Partner for End-to-End CGT Solutions

Huachenbio -- Your Professional Choice

苏州华辰生物科技有限公司

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HUACHEN 华辰生物

Partner for End-to-End CGT Solutions

- Gelatin Component with Flexible Porous Structure Design
- Particle Size Ranging from 200 to 350 μm
- All Raw Materials Are Sourced from GMP-Grade Production for Pharmaceutical Excipients
- It has undergone irradiation sterilization and can be used directly
- Suitable for Various Adherent Cells

3D StarPore®Max

第二代Max微载体

3D StarPore gelatin dissolvable porous microcarrier for cell culture

Advantages of Microcarrier Culture

Enhancing Production Capacity: The microcarrier system provides an extremely high culture surface area-to-volume ratio, enabling high cell yields without relying on large-capacity equipment or cumbersome methods. Compared with other types of monolayer culture, microcarrier culture requires considerably less space to produce a certain quantity of cells or cell products.

Protecting Cells Against Physical and Chemical Stresses: Macroporous microcarriers can protect cells from the impact of stirrers, especially during large-scale culture. Thanks to this protective effect, it is also feasible to use pure oxygen microbubbles for sparging aeration.

Reducing Medium Requirements: The reduced demand for medium translates to significant savings in cell culture costs.

Lowering Labor Requirements: Since a large number of cells can be cultured in a small volume, microcarrier culture requires smaller culture vessels. Separating cells from the culture medium is straightforward: stop stirring, allow the microcarriers with adherent cells to settle by gravity, and then remove the supernatant.

Reducing the Risk of Contamination: Microcarrier culture decreases the number of handling steps, thereby greatly lowering the risk of contamination.

Eight Features of Huachen Bio 3D StarPore® Microcarriers

01

The 3D StarPore® Microcarrier is an independently developed product by Huachen Bio, specifically designed for high-yield suspension culture of various animal cells (such as mesenchymal stem cells, 293 cells, and Vero cells) with culture volumes ranging from several milliliters to hundreds of liters. It possesses excellent surface properties and optical properties, and has a specific gravity slightly higher than that of water.

02

The **flexible porous** structure of the **gelatin component** allows cells to grow in the microcarriers, enabling natural coordination and binding with various cells, and facilitating easy cell attachment, growth, and harvesting.

03

The microcarriers feature a **continuously porous structure**, which protects cells from shear stress damage and allows cells to create a microenvironment.

04

With a particle size ranging from **200 to 350 μm** and a **rounded morphology**, it is more suitable for the adhesion and expansion of adherent cells.

05

It allows for **gentle digestion** and can be completely dissolved in digestive solution. Digestion can be completed within **30 minutes**, facilitating the harvesting of final cell preparations, with a viable cell recovery rate of up to 98%.

06

All raw materials are sourced from **pharmaceutical excipients** and produced in accordance with **GMP standards.**

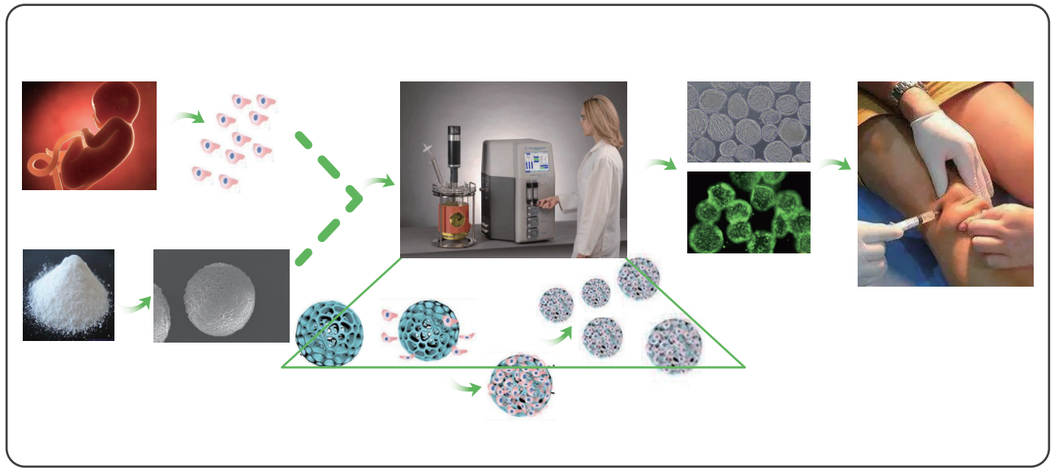
07

It is suitable for large-scale suspension culture systems of various adherent cells, such as mesenchymal stem cells, 293 cells, and Vero cells.

