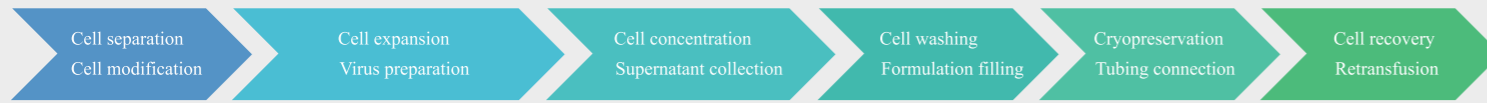


WE KNOW CELL, WE KNOW YOU



CELL-VOR
Automated Cell
Processing System

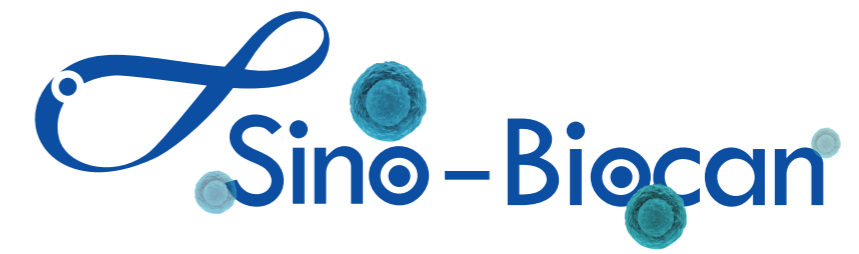
CELL-WAV
Automated Cell
Expansion System

Super CELL-VOR
Automated High Volume Cell
Concentration System

CELL-VOR
Automated Cell
Washing & Filling System

CELL-LAV
Sterile Tubing Welder

CELL-COL
Automated Cell
Recovery System



CELL-WAV

Automated Cell Expansion System



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Sino-Biocan (Shanghai) Biotech Ltd



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.

Adhering to the principle of cooperation and originality on the way of exploration, Sino-Biocan carried out project cooperation with more than ten universities, medical institutes and scientific research institutes, such as Tsinghua University, Tongji University, and constructed multi-field postdoctoral mobile stations and expert workstations. Sino-Biocan has been cooperating with Chinese Society of Blood Transfusion to explore the latest research fields of cell preparation technology and application, signed strategic cooperation agreements with dozens of middle

and downstream enterprises in the industry, cooperated with more than 100 original cell and gene drug developers and CDMO companies. At present, the company has obtained more than 50 patents and trademark certificates independently, and started international PCT application. Sino-Biocan highly values construction of high quality standards, and has obtained ISO9001 and ISO13485 certification and submitted CE and NMPA applications.



Equipment Clean Workshops

Cell Separation System,
Cell Expansion System,
Cell Concentration System,
Cryopreservation System,
Cell Recovery System, etc

Annual output: 3000 units



GMP Consumable Workshops

Disposable Cell Separation Kit
Cryobag
Disposable Cell Expansion Kit
Cell Magnetic Separation Column

Annual output: 200,000 sets



GMP Liquid Product Workshops

Cell Culture Medium
Cell Cryopreservation Medium
Cell Magnetic Beads

Annual Output: 600,000 bottles

CELL-WAV

Automated Cell Expansion System



CELL-WAV series Automated Cell Expansion System consists of WAVE unit, control unit and compatible sterile consumables. It is mainly used for expansion and collection of stem cells, immune cells, and other cells required for cell therapy and cosmetology. The closed, automated culture system together with disposable consumables solve the risk of manual operation from the root and greatly improve cell viability and production efficiency.



- 1 Closed, bag-to-bag sterile connection
- 2 Automated control liquids and gases
- 3 Full culture process data monitoring (pH, DO, temperature, angle, speed, peristaltic pump, etc.)
- 4 High-density cell culture system-perfusion system
- 5 Full operation, alarm, etc., can be recorded and tracked, compliant with FDA regulations
- 6 Remote monitoring and operation
- 7 Supporting customization, multi-specification cell bags available

PRODUCT COMPONENTS

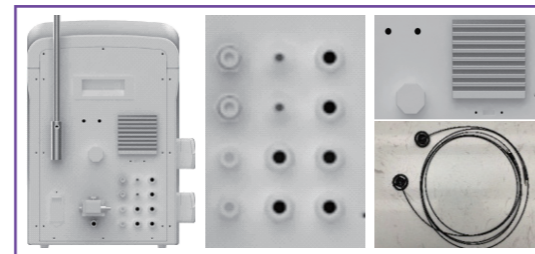


WAVE unit

Gently heated rocker with dual trays can control temperature of small to large volume culture bags, touch screen can adjust and monitor weight, temperature, angle and speed, etc.

