genetransfer

Competent Cells

BIO-RAD

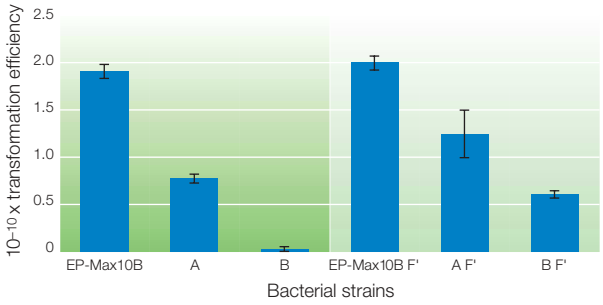
Competent cells for expert transformation

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.



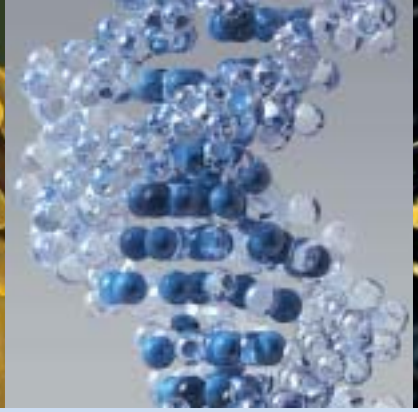
Comparison of transformation efficiency of electro-competent cells. A and B are comparable strains from the top two suppliers of competent cells.

EP-Max10B Electro-Competent Cells

- Transformation efficiencies >1 x 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 x 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

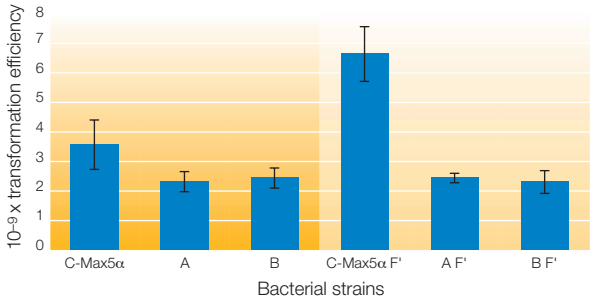




Cell Type	Transformation Method	Genotype
EP-Max 10B	Electroporation	F$^-$ *mcrA* Δ(*mrr-hsdRMS-mcrBC)* ϕ80d*lacZ*Δ*M15* Δ*lacX74 deoR recA1 endA1 araD139* Δ(*ara, leu)7697 galU galK rpsL nupG* λ$^-$
EP-Max10B F'	Electroporation	*mcrA* Δ(*mrr-hsdRMS-mcrBC)* ϕ80d*lacZ*Δ*M15* Δ*lacX74 deoR recA1 endA1 araD139* Δ(*ara, leu)7697 galU galK rpsL nupG* λ$^-$/F'[*lacI*^{q}*Z*Δ*M15* Tn*10* (Tet^r)]
C-Max5α	Chemical transformation	F$^-$ ϕ80d*lacZ*Δ*M15* Δ*(lacZYA–argF)U169 recA1 endA1 hsdR17*(r_k^-, m_k^+) *phoA supE44* λ$^-$ *thi-1 gyrA96 relA1*
C-Max5α F'	Chemical transformation	ϕ80d*lacZ*Δ*M15* Δ*(lacZYA–argF) U169 recA1 endA1 hsdR17*(r_k^-, m_k^+) *phoA supE44* λ$^-$ *thi-1 gyrA96 relA1/*F'[*lacI*^{q} Tn*10* (Tet^r)]

C-Max™5α and C-Max5α F' Chemi-Competent Cells

C-Max5α and C-Max5α 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-Max5α F' chemi-competent cells provide all of the features of C-Max5α 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-Max5α Chemi-Competent Cells

- Transformation efficiencies >1 x 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-Max5α F' Chemi-Competent Cells

- Transformation efficiencies >1 x 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-Max5α	C-Max5α F'
cDNA library construction	Yes	Yes	Yes	Yes
Genomic library construction	Yes	Yes	No	No
endA mutation for high plasmid copy number and quality	Yes	Yes	Yes	Yes
recA 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
lacI^{q} 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-Max5α Chemi-Competent Cells, 5 x 0.2 ml
170-3342	C-Max5α Chemi-Competent Cells, 10 x 0.05 ml
170-3341	C-Max5α F' Chemi-Competent Cells, 5 x 0.2 ml
170-3343	C-Max5α 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

Cytofectene™ Transfection Reagent

Cytofectene is a powerful, ready-to-use cationic lipid transfection reagent. Cytofectene 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. Cytofectene 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

Bio-Rad Laboratories, Inc.

Life Science Group

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