08

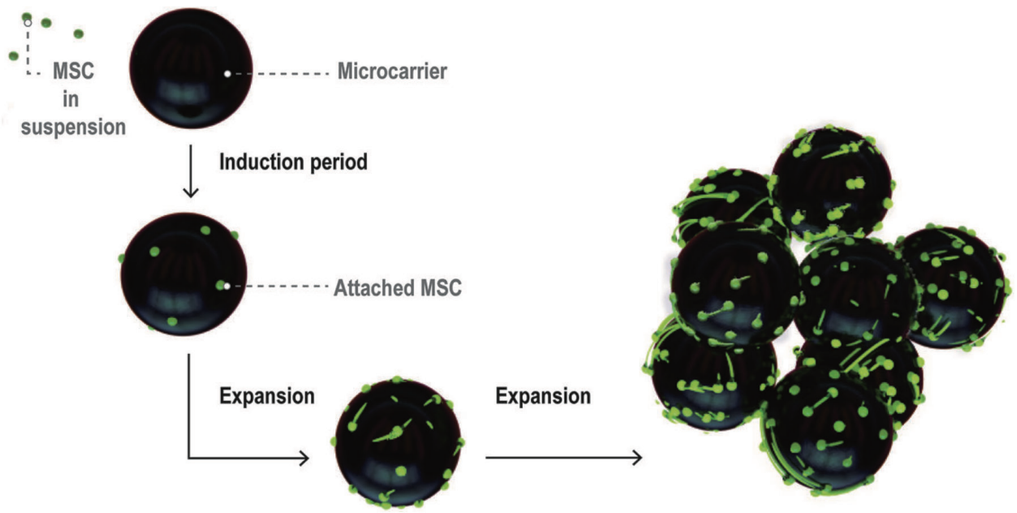
Its optimized surface characteristics are suitable for effective cell adhesion and spreading; the optimized size, density, and macroporosity facilitate uniform suspension and enable excellent growth and high yield of various cells.

Microsphere Material & Stem Cell Flow Chart

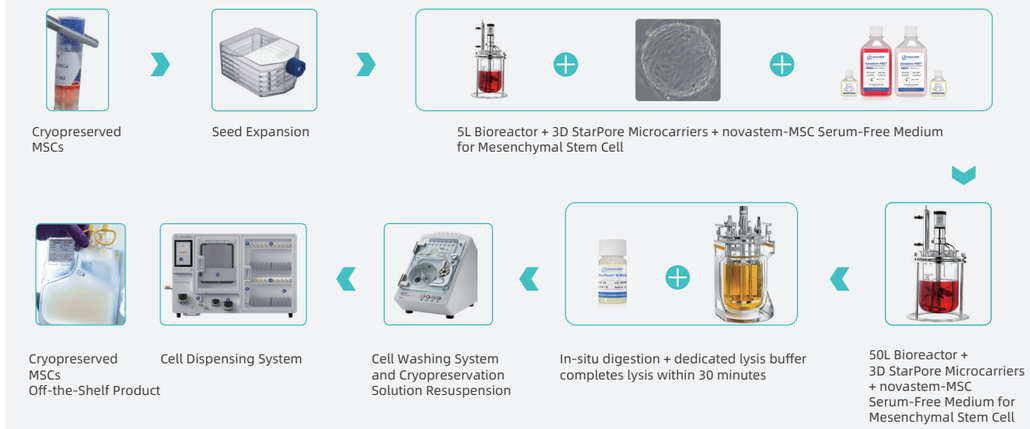


Adhesion and Proliferation of MSCs on Microcarriers

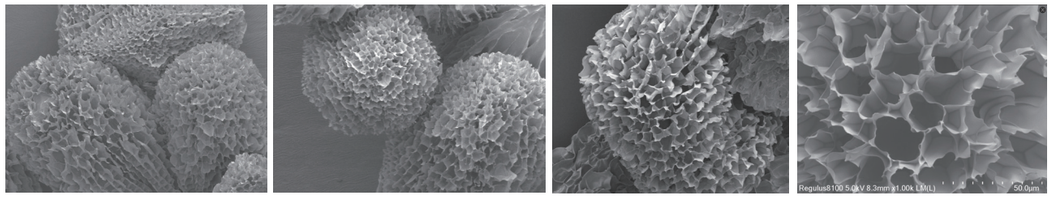
MSCs on microcarriers expand over time in a bioreactor: initially, MSCs attach with a low coverage rate in a rounded morphology, then flatten and spread, followed by entering the growth phase and expanding to cover a large portion of the microcarrier surface area.



