

X-Porator M1

Flow-through Electrotransfection System



For cell therapy process development and production
GMP-grade continuous flow large-scale electrotransfection system



X-Porator M1 Electrotransfection System provides a complete cellular electrotransfection solution that can engineer immune and stem cells for large-scale delivery of molecules such as DNA, RNA and proteins through high-performance, patented continuous flow electrotransfection technology. The use of its non-viral delivery system enables rapid and efficient transfection while maintaining high cell viability and recovery, streamlining workflow and accelerating the development, production and commercialization of next-generation cell therapies, particularly gene editing and tumor immunotherapy.

Product Features

- ### Designed for cell therapy

Focus on next-generation cell therapy, driving non-viral vector cell therapy from concept to clinical trials and production

- ### Continuous flow type electric rotary

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Single electro-transfer up to 100ml, single cell processing volume up to 10

- ### Parameters visible and adjustable

Instrument electrotransfection parameters can be optimized according to the actual cell type and transfection conditions

- ### Comply with GMP standard

All-in-one aluminum alloy body, good sealing, resistant to sterilization

The production process complies with GMP requirements

Equipped with a code reader

- ### Dedicated fully enclosed GMP-grade consumables

USP Class VI Medical-grade material

PVC material tubing, easy to heat fuse, with Luer connector and Robert clamp

100ml rigid liquid bottle, hydrophobic glossy surface treatment for improved recovery

Disposable sterile packaging, fully enclosed, suitable for C+A environment

Passed 6 biosafety verification: cytotoxicity, acute toxicity, hemolysis, pyrogenicity, sensitization, intradermal reaction

- ### Compliance software system

Software meets 21CFR part 11 requirements, including three levels of access management

Comply with GMP and FDA Master file



Applications

- ### Non-viral vector cell therapy R&D: CAR-T, TCR-T, CAR-NK, general-purpose CAR-T, DC vaccine, etc.

- ### Immune cell gene editing: CRISPR/Cas9, transposon, etc.

- ### Stem cells: such as iPSCs induction and stem cell gene editing.

▶ Efficient optimization of electroporation parameters and fast scaling

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Transfer of electroporation parameters



First step: Model H1 small volume parameter optimization experiment

1. Can electroporate 100-300ul, 1.0×10^6 - 3.0×10^7 cells
2. Reusable titanium-platinum alloy electrode cups
3. Parameters visible and adjustable
4. Wireless control of the instrument, does not have to take out the cells from safety cabinet.
5. Obtain the best electroporation voltage, pulse width, number of times and other parameters through small amount of testing

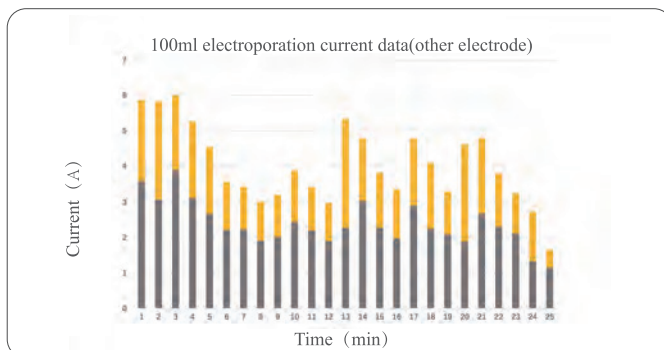
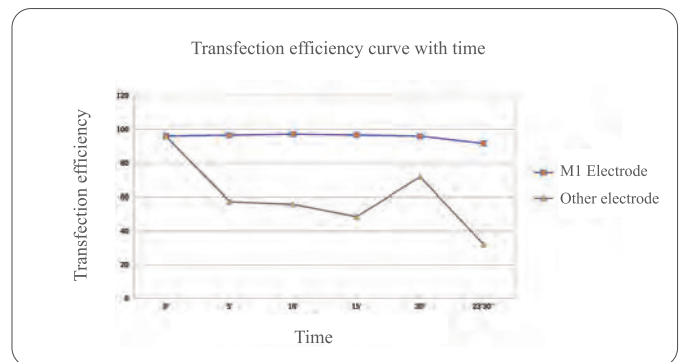
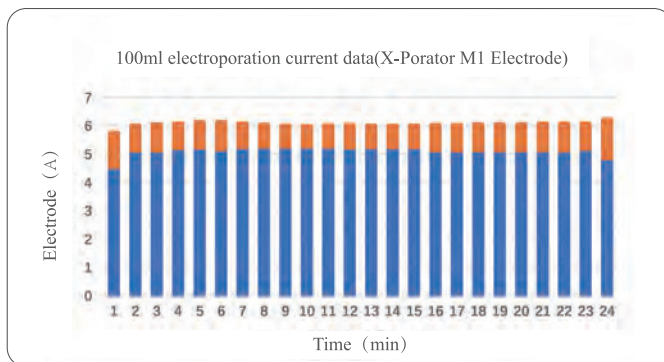
Second step: M1 model parameter amplification experiment

