CytoNiche
Architect for Cells

Introduction of 3D FlorTrix® vivaEXO

Architect for Cells

—— Expert in 3D manufacturing of high quality cells

www.cytoniche.com

CONTENTS

Solidarity | High quality and efficiency | Innovation and creation

CytoNiche's Core Technology

Cell culture technology based on 3D TableTrix® dissolvable microcarrier and 3D FloTrix® process.

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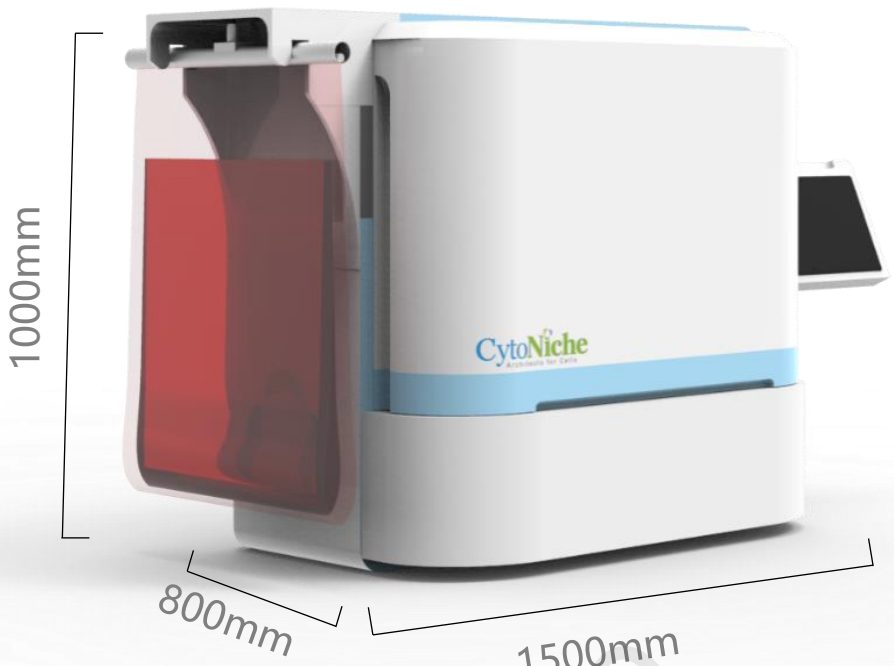
Core Technology: 3D FloTrix® Cell Culture Technology

