威尼德生物科技（北京）有限公司
V-LEADER BIOTECHNOLOGY(BEIJING)CO. TI

> Gene Pulser 830 Square wave electroporation instrument

- Description
- Working principle
- Performance and Advantages
- Configuration parameter
- Application area
- Application Cases

Company Profile

V-Leader Biotechnology (Beijing) Co., Ltd. is a technology-based enterprise dedicated to the research and development, production, manufacturing, and sales of life science instruments. The company has complete production, assembly, and inspection conditions, and strictly implements the IS09001 quality management system in the production and management process. At the beginning of its establishment, the company adhered to the manufacturing concept of "technology casting perfect products", actively established joint development relationships with multiple domestic research institutes, and provided intelligent and humanized products for laboratories. With reliable product quality and high-quality services, the company's products are spread throughout the market. We promise to create high-performance intelligent laboratory life science instrument system solutions with professional technical services and continuous technological accumulation, and strive to promote the rapid development of life sciences, adding bricks and tiles to life sciences. To promote the research and development of domestic life science instruments, the company has successively cooperated with well-known universities such as Zhejiang University, Shanghai University of Science and Technology, Wuhan University, Guangxi University, Hebei University of Technology, etc., and has made breakthrough progress. So far, the company has multiple independent intellectual property rights and software copyrights.

The company's current main R&D and production products include dual-wave all-purpose electroporators, exponential decay electroporators, square wave electroporators, ultraviolet crosslinking devices, molecular hybridization devices, in situ hybridization devices, fully automatic dilution spiral inoculators and other life science instruments. Among them, the dual-wave all-purpose electroporator fills the gap in the field of domestic electrotransfection equipment and addresses the "hollowing out" issue of domestic scientific instruments. The company adheres to the business philosophy of "taking quality as the foundation, products as the vehicle, market as the orientation, and customers as the center", aiming to create outstanding products with superior cost performance, perfect and meticulous after-sales service, and creating higher value for customers is our goal! Wineder Company will deeply implement the new development concept, keep innovating, forge ahead with determination, optimize product structure and performance, and enhance service capabilities. We strive to become a life science equipment manufacturer with leading technology, first-class products, and international competitiveness.

Square wave electroporation instrument

Gene Pulser 830

High precision pulse transmission

Pre pulse sampling resistance measurement

Preset commonly used cell line protocols

High transfection efficiency, energy automatic optimization

Real-time monitoring of arc protection

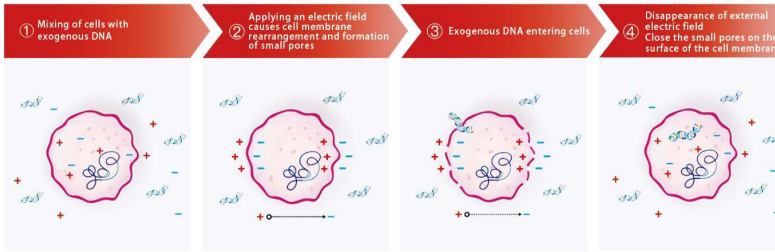
Product Description

The Gene Pulser 830 square wave electroporation instrument adopts an integrated design concept, adjustable voltage and pulse parameters, wide range and fine adjustment, and is a high-precision square wave electroporation system.

Electroporation is an efficient technique that utilizes the electric field strength and pulse time provided by it to introduce nucleic acids, proteins , and other molecules into various cells. By applying a high-intensity electric field, the permeability of the cell membrane is instantly increased, thereby absorbing exogenous molecules from the surrounding medium. This technology can introduce nucleotides, DNA and RNA, proteins, sugars, dyes, and viral particles into prokaryotic and eukaryotic cells. Compared to other conversion methods, the electroporation method does not use any chemical reagents, has low toxicity, is easy to operate, and has high transfection efficiency and survival rate. It is an effective alternative method.

Widely used for mammalian cell transfection, plant protoplast and intact plant cell or tissue transformation, in vivo and ex vivo protein/drug/gene transfer, nuclear transfer and embryo manipulation, and transformation of some bacteria and yeast.

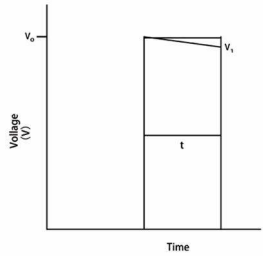
Working Principle



Performance and Advantages

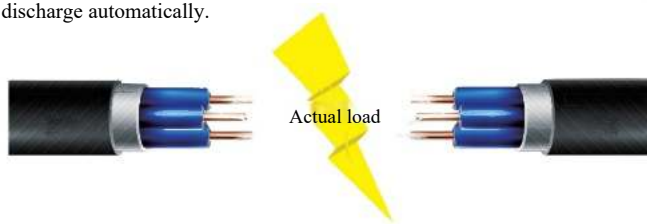
Real time display of waveform diagram

A novel method for detecting and recording electrical pulse parameters to ensure reproducibility of user experiments

