Subscribe for More Information

Shanghai Origincell Biological Cryo Equipment Co., Ltd.

Customer Service: (86)21- 6839 5577

Email: equipments@origincell.com

Website: www.bio-bank.com

Address: 1227 Zhangheng Road, Pudong, Shanghai

Origincell®
原能细胞

Automated Biobanking Solution

FULL AUTOMATIC BIOBANKING SOLUTIONS

Standardized, Intelligent, Industrialized

http://www.bio-bank.com

With the development of cell biotechnology and precision medicine, biobanking has become an important assurance for the industry, and has steadily received more and more attention. As the increasing clinical requirements for the safety and accuracy of samples grow, conventional sample preservation has faced great challenges. The standardized, intelligent, and industrialized biobank has become the direction going forward.

Appointment for a biobank tour

Real Photo of Origincell Unmanned Automated 5G Biobank

CONTENTS
目录

Company Introduction

Shanghai Origincell Cryo Biological Equipment Company

Shanghai Origincell Biological Cryo Equipment Company, a subsidiary of Origincell Science and Technology Group, is a high technology company under the leadership of the renowned entrepreneur Mr. Qu Jianguo who also serves as the Chief Engineer of the company. Together with a multidisciplinary engineering team many with PhD degrees, the company dedicates to the R&D of advanced biomedical equipment and technology with a special focus on technology development and product design of automated cryogenic biobanking system, covering the R&D and manufacturing of equipment on cell isolation, extraction, purification, testing, dispensing, cooling, freezing, preservation, resuscitation, proliferation, and cryogenic biobanking consumables. With Origincell's strong capability in the cryogenic preservation and cell preparation, we can provide comprehensive service in the planning, construction, management, operation and maintenance of biobanks.

- **Applied 200+ Chinese patents and obtained 100+ patents**
- **Obtained 8 PCT international or foreign patents**
- **2018 Shanghai Top 50 Startups with Most Investment Potential**
- **2Passed ISO9001-2015 Quality Management System Certification**
- **Obtained 5 software copyrights**
- **A National High-tech Enterprise**
- **Passed European CE Certification**

A National Biobank Model Center

Having constructed China's first unmanned automated 5G biobank in Zhangjiang, Shanghai， we collect first-hand data and provide customized biobanking solutions to meet customers' needs.

A Cryobiological Technology Platform in Industry

Together with Dr. Gao Dayong, the professor of Washington University and chairman of International Society of Cryobiology who also serves as the chief scientist of Origincell, we created a valuable cryobiological technology platform to engage in the study of the best cryopreservation technology for various bio-samples and the products development accordingly.

An Integrated Platform Combining Industry, Academia and Research

Developed strong strategic relationship with dozens of top institutions in the field of scientific research, medical and healthcare and cell industry, such as University of Washington, Shanghai Medical College, University of Shanghai for Science and Technology, Shanghai First Maternal and Infant Hospital, Shanghai Yongci Hospital, Shanghai International Medical Center and Shanghai Society of Cell Biology; established multiple cell therapeutics centers in collaboration with Zhongshan Hospital, Changzheng Hospital and Shanghai First Hospital.

Automated Biobank VS Conventional Biobank

	Automated Biobank	Conventional Biobank
Sample quality and safety	Full-process cryogenic protection to ensure sample viability Single tube storing and retrieval to ensure the stable storage environment Automatic and prescheduled on-demand operation ensures the safety and precision of samples	Sample exposed to room temperature or repeated freezing and thawing affects the sample viability Full rack or full container sample handling affects innocent samples Handling error leads to sample loss
Information management	Intelligent big data management with high efficiency and accuracy Sample data with high integrity and traceability for fast retrieval; prescheduled on-demand order to increase efficiency High utilization of storage space for large scale operation	Manual data input with low efficiency and accuracy Sample data integrity cannot be ensured and with low traceability Difficult to find data and greatly reduced the rate of storing and retrieval Low storage space utilization
Operating e□ciency and maintenance cost	Reduced labor cost and increased operation accuracy Standardized operation with traceable record for industrialized operation Automated operation reduces human errors	High labor cost and low efficiency Unable to run standardized and industrialized operation Risk of operational mistakes