Using 3D TableTrix® dissolvable microcarriers for adherent cell manufacturing

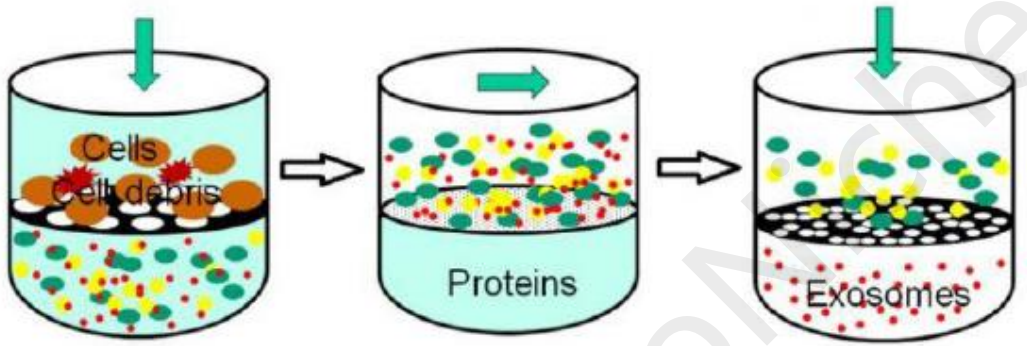
3D FlorTrix® vivaEXO

For Supernatant Clarification, Purification & Concentration

3D FloTrix® vivaEXO - Exosome Harvesting System

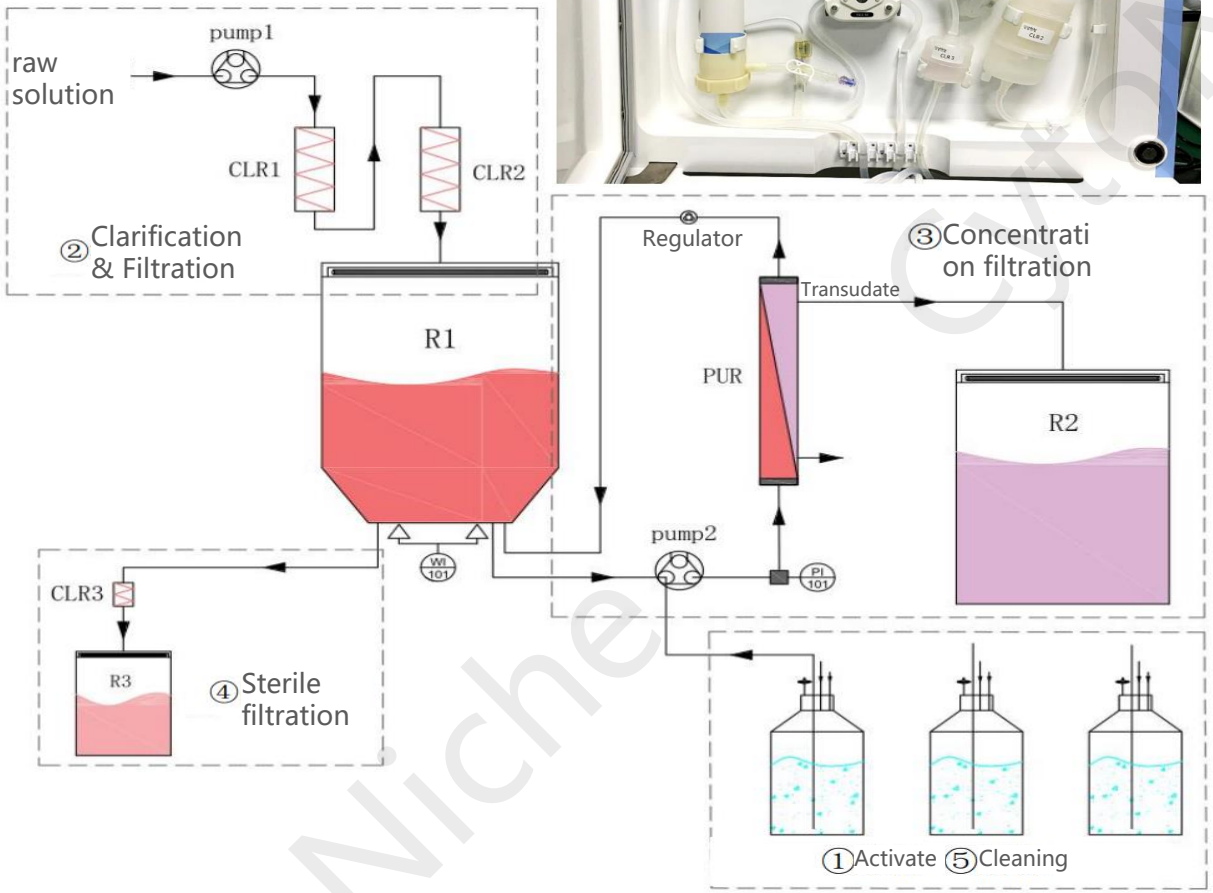


- Large Capacity
- Automated & Continuous & Semi Closed
- High Efficiency
- GMP Compliances
- Principle: Multi-stage Filtration



Dimensions (W*L*H)	1500×800×1000mm
Weight	40kg

2-1 3D FloTrix® vivaEXO - Working principle



Process steps:

① Activation (optional)

--- Sample processing----------

②Clarification and filtration: CLR1 and CLR2

-R1 (Intermediate product bag)

③Concentration filtration

-The permeate enters R2 (waste bag), retentate returns to R1

④Sterile filtration → R3 (product bag)

