



Competent Cells



BIO-RAD

Competent cells for expert transformation

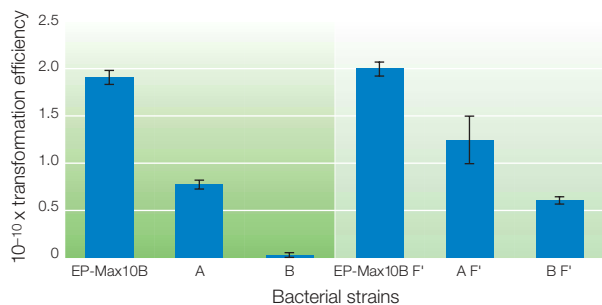
Bio-Rad offers competent cells for both electroporation and chemical transformation. Electro-competent cells provide the efficiencies necessary for more demanding cloning applications such as the construction of genomic and cDNA libraries, while chemi-competent cells provide high-efficiency convenience for most routine cloning experiments. Bio-Rad offers four choices of competent *E. coli* for your transformation needs.



EP-Max™ 10B and EP-Max10B F' Electro-Competent Cells

These cells have been developed to achieve maximum electroporation efficiencies. Highly transformable EP-Max10B and EP-Max10B F' *E. coli* strains are provided in convenient 0.10 ml vials to maintain quality and performance. Simply thaw the cells, add DNA, and electroporate. Use Bio-Rad's MicroPulser™ or Gene Pulser Xcell™ system to ensure consistent electrotransformation.

While the versatile EP-Max10B and EP-Max10B F' genotypes may be used for many applications, their very high transformation efficiencies make them ideal for demanding applications, such as establishing genomic or cDNA libraries. Additionally, EP-Max10B F' cells may be used for ssDNA production since they can be infected with bacteriophage M13. The *lacI^q* gene permits regulation of *lac*, *tac*, and *trc* promoters.



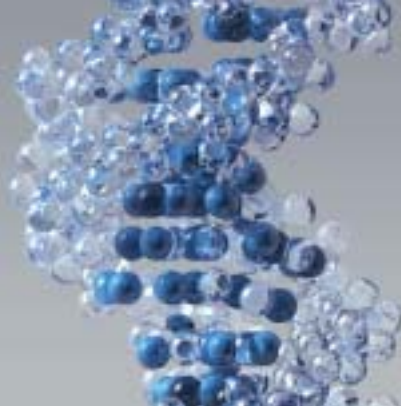
Comparison of transformation efficiency of electro-competent cells. A and B are comparable strains from the top two suppliers of competent cells.

EP-Max10B Electro-Competent Cells

- Transformation efficiencies $>1 \times 10^{10}$
- Blue/white screening for recombinants
- *endA* and *recA* mutations for high quality, high plasmid copy numbers, and a lowered risk of recombination
- Bacterial restriction system mutations for more representative libraries

EP-Max10B F' Electro-Competent Cells

- Transformation efficiencies $>1 \times 10^{10}$
- Regulatable expression due to the *lacI^q* gene
- Blue/white screening for recombinants
- *endA* and *recA* mutations for high quality, high plasmid copy numbers, and a lowered risk of recombination
- Bacterial restriction system mutations for more representative libraries
- Susceptible to infection by bacteriophage M13