Unmanned Automated Biobanking Solution

Automated Intelligent Operation　Full-process Sample Cold-chain Protection　Intelligent Biobank Management

Pioneering the biobanking development and advancing the industrialization of biological resource

Design Principle: **Standardization** **Intelligence** **Industrialization**

Sample Data Upload

Freezing Curve Data Upload

Intelligent Biobank Operating System

Sample Storage Status Real-time Upload

Assigning Sample Storage Position

1 Automatic Preparation

2 Cold-chain Transportation

3 Intelligent Recognition and Storing

4 AGV Transfe

5 Automatic Picking and Storing under Cryogenic Protection

-80°C

Automatic Controlled Freezer

BSC Dual-color Cryotube

BSC Standard Rack

GCT-1液氮转运罐

-196°C

TP-100 Intelligent Bio-sample Transfer Container

Intelligent Sample Transfer Window

AGV Sample Transfer

-196°C

Automated Cryogenic Biobanking System

Unmanned Automated Biobank System Structure

Storing Process　System Control

Intelligent Biobank Operation and Control System

Multi-dimensional Biobank Operation and Management System

1、Intelligent and unmanned operation management

- Automatically performing multi-point transfer among transfer window, AGV and sample storage units
- Intra biobank transfer, allocation and reassignment of samples
- Real-time monitoring and warning system of LN level and temperature status
- Pre-scheduled on-demand batch storing and retrieval
- Storage space defragmentation

2、Storage safety

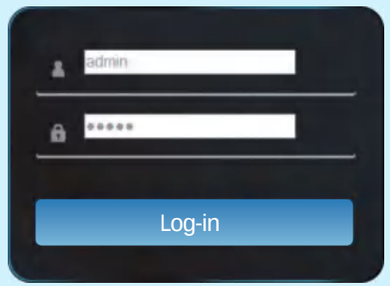
- Triple verification management by level, by area and by authorization (bar code, data matrix code, and operator identification) is implemented between nodes
- Hierarchical, partition operation authority management
- Full-process recording of samples, operation and environmental data
- Scheduled remote data backup
- Able to connect with multiple types of client's own information management system

3、Data statistics

- 24-hour storage temperature curve
- Sample inventory statistics
- Feedback information management

BSN-CYBER

Biological Sample (cell) Storage Management System



Automated Biobanking System

Automated Cryogenic Biobanking Equipment Series （-196 ℃）

Automated Cryogenic Honeycomb Biobanking Equipment Series

Product Highlights

- Stable and Precise Operation　Mechanical structure operated at room temperature with precision and prolonged work life
- Prevent Sample from Repeated Freezing and Thawing　Full-process cryogenic protection
- Avoid Cross Interference　Single tube pick and independent honeycomb type storage
- Frost Prevention　High efficiency dehumidification
- Process Traceability　Intelligent data management system allowing automatic order dispatching and data tracing
- Pre-scheduled On-demand Storing and Retrieva　Efficient sample data retrieval, code scanning verification, and pre-scheduled operation
- Single-tube-pick Protection　Vacuum negative pressure pick system is designed to prevent tubes from accidental fall and ensure sample safety
- Low Liquid Nitrogen Consumption　Inner cover automatic repositioning system allowing fast locating of the pick position reduces liquid nitrogen consumption and maintains temperature stability
- User Friendly Interface　Rise-up touch screen with menu operation interface can automatically adjust display position
- Multilayered Warning and Protection　Liquid level and temperature warning with automatic resupply system ensures stable temperature in storage area
- Emergency Sample Transfer　Fast sample transfer in case of emergency
- Optional UPS Power　Optional UPS Power Uninterrupted power supply

BSN-600

Approx: 59,000 tubes （2ml）

BSN-300

Approx: 29,000 tubes （2ml）

Automated Cryogenic Biobanking Equipment Series (-196 ℃)