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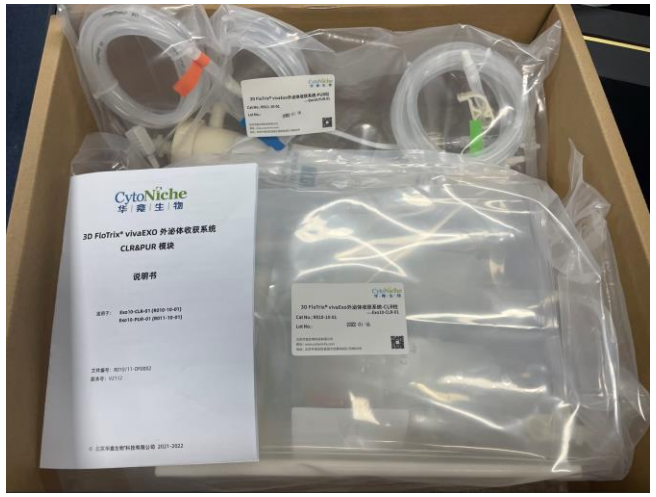
⑤Cleaning (optional)

2-1 3D FloTrix® vivaEXO

1.Easy to use

- Clearly labelled tubes
- Conveniently installed
- Automated



Standard consumable kit

2. Closed processing

- Fully closed after connecting with luer connectors
- Includes final sterile filtration

Consumable kit installation


检测报告

报告编号： SSMT-R-2021-03103-01A

样品名称： 一次性使用 2D 储液袋

检测项目： 细菌内毒素试验

检测依据： 《中国药典》2020 版第四部 1143

检测单位 委托单位

江苏科标医学检测有限公司

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R1, R2, R3 fluid storage bags: endotoxin <0.125EU/mL

2-1 3D FloTrix® vivaEXO

3、Scale processing

- Process **10L** of starting solution per batch(**1-3 hours**).
- 10L starting solution →300~500mL final product (**concentrated ~20 times**).

4、Automated processes controlled by mass and pressure sensors

- Mass sensor:
  - Associated with peristaltic pump 2 to start concentration filtration
  - Real-time monitoring of filtration progress

- Disposable pressure sensor:
  - Associated with the peristaltic pump 2 to monitor transmembrane inlet pressure
  - Prevents high pressure from damaging membrane & breaking delicate extracellular vesicles

2-1 3D FloTrix® vivaEXO

5、Scalable

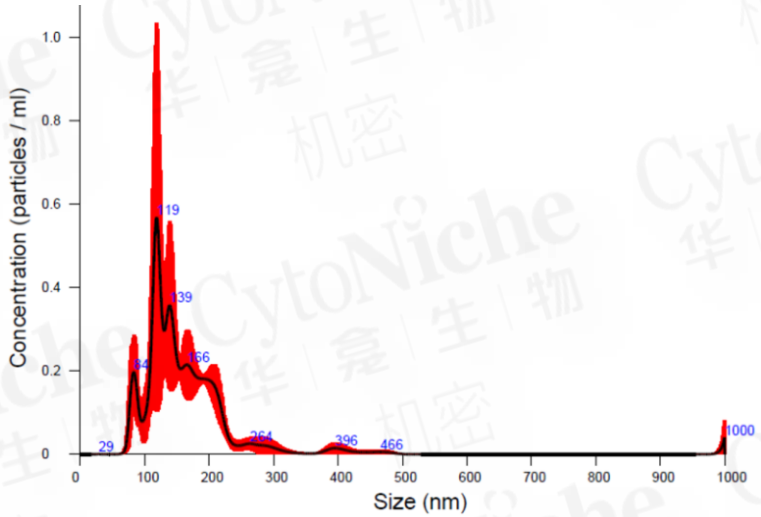
- Easily realize large-scale processing of cell supernatant harvest (10L-30L, only by changing CLR module every 10L)
- Concentrate and diafiltrate to improve product purity

