

Tech-Trends

Volume 2, Series 4

Efficient Modification of Stem Cells

Efficient genetic modification of stem cells (SC) by Electroporation

Current research in embryonic and adult stem cells employs variety of techniques such as targeted mutations via homologous recombination and induced differentiation. This can be accomplished by electroporation-mediated gene delivery.

BTX electroporators are designed for in-vitro, in-vivo, in-ovo and ex-vivo transfection of DNA, RNA, siRNA and therapeutic proteins. We describe here an optimized protocol for electroporation of ESC using BTX ECM 630 generator and BTX cuvettes.



ECM® 630 ELECTROPORATION PROTOCOL

Cell Preparation

Resuspend cells in an ice cold 1X Hebs to final concentration of 1×10^7 cells/ml.

Electroporation Settings:

Mode	LV
Capacitance	500 μ F
Resistance	Set to
None	
Electrode gap	4 mm
Charging Voltage	280V
Field strength	0.7
kV/cm	
Pulse length	5.8-6.4
msec	

Electroporation Procedure:

Cell Volume	800 μ l
Transfectant	20 μ g
Temperature	4-10° C
Press PULSE to activate automatic charge and pulse sequence	