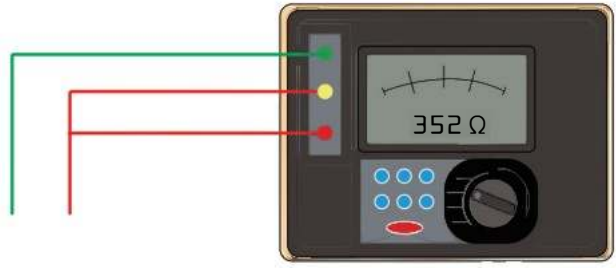


Circuit and Arc protection

The unique circuit design prevents the generation of electric sparks, ensures experimental repeatability, and protects the sample. When the pulse or circuit is interrupted, it can safely discharge automatically.

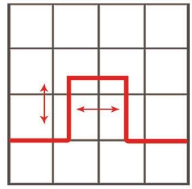


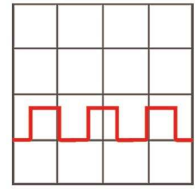
Support pre pulse sample resistance measurement function



Pre optimization program for voltage and pulse frequency

Unique voltage and pulse frequency pre optimization program for customers to choose





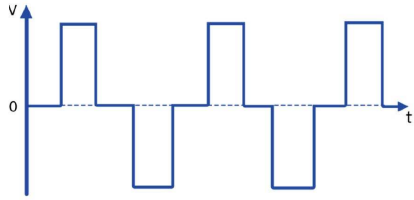
Pulse Time and Electric Field Strength Pulse Number

Equipped with foot operated switch

Convenient and efficient operation for users

Polarity conversion function

Increase transfection efficiency



Performance and Advantages

User friendly digital interface

10 inch touch screen with intuitive programming to control all parameters, displaying real-time parameters and pulse waveforms after electroporation, including actual voltage£‹Pulse time, pulse interval, pulse number, etc.

Independent electric swivel design

Easy to operate and move, suitable for sterile operation on ultra clean tables

Optimization protocols for commonly used mammalian cell lines

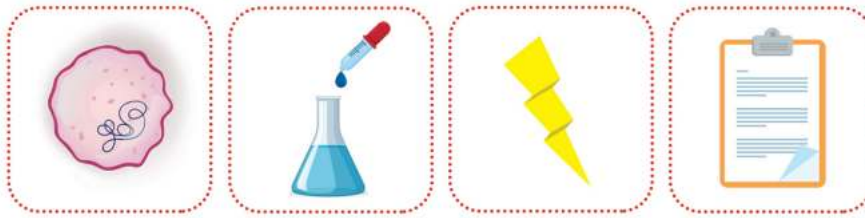
Mammalian Cells	
CHO	A549
Cos7	CV1
3T3	K562
293	HL60
HeLa	Jurkat
BHK21	HuT78

Configuration Parameters

Pulse Wavefom	Square Wave
Work Status	Self-Diagnostic Function Upon Startup
Panel Interface	Digital User Interface,10 Inch Large Screen
Hv Mode	
Voltage Range	200-3000vdc/±2v
Capacitance	10、15、25、35、40、50uf
Parallel Resistor	50-2000Ω Step By 50Ω,Or ∞
Pulse Time （pulse droop＜5%）	0.005ms-10ms
Time Accuracy	0.001-100ms/1us 100 -1000ms/10us 1-100s/1ms
Pulse interval	0.001-10s
Number of pulses	1-99
Lv Mode	
Voltage Range	5-500vdc/±1v
Capacitance	25-3275uf /25uf
Parallel Resistor	50-2000ΩStep By 50Ω,Or ∞
Pulse Time（pulse droop＜5%）	0.005ms-100ms
Time Accuracy	0.001-100ms/1us 100 -1000ms/10us 1-100s/1ms
Pulse interval	0.001-10s
Number of pulses	1-99
Power Supply Mode	After two seconds of a single experiment, the experiment can continue

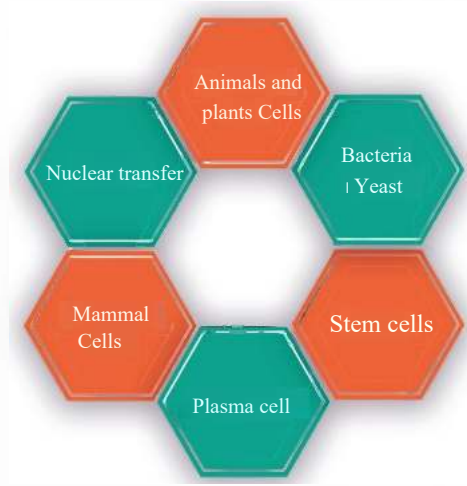
Safety	The Unique Circuit Design Prevents The Generation Of Electrical Sparks, Ensuring The Repeatability Of Experiments And Protecting The Sample. When The Pulse Or Circuit Is Interrupted, It Can Safely Discharge Automatically