Automated Cryogenic Plate-type Biobanking System

Product Highlights

- Prevent Sample from Repeated Freezing and Thawing — Sample storing and retrieval under full-process cryogenic protection
- Cost-e□ective System Automation — Independent automatic working unit allows one working unit for multiple storage units operation
- High Compatibility — The single tube + full rack dual retrieval mode is compatible with tubes with a variety of specs
- Power Consumption and Temperature Impact Reduction — By-area temperature control with no need of precooling reduces temperature impact to mechanical structure
- Process Traceability — Arti□cial intelligence + information platform
- High E□ciency — Maximum 12 racks can be put into storage in one operation (12 SBS standard racks)
- Stable Storage Temperature — Oxygen free liquid nitrogen storage environment and alloy aluminum storage sections are good for temperature conduction and sustainment, which bene□ts long term sample preservation
- E□ective Dehumidi□cation and Puri□cation — Double insulation and dehumidi□cation system are designed to prevent frosting and freezing due to the in□ltration of moisture and impurities
- User Friendly Interface — Touch screen operating system with menu operation interface
- Multilayered Warning and Protection — Liquid level and temperature warning and automatic resupply system ensure stable temperature in storage area
- Single-tube-pick Protection — Vacuum negative pressure pick system is designed to prevent tubes from accidental fall and ensure sample safety
- Contingency Plan — Vacuum negative pressure pick system is designed to prevent tubes from accidental fall and ensure sample safety

P90

Capacity: approx. 91,000 pieces (1ml)

Cryogenic Plate-type Biobanking System

Product Highlights

- Prevent Sample from Repeated Freezing and Thawing — Full-process cryogenic protection
- Sample Safety — Sample container rotation and lift operated in cryogenic area of the tank
- Multiple Storing and Retrieval Modes — The full rack + single piece operations are compatible with a variety of tube and rack speci□cations
- Frost Prevention — Airtight and insulated working unit with slight positive pressure vapor phase nitrogen storage tank provides e□ective moisture control
- Data Traceability — Data recording function with scanning and veri□cation ensures sample data safety
- Convenience — Compact, lightweight and accessible to normal elevator and easy for transportation, moving and storage
- Precise Positioning — 12 lift modules with rails enable precise repositioning and avoid derailment during operation
- Low liquid Nitrogen Consumption — Storage tank is designed with a cover to better maintain temperature and reduce liquid nitrogen consumption
- Multilayered Warning and Protection — Automatic liquid nitrogen resupply system and temperature and liquid level warning system ensure sample safety
- Batching Scanning and Recording — Visual batch scanning system to reduce operation time
- Laser Guide — Designed with laser guide for fast and precise tube pick

P20

Capacity: approx. 20,400 pieces (1ml)

Automated Germ Cell Liquid Phase Biobanking Equipment

Product Highlights

- Prevent Sample from Repeated Freezing and Thawing — Full-process cryogenic protection
- Frost Prevention — Slight positive pressure nitrogen dehumidi□cation
- Data Traceability — Real-time data recording to ensure the data accuracy
- Automatic Liquid Nitrogen Resuppl — Automatic liquid nitrogen resupply and the application of pressure relief valve ensure a safe sample environment
- Module Upgradabley — With good insulation, each module can be upgraded independently
- Standardized Operation — Standardized operation procedure and data storage function enable a real-time backup and display of key data such as temperature, status, sample position, and can be connected to information management system
- User Friendly Interface — Touch screen connectable to external keyboard or mouse
- Multilayered Warning and Protection — Liquid level and temperature dual-warning system with automatic pressure relief valve enables real-time sound and light alarms with warning message recorded for future checking
- Easy to Maintain — Easy to install, maintain and replace components; designed to enable spare parts replacement within liquid nitrogen condition
- Safe and Reliable — All electrical components are compliant with electrical safety requirements for medical equipment and with temperature requirements

IVF

Capacity: approx. 100,400 pieces (0.18 ml)/ 50,200 pieces (0.25ml)

Automated Ultralow Temperature Biobanking System (-80℃)

Product Highlights

- Precision and Prescheduled Retrieval On-demand — Single piece + full rack pick modes
- High E□ciency — Rack queuing
- Double Sample Protection — With a backup emergency liquid nitrogen system
- Frost Prevention — Slight positive pressure dehumidi□cation
- High Capacity and Compatibility — Rack stacking storage is compatible with a variety of tube speci□cations
- Energy E□cient — Chest design with even temperature distribution
- High Safety — Full-process sample ultralow temperature protection
- E□cient Dehumidi□cation and Puri□cation — Double sealed transfer window and dehumidi□cation and puri□cation system
- Intelligent Data Managemen — Batch scanning device enables the fast data retrieval and traceability
- Warning and Protection Systemt — Multilayered warning system to ensure a safe sample storage and operation process