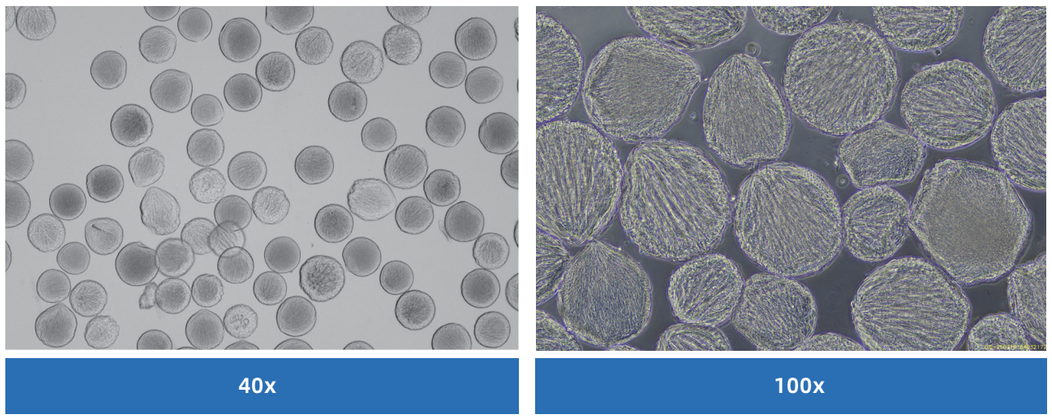
Large-Scale Stem Cell Culture Process Flow



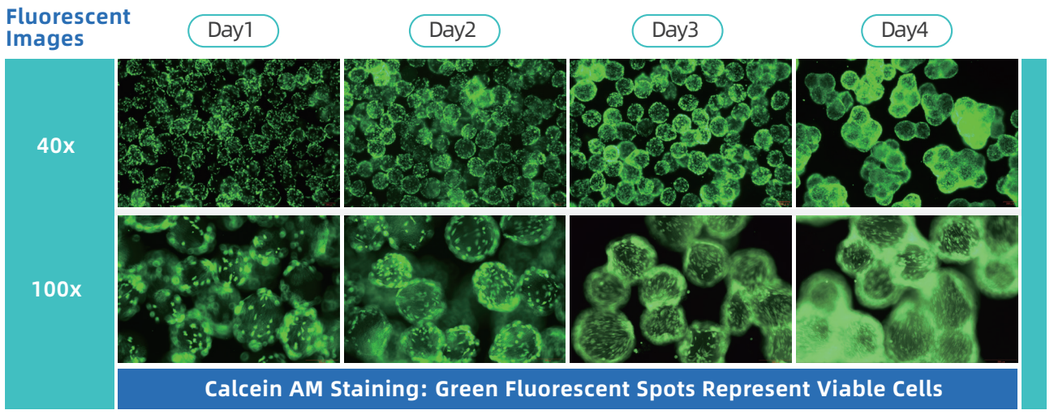
SEM Electron Micrographs of Max Microcarriers



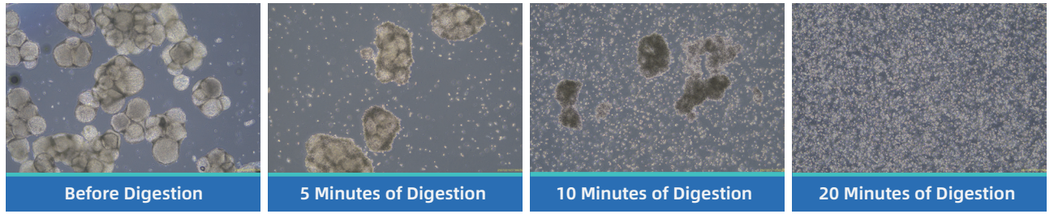
Morphology of Microcarriers After Hydration