Gas mixer: (integrated pH, DO monitor)

Providing gases of specific ratio (CO₂, O₂, air, N₂) for the culture system, meeting different environmental requirements of cells.



Perfusion pump

Providing power for pumping liquid into and out of the culture bag, realizing automated control of sample-in, culture medium replenishment, waste-out and product harvest, etc.



Software control system

Operation software provides power supply and data communication to other modules, as well as features of parameter setting, calibration, operation curve, logging, etc, compliant with GMP requirements.



Disposable sterile cell culture bag

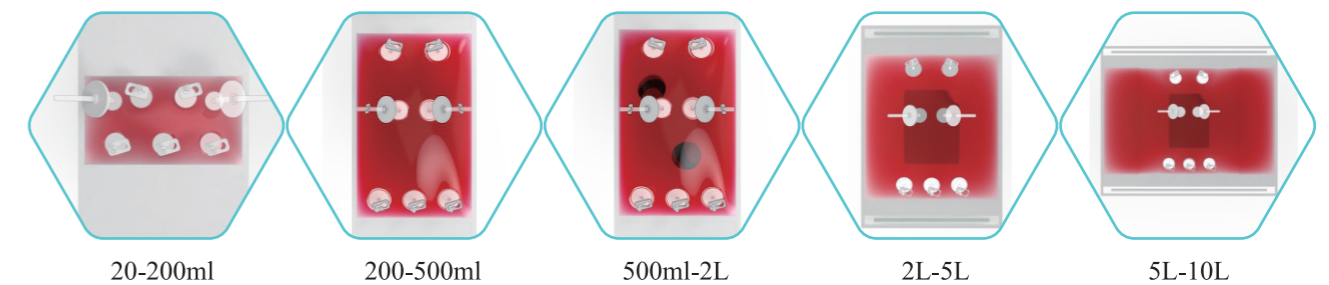
Compatible with CELL-WAV Automated Cell Expansion System, culture bags of different volumes have been tested for air tightness, toxicity and sterility, providing a closed and optimum environment for cell culture.



PRODUCT COMPONENT (CONSUMABLES)

Disposable sterile cell culture bags

The size and configuration can be freely matched according to customer's requirements to realize "bag-to-bag" seamless and sterile connection of the whole cell production process for 20mL-10L sample. Basic culture bags, pH and DO optical culture bags and perfusion culture bags are applicable in different culture needs.



Gas inlet: 0.2μm gas filter

Gas outlet: 0.2μm gas filter with unidirectional valve to control bag pressure

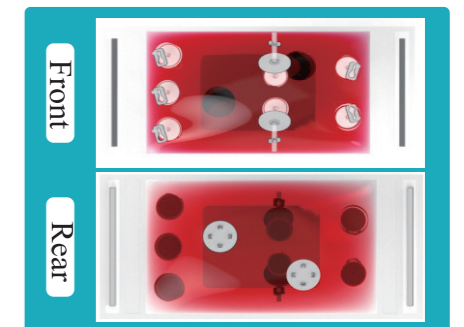
Aseptic sampling port: Clave threaded aseptic sampling port

