



# 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.

<b>Cell Type</b>	Mammalian, adherent	<b>Molecules</b>	DNA: various plasmids, about 3kB.
<b>Species Used</b>	Human, Hep3b2, hepatocytes; HeLa, epithelial carcinoma	<b>Electroporated</b>	

## Before the Pulse

<b>Cell growth medium</b>	DMEM, MAB87 /3 + 10% serum (GIBCO/BRL, Sigma)	<b>Growth phase at harvest</b>	Not given
<b>Wash solution</b>	Not given	<b>Pre-pulse incubation</b>	5 min.

## The Pulse

<b>Electroporation Temperature</b>	25 °C	<b>Instruments Used</b>	Gene Pulser® apparatus & Capacitance Extender
<b>Electroporation Medium*</b>	Cell growth medium	<b>Cuvette Gap</b>	0.4 cm
<b>Cell Density</b>	5 x 10 <sup>(6)</sup> cells / pulse	<b>Voltage</b>	0.220 kV
<b>Volume of Cells</b>	400 µl	<b>Field Strength</b>	0.55 kV/cm
<b>DNA Concentration</b>	75 µg / pulse	<b>Capacitor</b>	960 µF
<b>DNA Resuspension Buffer</b>	Sterile deionized water	<b>Resistor</b>	(Pulse Controller) Ω none
<b>Volume of DNA</b>	5 to 10 µl	<b>Time Constant</b>	30 msec

## After the Pulse

<b>Outgrowth Medium</b>	Same as growth medium	<b>Relevant Publications and/or Comments</b>	<b>Note:</b> exponential values designated in parentheses.
<b>Outgrowth Temperature</b>	37°C		
<b>Length of Incubation</b>	Overnight		
<b>Selection Method or Assay Used</b>	β-gal staining (X-gal) luciferase		
<b>Electroporation Efficiency</b>	52%		
<b>Per Cent Survival</b>	90 %		

**Name of Submitter**  
**Institution Address**

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