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细胞制备隔离器
Cell Processing Isolator

产品简介:

无菌细胞隔离器是一种在无菌环境下进行细胞制取、提取、观察和培养的专用设备；既要除去外包微生物、又要使细胞免受伤害和污染；既要使细胞快速生长、又要最大限度使人员及环境在生产过程中为无菌状态；是一种多功能的环境工艺设备。

PRODUCT INTRODUCTION:

Aseptic cell isolator is dedicated equipment for cell preparation, extraction, observation and cultivation under sterile conditions. It is designed to eliminate external microbial contaminants while protecting cells from damage and contamination, facilitate rapid cell proliferation, and maintain maximum sterility for operators and surrounding environments throughout production. It serves as a multi-functional environmental process unit.





VHP灭菌对接舱
VHP Sterilizable Interface Chamber



VHP灭菌传递舱
VHP PassBox



细胞离心机
Cell Centrifuge



细胞操作舱
Cell Operation Chamber

细胞制备隔离器
Cell Processing Isolator

系统组成：
SYSTEM COMPOSITION:

细胞制备无菌隔离系统由无菌隔离器、蜂巢细胞培养系统、转运系统、信息管理系统等几部分组成。无菌隔离器内既配置离心机、移液系统、配液系统、取样显微系统等等，也配置了灭菌系统、除残留系统、层流系统、控制和监测系统。既有自动机械手操作，也有手套人工配合运行。

蜂巢培养系统包括可移动培养箱、二氧化碳培养系统、蜂巢架等几部份组成。

The aseptic cell preparation isolation system consists of an aseptic isolator, honeycomb cell culture system, transfer system and information management system.

Installed inside the aseptic isolator are a centrifuge, pipetting system, liquid preparation system, sampling microscopic system, as well as sterilization system, residual vapor removal system, laminar flow system, control and monitoring system. The equipment supports both automatic robotic manipulator operation and manual manipulation via operating gloves.

The honeycomb culture system comprises mobile incubators, CO_2 incubation systems and honeycomb racks.

主要特点：
MAIN FEATURES:

1.自动检漏功能：自动检测密封性。
Automatic Leak Test Function: Automatically detect equipment tightness.

2.传递舱物品传递：传递舱台面设置电动传递系统，物品放在托盘内，当需要传递时，系统开启电动移门，托盘由电动推进至操作舱，方便操作人员取用。取完后，系统退回传递舱，关闭电动移门。
Material Transfer via PassBox: An electric transfer system is installed on the work surface of the PassBox. Goods are placed on the carrier tray. For material transfer, the system opens the motor-driven sliding door and electrically pushes the tray into the operation chamber for convenient access by operators. After material retrieval, the tray retracts automatically back into the PassBox, and the motor-driven sliding door closes.

3.细胞培养箱的对接：操作舱左右二侧设置培养箱对接口，与培养箱密闭对接，同时在舱内侧设置密封电动门，保证操作舱的密闭性。
Incubator Docking: Incubator docking ports are arranged on both left and right sides of the operation chamber for hermetic connection with incubators. Sealed motor-driven doors are equipped inside the chamber to maintain tight sealing of the operation chamber.

4.离心机与操作舱的对接：离心机安装与隔离器下部，便于离心机的操作。
Centrifuge Docking with Operation Chamber: The centrifuge is mounted underneath the isolator to facilitate convenient operation.

5.全自动智能控制，对控制过程记录，每个部件工作状态显示，报表输出，报警提示，所有程序过程符合计算机化验证。
Fully Automatic Intelligent Control: The system features full-process recording, real-time working status display of each component, report generation and alarm prompting. All programmed processes comply with computerized system validation requirements.

6.采用低功耗的EC风机，节能高效。
Low-power EC fans are adopted for energy saving and high efficiency.

控制系统：
CONTROL SYSTEM:

控制系统分为：系统检测和预处理系统、洁净送风系统、密封系统、灭菌除残留系统、在线检测系统 细胞培养系统、监控系统、细胞培养操作系统。

1. 系统检测预处理系统：主要完成对隔离器的密封性检测、对每个系统和部件的整体诊断，灭菌前的预处理。
2. 洁净送风系统：洁净环境保持在动态A级环境。同时在线检测送风高效阻力，送风风速，内外压差，并通过控制系统对送风量、新风阀、排风阀进行控制。
3. 密封系统：主要对门的密封、阀的密封的控制管理和检测。灭菌及除残留系统：灭菌系统的控制与管理，除残留的控制与管理，记录灭菌过程和除残留过程。
4. 在线检测系统：对灭菌过程中气化过氧化氢浓度的在线检测、对A级环境的悬浮粒子在线检测、对浮游菌在线采样，并记录形成报表。
5. 细胞培养系统：在细胞培养过程中控制细胞的培养的环境，控制温湿度、二氧化碳浓度、氧浓度、压力满足细胞培养的要求，并记录形成报表。
6. 监控系统：在操作过程中，监控记录操作的每个过程。
7. 细胞培养操作系统：细胞培养操作过程控制，并记录形成报表。

The control system consists of seven subsystems: System Inspection & Preprocessing System, Clean Air Supply System, Sealing System, Sterilization & Residue Removal System, In-line Monitoring System, Cell Culture System and Cell Culture Operation System.

System Inspection & Preprocessing System: It mainly performs isolator airtightness test, overall fault diagnosis of all subsystems and components, and preconditioning prior to sterilization cycles.

Clean Air Supply System: Maintains dynamic Class A cleanliness inside the working enclosure. The system continuously monitors HEPA filter differential pressure, supply air velocity and internal-external chamber pressure in real time; the controller regulates supply air volume, fresh air damper and exhaust damper accordingly.

Sealing System: Responsible for monitoring and controlling sealing performance of all access doors and valves.

Sterilization & Residue Removal System: Controls and manages VHP sterilization and post-decontamination residual elimination, and archives full-process data of sterilization and residual removal cycles.

In-line Monitoring System: Carries out real-time measurement of vaporized hydrogen peroxide concentration during decontamination, in-situ airborne particle counting for Class A environment and on-line viable airborne bacteria sampling; all measured data is logged for automatic report generation.

Cell Culture System: Regulates incubation ambient parameters including temperature, relative humidity, CO_2 concentration, oxygen concentration and chamber pressure to meet specified cell culture requirements, with all historical data saved for report output.

Supervision & Monitoring System: Tracks and archives all operational steps throughout the entire production workflow.

Cell Culture Operation System: Controls all automated cell processing workflows and records relevant data to generate formal reports.