1. Can electroporate 3-100ml, 6.0×10^7 - 1.0×10^{10} cells
2. Continuous flow type patented electroporation technology
3. GMP-grade equipment and 100ml fully enclosed liquid bottle consumables
4. Three-level permission management custom software system
5. Fixed voltage, number of times and other parameters, H1 parallel test as a reference, test different gradient pulse width to obtain M1 optimal parameters

▶ Instrument physical performance validation

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Validation of instrument physical performance using fluorescent molecules: high consistency of current signals, high sensitivity

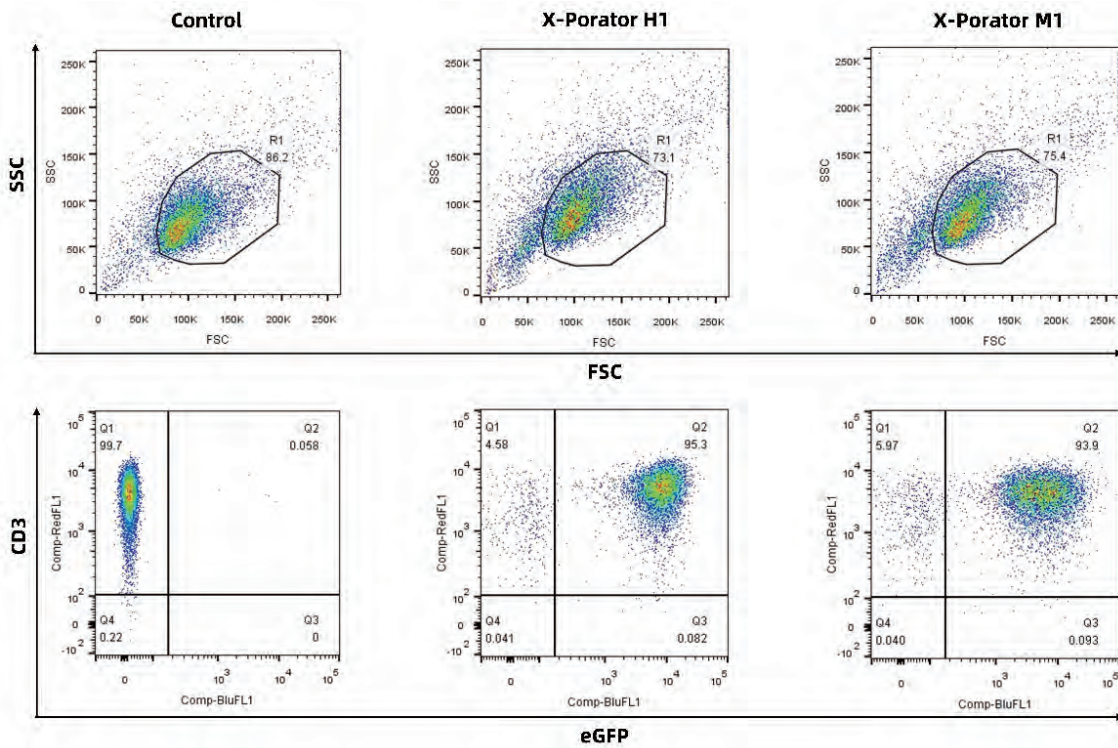


X-Porator M1 Electrode advantages:

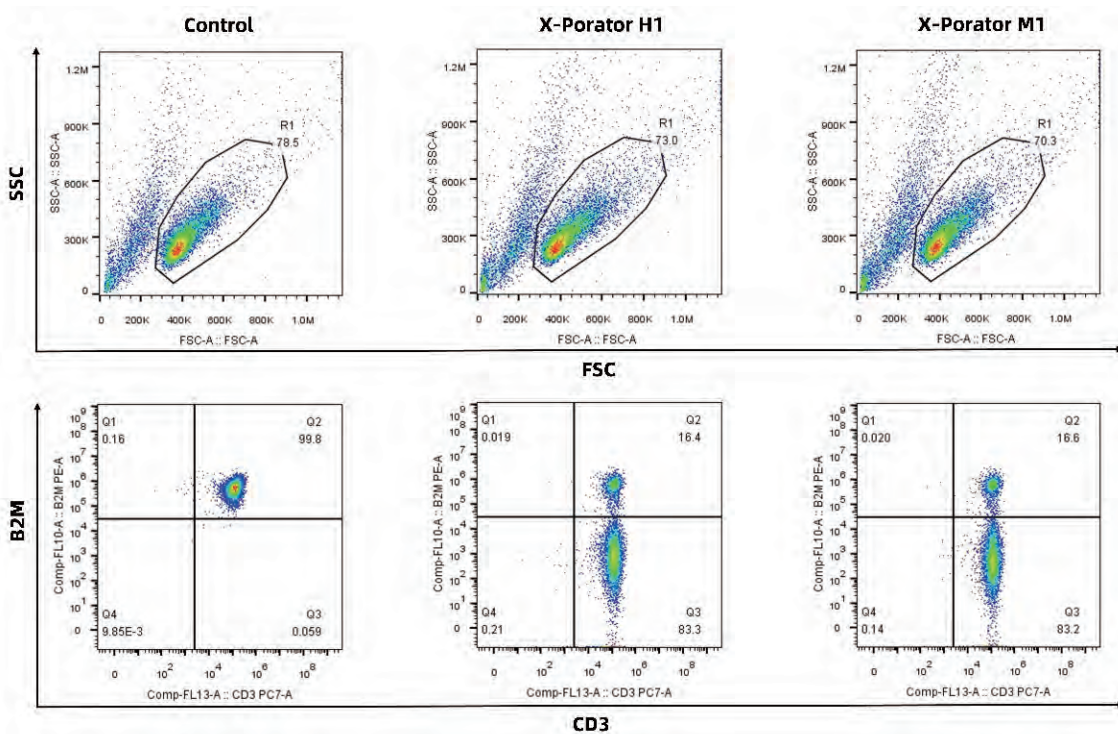
1. Compared with other electrode, Etta X-Porator M1 has more stable output current.
2. Highly consistent transfection efficiency and current output during electrotransfection, X-Porator M1 electrode has more stable transfection efficiency.