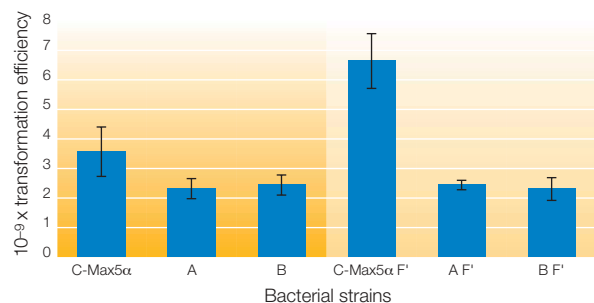


Cell Type	Transformation Method	Genotype
EP-Max 10B	Electroporation	F^- <i>mcrA</i> Δ (<i>mrr-hsdRMS-mcrBC</i>) ϕ 80 <i>dlacZ</i> Δ M15 Δ <i>lacX74</i> <i>deoR</i> <i>recA1</i> <i>endA1</i> <i>araD139</i> Δ (<i>ara, leu</i>)7697 <i>galU</i> <i>galK</i> <i>rpsL</i> <i>nupG</i> λ^-
EP-Max10B F'	Electroporation	<i>mcrA</i> Δ (<i>mrr-hsdRMS-mcrBC</i>) ϕ 80 <i>dlacZ</i> Δ M15 Δ <i>lacX74</i> <i>deoR</i> <i>recA1</i> <i>endA1</i> <i>araD139</i> Δ (<i>ara, leu</i>)7697 <i>galU</i> <i>galK</i> <i>rpsL</i> <i>nupG</i> λ^- /F' [<i>lacI^q</i> Δ M15 Tn10 (Tet ^r)]
C-Max5 α	Chemical transformation	F^- ϕ 80 <i>dlacZ</i> Δ M15 Δ (<i>lacZYA-argF</i>)U169 <i>recA1</i> <i>endA1</i> <i>hsdR17</i> (r_k^- , m_k^+) <i>phoA</i> <i>supE44</i> λ^- <i>thi-1</i> <i>gyrA96</i> <i>relA1</i>
C-Max5 α F'	Chemical transformation	ϕ 80 <i>dlacZ</i> Δ M15 Δ (<i>lacZYA-argF</i>) U169 <i>recA1</i> <i>endA1</i> <i>hsdR17</i> (r_k^- , m_k^+) <i>phoA</i> <i>supE44</i> λ^- <i>thi-1</i> <i>gyrA96</i> <i>relA1</i> /F' [<i>lacI^q</i> Tn10 (Tet ^r)]

C-Max™ 5 α and C-Max5 α F' Chemi-Competent Cells

C-Max5 α and C-Max5 α F' *E. coli* strains are provided in convenient 0.2 ml or 0.05 ml single-use aliquots to maintain consistent performance without loss of transformation efficiency due to repeated freeze-thawing. Simply thaw the cells, add DNA, and complete your protocol.

Both cell types are perfect for many cloning applications, including those requiring large plasmid constructs. C-Max5 α F' chemi-competent cells provide all of the features of C-Max5 α cells but also contain an F' episome and the *lacI^q* gene, which permits regulation of *lac*, *tac*, and *trc* promoters.



Comparison of transformation efficiency of chemi-competent cells. A and B are comparable strains from the top two suppliers of competent cells.

C-Max5 α Chemi-Competent Cells

- Transformation efficiencies $>1 \times 10^9$
- Mutations facilitating transfection with large plasmids
- Blue/white screening for recombinants
- *endA* and *recA* mutations for high quality, high plasmid copy numbers, and a lowered risk of recombination

C-Max5 α F' Chemi-Competent Cells

- Transformation efficiencies $>1 \times 10^9$
- Mutations facilitating transfection with large plasmids
- Regulatable expression due to the *lacI^q* gene
- Blue/white screening for recombinants
- *endA* and *recA* mutations for high quality, high plasmid copy numbers, and a lowered risk of recombination
- Susceptible to infection by bacteriophage M13

Summary of Cloning Features

	EP-Max10B	EP-Max10B F'	C-Max5 α	C-Max5 α F'
cDNA library construction	Yes	Yes	Yes	Yes
Genomic library construction	Yes	Yes	No	No
<i>endA</i> mutation for high plasmid copy number and quality	Yes	Yes	Yes	Yes
<i>recA</i> mutation for suppression of recombination	Yes	Yes	Yes	Yes
Accepts large plasmids	Yes	Yes	Yes	Yes
Blue/white colony screening for recombinants	Yes	Yes	Yes	Yes
Susceptibility to bacteriophage M13 infection for ssDNA production	No	Yes	No	Yes
<i>lacI^q</i> gene for regulatable expression	No	Yes	No	Yes