BSE-800

Capacity: approx. 40,300 pieces (2ml)/ 114,200 pieces (1ml)/134,000 pieces (0.5ml)

Intelligent Product Series

Intelligent Transfer Container Series

Product Highlights

- 8-hour temperature sustainment — Vacuum design for extended cryogenic protection
- Safe transportation — Can be equipped with customized supporting fixture and is compatible with a variety of tube specifications and racks
- Easy to use — Compact and lightweight for easy carry and handling
- Patent protected — High quality product guaranteed

GCT-1
Liquid Nitrogen Transfer Container

Temperature monitoring display and recording

Precise temperature measurement ±0.5℃

Temperature recording time of 12 hours

GCT-2
Liquid Nitrogen Transfer Container

Classic and durable

External temperature as low as -20℃

TP-100 Intelligent Biological Sample Transfer Container

Full-process data monitoring

Real-time recording and uploading of information on sample temperature, position, handling, remaining operation time and warning message

Intelligent safety lock only opens after the verification of authorized personnel or location

Automated operation, dew and frost prevention, automated charging and nitrogen resupply

Product Highlights

- Dual freezing modes — Stable electrical freezing in storage area and the high precise liquid nitrogen freezing in cooling area
- Cold-chain output — Samples can be put into the liquid nitrogen transfer tank automatically after freezing
- Preset+programable freezing procedure — Allows tailored freezing control
- Multiple batch operation — According to sample characteristics, the multi-rack freezing operation mode supports various temperature settings in different zones
- -80℃ temporary storage — Provides a temporary storage with stable temperature for samples ready for further handling
- Automatic dehumidification — The 15~70Pa slight positive pressure keeps a dry inner environment, with automatic dehumidification and prevent frosting
- Temporary storage — Pre-freezing racks are inside the 4℃ sealed cabin
- High compatibility — Rack stacking storage provides high capacity and is compatible with 0.5ml, 1ml and 2ml tube specifications

AGV Sample Transfer Robot

Product Highlights

- Precise navigation — Laser SLAM + data matrix code visual assisting navigation system ensures accurate and efficient sample transportations
- Network connected dispatching — Provides 6-hour life span, automated charging and operation, and network connected dispatching
- Systematic operation — Achieves automatic connection with a variety of equipment in the biobank for intelligent system operation
- Flexible design — Adapts layout changes and equipment upgrades according to various customer needs
- Precise connection — Precise ±5mm connection to ensure safe sample transfer
- Data upload — Can be connected to biobank information management system in real time for data upload and order receiving

Automatic Cell Resuscitation Instrument

Product Highlights

- Automatic liquid resupply — Enables precise liquid resupply according to the preset level during cell recovery
- Perimeter setup — Perimeters can be set according to individual needs (recovery temperature, time, speed, level), and the recovery procedure can be paused or ended
- System preset procedure — System can be preset with various recovery proceures according to cell types, for one-key recovery operation
- Data upload — Cell recovery data and perimeters can be downloaded to go along with samples
- Precise temperature control — PID controlled heating procedure for precise temperature control
- Voice prompt — Voice prompt for the start and the end of recovery procedure
- User friendly — Touch screen with menu operation interface
- Drainage — Can be drained manually according to needs after recovery

DW-1 Intelligent Transfer Window

Product Highlights

- Automated operation — Three operation modes enable the local and remote operations and manual adjustment and maintenance
- E□cient dehumidi□cation and puri□cation — Double sealed design to keep dry and clean in the space
- Intelligent identi□cation — Intelligent sample and personnel identi□cation prevents sample handling errors or unauthorized handling, and allows current and historical warning message retrievals
- Contingency Plan — Triggered by malfunction, the warning system stores current and traceable historical warning messages-

BSC Dual Color Cryotube

Product Highlights

- Laser Marking — Dual color, laser marking, and wear resistant
- Cryogenic Material — Materials withstand the cryogenic environment
- Contamination Prevention — With external screwing cap protection
- Compatibility — Compatible with biological samples and tissues for the long-term cryogenic storage
- Observable design — Samples inside cryopreservation tubes can be observed directly
- Easy identi□cation — The three-code system with data matrix code at the bottom, side bar code and numerical code applies to a variety of identi□cation and veri□cation methods and ensures sample accuracy and traceability
- Easy storage — Hexagon shaped bottom □ts standard racks to improve safety
- Suitable for automation

