



Gene Pulser® Electroprotocols

* We recommend adapting this protocol to use the Gene Pulser electroporation buffer (catalog #165-2676, 165-2677), which increases cell viability and transfection efficiency in mammalian cell lines.

Cell Type	Mammalian, adherent	Molecules	DNA: plasmid, 12 kB
Species Used	Mouse, embryonic stem cells	Electroporated	

Before the Pulse

Cell growth medium	DMEM + L Glutamine + Pen/Strep + Fetal Calf Serum + mercaptoethanol + non-essential amino acids.	Growth phase at harvest	Exponential growth phase
Wash solution	Phosphate Buffered Saline	Pre-pulse incubation	Not incubated pre-pulse

The Pulse

Electroporation Temperature	Room temperature	Instruments Used	Gene Pulser® apparatus & Capacitance Extender
Electroporation Medium*	Phosphate Buffered Saline	Cuvette Gap	0.4 cm
Cell Density	1.5 to 2.0 x 10 ⁽⁷⁾ cells / pulse	Voltage	0.160 kV
Volume of Cells	0.5 ml	Field Strength	0.4 kV/cm
DNA Concentration	1 µg / ml	Capacitor	960 µF
DNA Resuspension Buffer	Phosphate Buffered Saline	Resistor	(Pulse Controller) Ω none
Volume of DNA	100 µg / pulse	Time Constant	14.5 msec

After the Pulse

Outgrowth Medium	DMEM + L Glutamine + Pen/Strep + Fetal Calf Serum + mercaptoethanol + non-essential amino acids.	Relevant Publications and/or Comments	Note: exponential values designated in parentheses.
Outgrowth Temperature	37 °C		
Length of Incubation	2 weeks and more		
Selection Method or Assay Used	G418		
Electroporation Efficiency	Not given		
Per Cent Survival	2.38 x 10 ⁽⁻⁵⁾		

Name of Submitter
Institution Address

Telephone Number
Fax Number
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