Liquid inlet/outlet: C-flex tubing, Luer or CPC port

Multi-function port: Luer or CPC port

DO/pH electrode patch: Non-contact pH optical electrode patch

Perfusion bag: Cell retention membrane

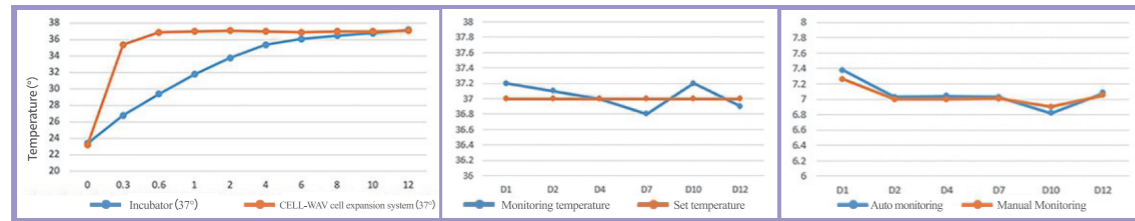


Disposable Sterile Cell Culture Bag Order Information

Bag Type	Function	Connector	Model and Specification				
Working volume	/	/	20-200ml	200-500ml	500ml-2L	2-5L	5-10L
Disposable sterile basic cell culture bag	Basic culture, auto replenishment	Luer	CW99-L1-020M	CW99-L1-200M	CW99-L1-500M	CW99-L1-002L	CW99-L1-005L
		Snap coupling	CW99-C1-020M	CW99-C1-200M	CW99-C1-500M	CW99-C1-002L	CW99-C1-005L
Disposable sterile pH/DO optical cell culture bag	pH+DO monitoring, auto replenishment	Luer	CW99-L2-020M	CW99-L2-200M	CW99-L2-500M	CW99-L2-002L	CW99-L2-005L
		Snap coupling	CW99-C2-020M	CW99-C2-200M	CW99-C2-500M	CW99-C2-002L	CW99-C2-005L
Disposable sterile perfusion cell culture bag	pH+DO monitoring, perfusion replenishment	Luer	-	CW99-L3-200M	CW99-L3-500M	CW99-L3-002L	CW99-L3-005L
		Snap coupling	-	CW99-C3-200M	CW99-C3-500M	CW99-C3-002L	CW99-C3-005L

Remarks: Culture bag with sensors may need bigger starting working volume according to its waving speed and angle.

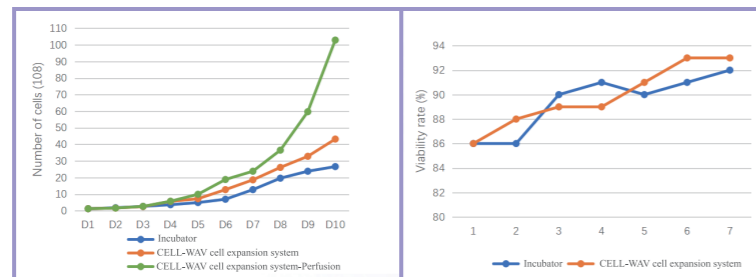
1 Accurate temperature control and pH monitoring



Cell fluid temperature, pH and stability curve (incubator VS CELL-WAV cell expansion system)

CELL-WAV cell expansion system can reach the set temperature in about 30min, while an incubator may need 10h, cells can enter expansion stage fast; more stable temperature control and uniform heat transfer during culture process; pH fluctuates of ± 0.2 shows stable cell culture environment.

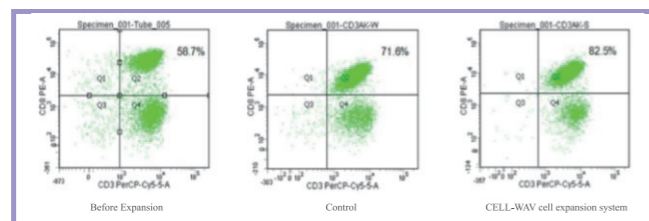
2 High cell expansion rate



Number of cells and viability curve (incubator vs. CELL-WAV cell expansion system)

CELL-WAVE cell expansion system has a higher cell expansion rate: it can reach 2 times of cell quantity in 5 days and 4 times in 9 days compared with manual culture; It supports higher cell density: up to 2×10^7 /ml, saving medium and operation time (2~3 days); Cell viability is higher than manual culture and more stable.

3 Effective cell expansion proportion



Effective cell expansion proportion

CELL-WAV cell expansion system can reach a higher proportion of CD3+ CD8+ double-positive cells (killer T cell) compared with manual culture.

Specification

Item	Description	Parameter
Dimension	Operation screen	480*350*490mm
	Rocker	792*535*581mm
	Peristaltic pump	4 groups
Weight	Total net weight	40Kg
Power supply	-	220V 50Hz

Technical Parameters

Item	Description	Parameter
Working volume	Efficient working volume	20mL-10L
Temperature	Temperature control	Ambient+2°C~40°C
	Temperature fluctuation (37°C)	$\leq \pm 0.2^\circ\text{C}$
	Temperature uniformity (37°C)	$\leq \pm 0.5^\circ\text{C}$
	Heating duration (ambient to 37°C)	$\leq 60\text{min}$
Rotating speed	Rotating speed	1-23(r/min)
	Rotating speed precision	$\pm 0.2\text{rpm}$
Angle	Angle	$1-12^\circ \pm 0.2^\circ$
Load capacity	Max. Load capacity	20kg
Gas	Control range	0.02-0.5L/min
	Control precision	$\pm(20+5\% \text{ set value})\text{mL/min}$
	CO2 concentration range	0~30%VOL
pH	Control range/precision	5-9/ ± 0.05
DO	Control range	0-200%/ $\pm 3\%$
Weight	Control range/precision	Max 50kg/10g
Pump unit	Pump velocity range	0.1~30mL/min
	Pump velocity precision	$(0.1 \pm 5\% \text{ reading})\text{mL/min}$
	Accumulative pump volume precision	$\pm 10\% \text{ measuring volume}$