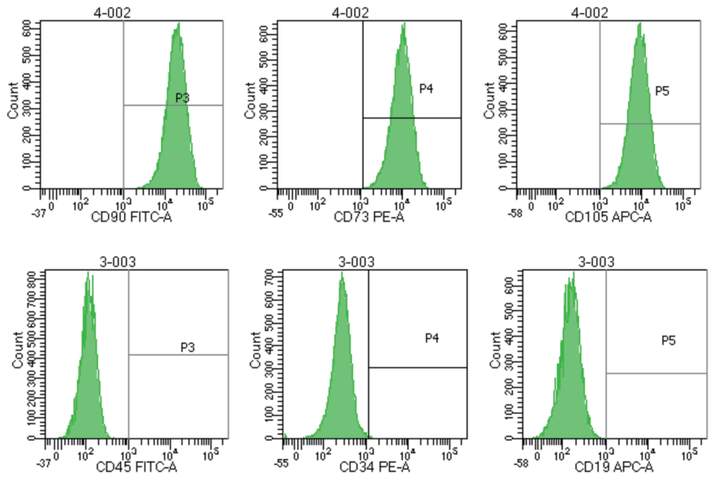
Micrographs of Mesenchymal Stem Cells Cultured on 3D StarPore Microcarriers



Digestion of Cells on Microcarriers: Complete Digestion with Dedicated Digestive Enzymes Within 30 Minutes



Surface Marker Detection for 3D StarPore Microcarrier Cell Culture



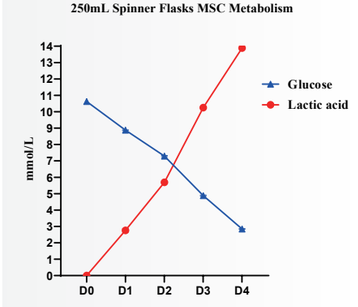
Culture Parameters for Mesenchymal Stem Cells in 250mL Spinner Flasks

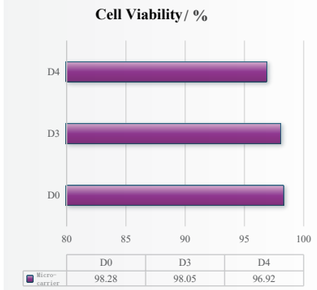
Batch Test	Bioreactor	Microcarrier Quantity	Cell Seeding Quantity	Vd0	Vd1	Vd2	Total V	Seeding Quantity	Final Seeding Amount of Microcarriers	Medium Feeding and Replacement	Remark
WZT20250608	0.25L	0.2g	1E7	0.1L	0.05L	0.05L	0.2L	5E7/g	1.0g/L	Yes	Medium Change on Day 3

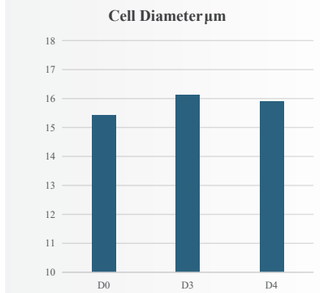
Culture Process for 250mL Spinner Flasks:

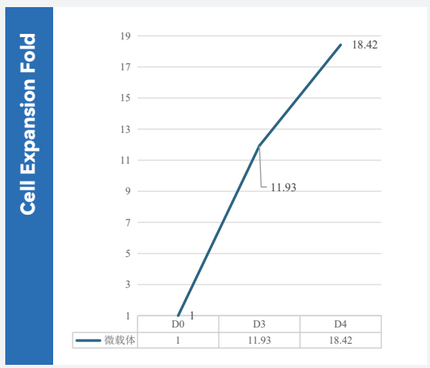
D0	Inoculate fresh MSC cells with a volume of 100ml, following the "rotation-stop" cycle: 55rpm for 5 minutes - stop for 25 minutes, for approximately 24 hours.	D2	Add 50ml of medium, totaling 200ml, and switch to constant speed culture at 75 rpm.
D1	Add 50ml of medium, totaling 150ml, and switch to constant speed culture at 65rpm.	D3	Take a sample for cell counting, then switch to constant speed culture at 80rpm; or harvest all cells.
		D4	Take a sample for cell counting, harvest all cells.