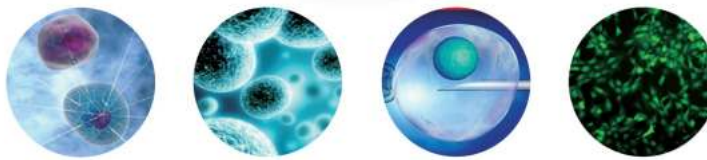
STEP



SSTEP 1:Eukaryotic suspension cells SSTEP 2:Add cells into the electrode cup SSTEP 3 3Electroporation pulse SSTEP 4:Analyze gene expression results

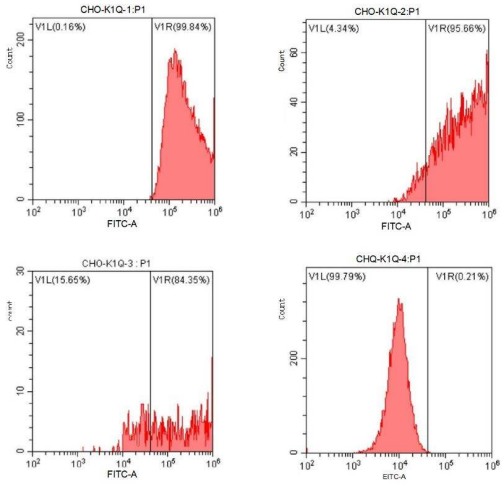
Applications





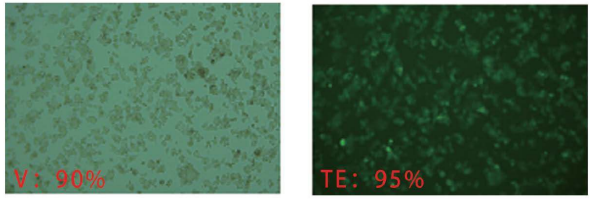
Application Examples

1 CHO-K1 Suspension cells,GFP Recombinant plasmid



Serial Number	Plasmid Concentration	Voltage	Survival Rate	GFP Positive Rate
1	100ug/Ml	180V	76.5%	99.8%
2	100ug/Ml	180V	81.21%	95.6%
3	150ug/Ml	220V	23.8%	84.3%
4	0	0	87.2%	0.2%

2 HepG2,GFP mRNA 135v,10ms,2mm



References

1. Kubiniec RT, Liang H, Hui SW: Effect of pulse length and pulse strength on transfection by electroporation. BioTechniques 1990, 8:16-20.

2. Watanabe SY, Albsoul-Younes AM, Kawano T, Itoh H, Kaziro Y, Nakajima S,Nakajima Y: Calcium phosphate-mediated transfection of primary cultured brain neurons using GFP expression as a marker: application for single neuron electrophysiology. Neurosci Res 1999, 33:71-78.

3. Teissie J, Golzio M, Rols MP: Mechanisms of cell membrane electropermeabilization: a minireview of our present knowledge. Biochim Biophys Acta 2005, 1724:270-280.

4. Mir LM, Bureau MF, Gehl J, Rangara R, Rouy D, Caillaud JM, Delaere P,Branellec D, Schwartz B, Scherman D: High-efficiency gene transfer into skeletal muscle mediated by electric pulses. Proc Natl Acad Sci USA 1999, 96:4262-4267.

5. Colleoni S, Donofrio G, Lagutina I, Duchi R, Galli C, Lazzari G:Establishment, differentiation, electroporation, viral transduction, and nuclear transfer of bovine and porcine mesenchymal stem cells. Cloning Stem Cells 2005, 7:154-165.

6. Peister A, Mellad JA, Wang M, Tucker HA, Prockop DJ: Stable transfection of MSCs by electroporation. Gene Therapy 2004, 11:224-228.

7. Ahmed S, Reynolds BA, Weiss S: BDNF enhances the differentiation but not the survival of CNS stem cell-derived neuronal precursors. J Neurosci 1995, 15:5765-5778.

8. Lu P, Jones LL, Tuszynski MH: BDNF-expressing marrow stromal cells support extensive axonal growth at sites of spinal cord injury. Exp Neurol 2005, 191:344-360.

威尼德生物科技（北京）有限公司
V-LEADER BIOTECHNOLOGY(BEIJING)CO.,LTD

phone： 15300013623
email： weneed2022@126.com
URL: www.bio-vleader.com
address： 1-4201 Guodian Village East, Yongledian Town, Tongzhou District, Beijing (United Airlines Dali)