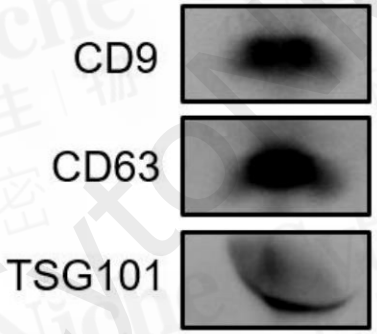
6、GMP Compliant

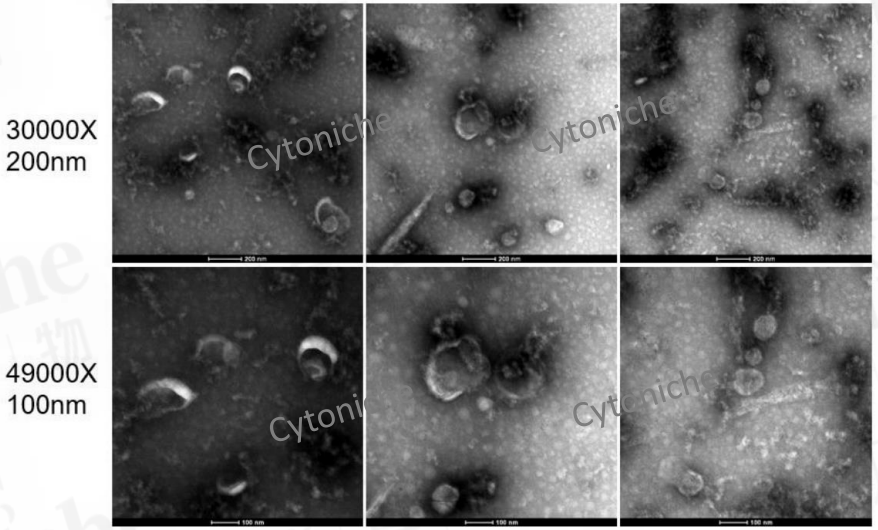
- User login and multi-level permission management
- Exportable records
- Data integrity and traceability

2-2 3D FloTrix® vivaEXO - Performance data

Application ①





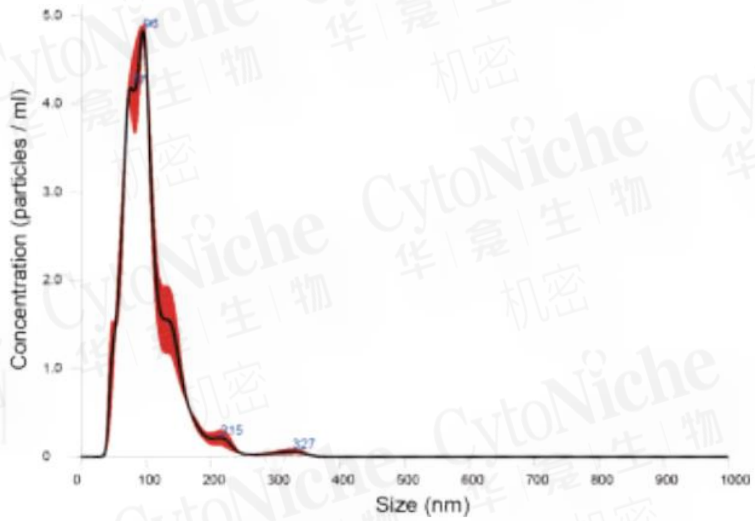


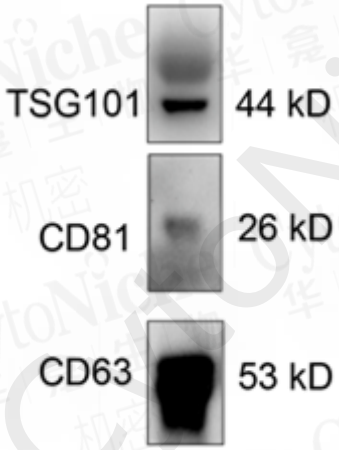
- ✓ Particle size:50-200nm
- ✓ Exosome protein markers: clear bands of CD9, CD63, and TSG101, negative for Calnexin
- ✓ Obvious concave structure observed under TEM