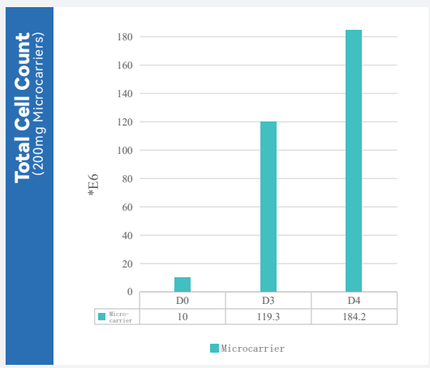
Cell Harvest Data Chart











3D StarPore®Max Large Health Spinner Flask System

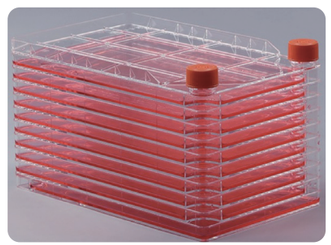
500mL Spinner Flask, One StarSpan™ Mini Bioreactor

4 Flask Positions, with a Maximum System Volume of 2L at a Time

One 500mL spinner flask can hold a 400mL culture system, with an inoculation density of 2g/L (total 0.8g) and 4×10^7 cells inoculated. After 20-fold expansion, 8×10^8 cells can be harvested from a single flask in 4 days, which is equivalent to one 10-layer cell factory. One mini bioreactor can harvest 3.2×10^9 cells at a time, equivalent to four 10-layer cell factories.

Reduce incubator occupancy rate, labor input, and cell processing workload.

Equivalent to four 10-layer cell factories



3D StarPore®Max Large-Scale Production of Stem Cell Drugs

D4 Transfer from Primary Tank to Secondary Tank

400-fold
Expansion

Expansion Protocol for 40 Billion Stem Cells in Secondary Tank

5L bioreactor: 1g/L (2L culture volume), inoculation of 1×10^8 cells per 2g microcarriers, 20-fold expansion on day 4, harvest of 2×10^9 cells

50L secondary bioreactor: 1g/L (40L culture volume), inoculation of 2×10^9 cells, 20-fold expansion on day 4, harvest of 4×10^{10} cells

Expansion Protocol for 160 billion Stem Cells in Secondary Tank

10L bioreactor: 1g/L (8L reaction volume), inoculation of 4×10^8 cells per 8g microcarriers, 20-fold expansion on day 4, harvest of 8×10^9 cells

200L secondary bioreactor: 1g/L (160L reaction volume), inoculation of 8×10^9 cells, 20-fold expansion on day 4, harvest of 1.6×10^{11} cells

- Suitable for Primary Cell Isolation and Subculture
- Compatible with a variety of mesenchymal stem cells, such as umbilical cord-, adipose-, bone marrow-, amniotic membrane-, hair follicle-, and dental pulp-derived mesenchymal stem cells
- Serum-free, free of any animal-derived components, antibiotic-free, stable in performance, and minimal batch-to-batch variation
- High cell expansion rate, with a single passage expansion fold of over 20x
- Cell yield per T175 flask: >2×10^7 cells;
  Cell yield per 10-layer cell factory: 8-10×10^8 cells
- Cell diameter: 14-15 μm, smaller than that of similar products on the market
- GMP level, prepared with water for injection (WFI), endotoxin < 0.1 EU/ml
- Independent R&D and production system, stable supply, and high cost-effectiveness

novastem-MSC®
间充质干细胞无血清培养基
Serum-Free Medium For Mesenchymal Stem Cell

- Serum-free, platelet lysate-free
- Animal-derived component-free
- Human-derived component-free, containing recombinant human serum albumin (rHSA)
- Chemically defined, with high batch-to-batch consistency
- High efficiency, supporting primary and subculture of MSCs
- Manufactured in compliance with GMP standards, supporting pharmaceutical registration
- Higher quality, with endotoxin < 0.1 EU/ml

StarMedium®
新一代间充质干细胞化学成分限定培养基
Chemically Defined Medium For Mesenchymal Stem cell