Customer Data

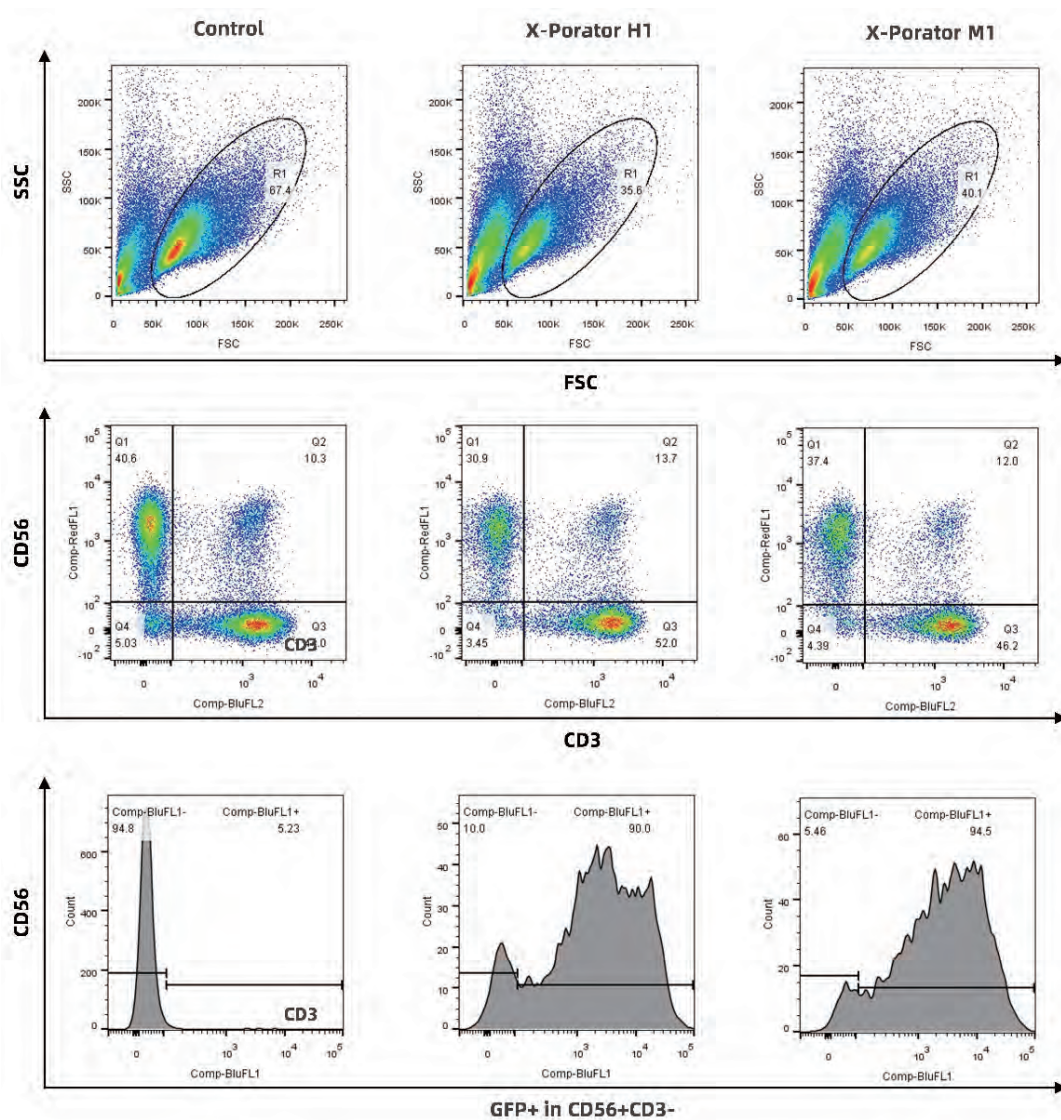
1. Practical testing by activating T-cell and electroporating EGFP IVT mRNA. Amplification from Etta X-Porator H1 to X-Porator M1, GFP positive expression rate from 95.3% to 93.9% after amplification.



2. Practical testing by activating T-cell and knockdown B2M gene, amplification from Etta X-Porator H1 to X-Porator M1, knockdown efficiency of B2M from 83.3% to 83.2% after amplification.



3. Practical testing by activating NK cells and electroporating EGFP IVT mRNA, GFP positive expression rate from 90.0% to 94.5% after amplification.



4. Etta Biotech electrotransfection systems have been tested for different cell types and have proven solutions for customers.

Cell Type	Reference solution	Transfection efficiency(eGFP)	Cell viability	Availability of customers
T-cell activation	200V/220V*****	> 90%	> 80%	Yes
PBMC	300V/330V*****	> 90%	> 70%	Yes
TIL	200V*****	> 90%	> 80%	Yes
NK	150V/130V*****	> 95%	> 60%	Yes
DC	180V/200V*****	> 80%	> 70%	Yes
MSC	120V/150V*****	> 90%	> 70%	Yes
HSC	150V/180V*****	> 75%	> 50%	Yes

Specifications

Item	Parameter
Name	X-Porator M1 Flow-through Electrotransfection System
Type	EBXP-M1
Cell type	Immune cells, Stem cells
Processing volume	3-100ml
Processing cell total amount	$6.0 \times 10^7 - 1.0 \times 10^{10}$
Recovery rate	> 80%
Consumables	Closed and GMP-grade disposable sterile liquid bottles
Input mode	Continuous flow
Flow rate	1-20ml/min
Voltage waveform	Square wave
Input voltage	110-240 VAC
Output voltage	60-600 V
Controlling software	Specialized software, meets 21CFR part 11 requirements, including three levels of access management
Dimension	L470mm×W530mm×H560mm
Weight	35kg

About Sino-biocan

Sino-Biocan

Sino-Biocan (Shanghai) Biotech Ltd is an automated, modularized, closed cell production platform provider in cell & gene therapy field, providing total solution of smart tools innovation and service, devoting to be the industry leader integrating R & D, business development, technical service, customization and production.

Sino-Biocan has developed a GMP-grade product family of fully closed, modularized, continuous cell preparation tools, as well as consumables and liquid solution, covering processes such as automated cell separation, culture, cell concentration, washing and formulation filling, cryopreservation and recovery, etc. Meanwhile it can provide modular splicing of different GMP processes, aiming to provide rapid, efficient and differentiated customization of series products of cell preparation tools.

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