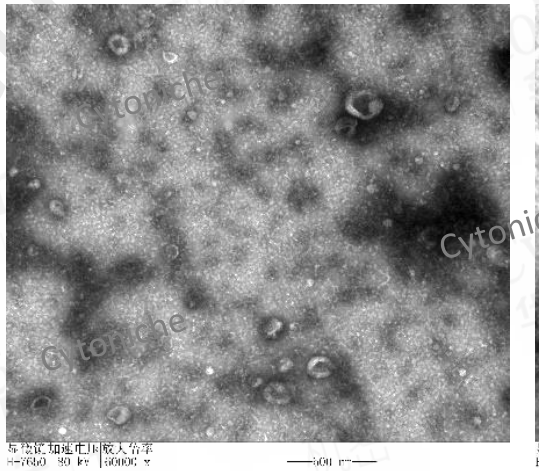
Sample source： Customer case using UC-MSC supernatant harvested from 2D culture

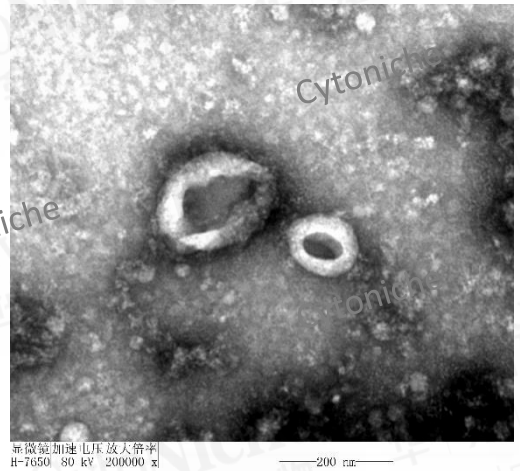
2-2 3D FloTrix® vivaEXO - Performance data

Application ②









- ✓ Particle size: 50-150nm
- ✓ Exosome protein markers: clear bands of TSG101, CD81, and CD63, negative for Calnexin
- ✓ Obvious concave structure observed under TEM

Sample source： UC-MSC supernatant harvested from 3D FloTrix® process

2-2 Application of 3D FloTrix® Technology - Stem cell exosome preparation

Cell preparation

3D TableTrix® microcarrier
3D FloTrix® miniSPIN

3D TableTrix® microcarrie
3D FloTrix® vivaSPIN

3D FloTrix® vivaEXO
Exosome Harvesting System

Day 0~3 Cell cultivation in 2D | Day 3~7 Cell cultivation in 3D | Day 7~11 Supernatant harvest | Day 11 Exosome concentration & purification

Process steps:

Phase Ⅰ: 2D recovery of cells (72h)

Phase Ⅱ: miniSPIN system for 3D culture of seed cells (96h)

Phase Ⅲ: vivaSPIN-10L for 3D culture cells and produce exosomes on a large scale (96h)

Phase IV: Use vivaEXO to purify and concentrate exosomes (1~3h)

MSC for example

2-3 Summary

Advantages of harvesting exosomes using 3D FloTrix® technology.

3D biomimetic culture

Simulate the living environment of cells
Promote cells to secrete high-quality exosomes

Reliable quality

Collect exosomes and harvest cells at the same time
Meet quality inspection requirements.

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3D FloTrix® Technology

Short cultivation period

A single batch is only 4 to 5 days

High Yield

Harvest $10^{13\sim14}$ exosomes single batch

Support customization

Support 3D FloTrix® customized process to harvest exosomes

10g microcarriers + 10L medium + cells

4~5 days

$2\sim7\times10^{13}$ exosomes

*amount of exosomes collected highly depends on medium used, data shown is generated from RMZ112

Product Bundles

Category No.	Product Name	Qty	Spec	Notes
FTVE10	3D FloTrix® vivaEXO Exosome Harvesting System	1 unit	Controller 1unit, GL45 Bottle Cap with 3-ports and tubes* 3sets	NA
R010-CLR-01	3D FloTrix® vivaEXO Exosome CLR Processing Kit	1 cas	2set/cas	NA
R011-PUR-02	3D FloTrix® vivaEXO Exosome PUR02 Processing Kit	1 cas	1set of PUR /cas, small MWCO	Single use
R011-PUR-03	3D FloTrix® vivaEXO Exosome PUR03 Processing Kit	1 cas	1set of PUR /cas, medium MWCO	3 times use within a month

THANKS

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