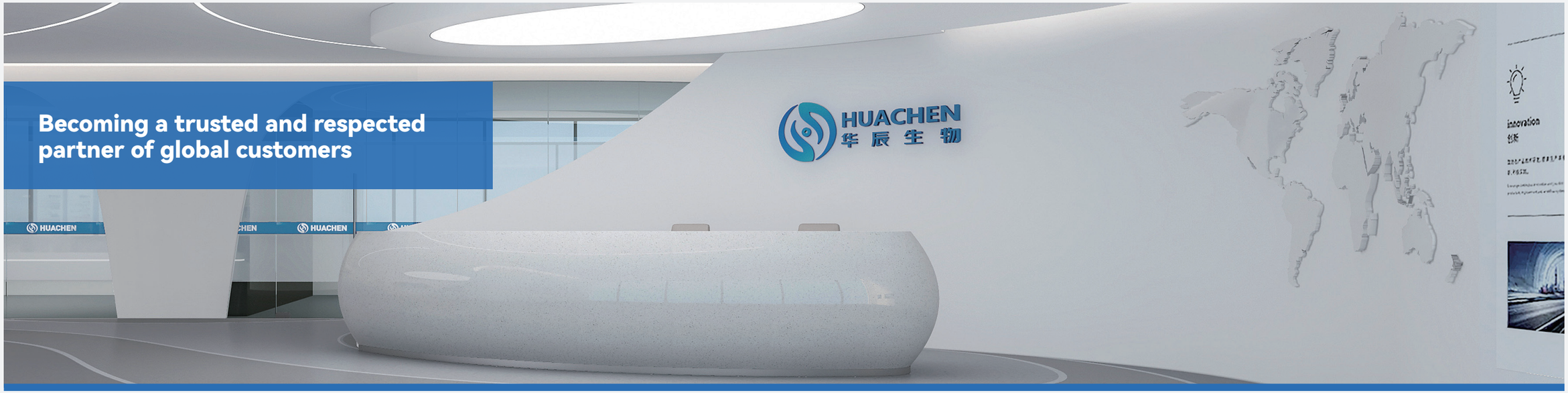
Product Catalog

- High expansion fold: >100,000-fold expansion by Day 28
- High cell quantity: approximately 200 billion cells by Day 21
- High purity: >98% $CD3^-CD56^+$ (High-Efficiency Version), >90% $CD3^-CD56^+$ (Enhanced Version), and >90% $CD16^+CD56^+$
- High cell viability: >90% viability
- Allogeneic use: $CD3^+$ cells < 1%, meeting the requirement for allogeneic application
- Low cost: The production cost per NK cell preparation is 1/3 to 1/5 of the original cost
- Pure factor: feeder-free, GMP-manufactured, with DMF filing number

hyperClone® NK KIT
人NK细胞高效扩增试剂盒
hyperClone Human NK Activation/Expansion Cocktail

- Gelatin-based composition with flexible porous structure design
- Particle size ranging from 200 μm to 350 μm
- All raw materials are derived from pharmaceutical excipients produced in compliance with GMP standards
- Irradiated and sterilized, ready for direct use
- Suitable for a variety of adherent cells

3D StarPore® Max
第二代Max微载体
3D StarPore gelatin dissolvable porous microcarrier for cell culture



Suzhou Huachen Biotechnology Co., Ltd.

It is an enterprise focusing on end-to-end solutions in the field of cell and gene therapy. It is committed to providing high-quality products and services for the biopharmaceutical industry, serving scientists worldwide engaged in research on stem cells, immunology, cancer, regenerative medicine, and cell therapy, and striving to become a trusted and respected partner of global customers.

Products cover

stem cell serum-free media, stem cell chemically defined media, NK cell high-efficiency activation and expansion kits, 3DStarPore microcarriers, T cell media, γδT cell kits, hematopoietic stem cell media, ES media, iPSC media, cryopreservation solutions, as well as cell culture and detection instruments, auxiliary products, and educational resources.

Huachen Biot is committed to becoming a leading supplier in the cell therapy field. Through continuous technological innovation and high-quality services, it promotes the development of the biopharmaceutical industry and contributes to the cause of human health.

VISION

Becoming a trusted and respected partner of global customers

MISSION

Assisting global life science laboratories
and pushing the boundaries of scientific research and discovery

COMPETITIVENESS

- High-quality Products
- Professional R&D team
- global supply chain
- certification and compliance
- continuous investment in R&D
- Innovation-driven