Product Speci□cation

Capacity: 1mL/2mL

BSC Standard Rack

Product Highlights

- Safe and reliable — Safety lock design with anti-rotation function to improve safety
- Excellent temperature conductibility — Aluminum design suitable for the long-term cryogenic environment
- Precise positioning — Grid pattern layout and precise positioning are designed for the easy automated gripping
- Laser Marking — Laser marked data matrix code and bar code are wear resistant and easy identi□ed

Product Speci□cation

Position: 6*8 （2mL）

The Customization Procedure of Automated Biobanking Solution

We provide customized automatic biobanks that are cost e□ective and highly e□cient. The biobank can achieve a full-process automatic operation from cell preparation, freezing, cold-chain transportation, transfer to cell storage, which e□ectively avoids the serious resource losses due to handling errors. The full-process cryogenic environment and an e□cient data retrieval and traceability system signi□cantly enhance the quality, e□ciency and security of sample storage.

Project Process Flow:

1. Project feasibility study: based on customer's requirements, we provide economic analysis and feasibility study in compliance with national or industry standards.
2. Project planning: according to the actual condition, we provide customized plan of project space and system layout, and deploy proper equipment.
3. Project budget and project lead time: according to the chosen equipment and system layout, we will provide a project budget and estimated lead time.
4. Project technical proposal: provide feasible technical scheme within the budget.
5. Project Implementation: carry out the equipment manufacturing, preparation and installation once the contract is signed.
6. Project delivery: carry out the check and acceptance of equipment and software, and complete the equipment delivery.

We provide turn-key service for customers from project planning to project implementation, and a safe, standardized, cost e□ective, and professional one-stop shop customized solution including automatic biobanks, bio-laboratories, and freezing and culturing technology.

Company Introduction

Origincell Science and Technology Group was founded by the renowned entrepreneur Qu Jianguo jointly with Canature Group, a public listed company (security code: 300272) in July 2014. With its headquarters located in the core area of Shanghai Zhangjiang Science District, that covers an area of more than 40 thousand m2, Origincell has also constructed Origincell Science and Technology Park and Origincell Industry Park in the heart of Zhangjiang Medicine Valley.
With three subsidiaries: Origincell Biological Cryo Equipment Company, Origincell Medical Technology Company and Origincell Biobank Company, Origincell focuses on four major business sectors: the development and manufacturing of automatic intelligent cryogenic equipment, cell medicine research and clinical transformation and application, the management and operation of the automatic cell bank network, and the investment in cell biotechnology industry.

Founder of Origincell Qu, Jianguo

As an entrepreneur with strong sense of social responsibility and career perspective, Mr. Qu Jianguo has successfully founded two public listed companie and two public welfare foundations. His legendary life as an entrepreneur veteran can be separated into four periods reigning 13 years each.

1993
Established Shanghai Jianguo Welfare Foundation, the □rst private foundation in China

2004
2004 Established Shanghai Nature & Health Foundation

Led people of the township to prosperity

1973-1986
Founded a township wood-processing workshop in 1973; selected as the leader of industry in the people' s commune and the manager of the township company in 1983; served as the head of the township in 1985. Under his leadership, the township became one of the □rst generation billion-dollar townships in China.

Founded Shenhua Holdings Company and committed to China's economic reform

1987-2000
Founded Shanghai Shenhua Holdings Company (security code: 600653) that went public in 1990, becoming one of the □rst eight public listed companies in Mainland China and ranked □fth in China' s top 100 public listed companies in 1998 with its market value of RMB 3.5 billion.

Founded Canature and dedicated himself to environmental product industry

2001-2014
Created Canature and served as the chief engineer with the belief of "whole house water puri□cation and family health". Canature went public and listed on the Growth Enterprise Market in 2011, becoming the □rst public listed company in water treatment industry in China.

Founded Origincell and dedicated himself to the health industry

2014 – present
Founded Origincell Science and Technology Group advocating "storing original cells and reserving the source of life" and dedicated himself to the life science and health industry.