44 thi-1 recA1 gyrA relA1 Δ(lacIZYA-argF)U169 deoR (Φ80dlacΔ(lacZ)M15)

Chemically competent cells for large and/or toxic plasmids

TZ102 α

- Strain suitable for critical applications.
- Blue/white screening possible.
- Due to *rec*A mutation reduction of recombination events.
- *end*A mutation ensures improved DNA plasmid quality.
- Due to *pcn*B mutation reduction of copy number of widely used high copy number plasmids (like pUC, pBluescript, ...) – therefore stabilization of large plasmids and plasmids harbouring toxic genes.
- Strain resistant to Tetracyclin.

Transformation efficiency > 5 x 10^7 cfu/µg

Genotype:
F’/ endA1 hsdR17 glnV44 thi-1 recA1 gyrA relA1 pcnB::Tn10(tet) Δ(lacIZYA-argF)U169 deoR (Φ80dlacΔ(lacZ)M15)

High Efficiency chemically competent cells

Ideal for cDNA library construction and cloning of methylated DNA

TZ101 α

- Strain suitable for most applications.
- Blue/white screening possible.
- Due to *rec*A mutation reduction of recombination events.
- *end*A mutation ensures improved DNA plasmid quality.

Transformation efficiency > 1 x 10^9 cfu/µg

Genotype:

F'/ endA1 hsdR17 glnV44 thi-1 recA1 gyrA relA1 Δ(lacIZYA-argF)U169 deoR (Φ80dlacΔ(lacZ)M15)

Properties of Genaxxon Cloning Hosts

		TZ101a	TZ102a
Blue/white screening		✓	✓
Recombinant deficient		✓	✓
Endonuclease deficient		✓	✓
Restriction deficient		✓	✓
Single strand ability		✓	✓
Reduction in copy number		-	✓
Methyl restriction deficient		-	-
Phage resistance		-	-
Lac promoter control		-	-

Transformation protocol:

1. Thaw competent cells rapidly just before use and keep them always on ice.
2. Add 10µL of the ligation mixture to 100µL competent cells and mix carefully.
3. Incubate on ice for 20 min..
4. Transfer mixture with cells rapidly to 42 °C, incubate for about 30 sec..
   IMPORTANT: Do not use higher temperatures, especially avoid prolonged incubation times and use 1,5mL reaction tubes.
5. Place mixture back on ice for 5 min.
6. Add 500 µl medium, e.g. SOC.

SOC Medium	2% Tryptone	10 mM MgCl2
	0.5% Yeast Extract	10 mM MgSO4
	10 mM NaCL	2.5 mM KCl
	20 mM Glucose	

7. For non-critical, standard experiments phenotypic expression can be done with aeration at 37 °C for about 1h. If incubation at 37°C will give negative results try 28°C for at least 60 minutes instead of 37°C.
8. Plate on appropriate selection plate and incubate at 37°C.

Transformation protocol for critical experiments:

1. For critical, experiments phenotypic expression should be done with aeration at 28 °C for about 1h.
2. Plate on appropriate selection plate and incubate at 28°C.

Cells are growing slower at 28°C (approx. 1 day till colonies are visible).

Pre-cautions

- avoid thawing of cells before use.
- keep cells on ice not longer than 3 hours. Don't use cells again, that have been on ice.
- don't re-freeze competent cells, after they have been thawed.
- you may shock freeze competent cells in liquid nitrogen. The shock freezing procedure might keep cells viable, but transformation efficiency will be lower by at least a **factor of 10**!