Ordering Information

Catalog # Description

Electro-Competent Cells

170-3330 EP-Max10B Electro-Competent Cells, 5 x 0.10 ml
 170-3331 EP-Max10B F' Electro-Competent Cells, 5 x 0.10 ml

Chemi-Competent Cells

170-3340 C-Max5 α Chemi-Competent Cells, 5 x 0.2 ml
 170-3342 C-Max5 α Chemi-Competent Cells, 10 x 0.05 ml
 170-3341 C-Max5 α F' Chemi-Competent Cells, 5 x 0.2 ml
 170-3343 C-Max5 α F' Chemi-Competent Cells, 10 x 0.05 ml

Related Product Ordering Information

Catalog # Description

Electroporation Systems

165-2100 MicroPulser Electroporator, universal voltage, includes chamber with leads, 10 sterile cuvettes (5 packs of 0.1 cm and 0.2 cm gap)
 165-2662 Gene Pulser Xcell Microbial System, 100/240 V, 50/60 Hz, includes main unit, PC module, ShockPod chamber, 10 sterile cuvettes (5 each of 0.1 and 0.2 cm gap), instructions

Cuvettes

165-2083 MicroPulser/Gene Pulser[®] Cuvettes, 0.1 cm gap, 5 (mini pack)
 165-2089 MicroPulser/Gene Pulser Cuvettes, 0.1 cm gap, 50 (standard pack)
 165-2093 MicroPulser/Gene Pulser Cuvettes, 0.1 cm gap, 500 (jumbo pack)
 165-2082 MicroPulser/Gene Pulser Cuvettes, 0.2 cm gap, 5 (mini pack)
 165-2086 MicroPulser/Gene Pulser Cuvettes, 0.2 cm gap, 50 (standard pack)
 165-2092 MicroPulser/Gene Pulser Cuvettes, 0.2 cm gap, 500 (jumbo pack)

Related Products and Information



Cytotfectene™ Transfection Reagent

Cytotfectene is a powerful, ready-to-use cationic lipid transfection reagent. Cytotfectene transfection reagent provides the highest transformation efficiencies with many cell types, high transformation efficiency in the presence of serum, minimal cytotoxicity, and a simple one-step, one-tube transformation procedure. Cytotfectene is suitable for both adherent and suspension cultures and is effective for both transient and stable expression.



XenoWorks™ System

XenoWorks is a complete line of instrumentation designed for the rigorous demands of the latest microinjection and micromanipulation techniques. The system features ergonomic height-adjustable joystick controls, micromanipulator position memories, and variable movement radius. Microinjection, whether the delivery of DNA solution to a zygote's pronucleus, or insertion of embryonic stem cells into a blastocyst, can be achieved with a level of control previously unattainable with conventional instruments.



Biolistics

Biolistic technology, or particle bombardment, is a direct physical method of delivering nucleic acids or other molecules into cells. The Helios[®] gene gun and the PDS-1000/He[™] systems provide easy-to-use, rapid, versatile gene delivery that is independent of cell type, requires small amounts of DNA, and requires few cells. This technology can be applied in vivo or in vitro to the widest range of targets, including cell cultures, tissues, organs, plants, and animals. These instruments effectively use a helium pulse to accelerate high-density gold or tungsten particles, coated with nucleic acids, directly into the target cells.



Electroporation

Electroporation is a highly efficient technique for introducing nucleic acids, proteins, and other molecules into a wide variety of cells. The Gene Pulser Xcell[™] electroporator is a flexible, modular system that delivers exponential or square-wave pulses optimal for your cell type. With an intuitive interface, fully manual setting, preset programs, and "optimize" capability, the Gene Pulser Xcell electroporator provides power and reliability. For more routine, high-throughput bacterial or fungal applications, the MicroPulser[™] electroporator provides simple, efficient, reproducible delivery.



**Bio-Rad
Laboratories, Inc.**

Life Science
Group

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