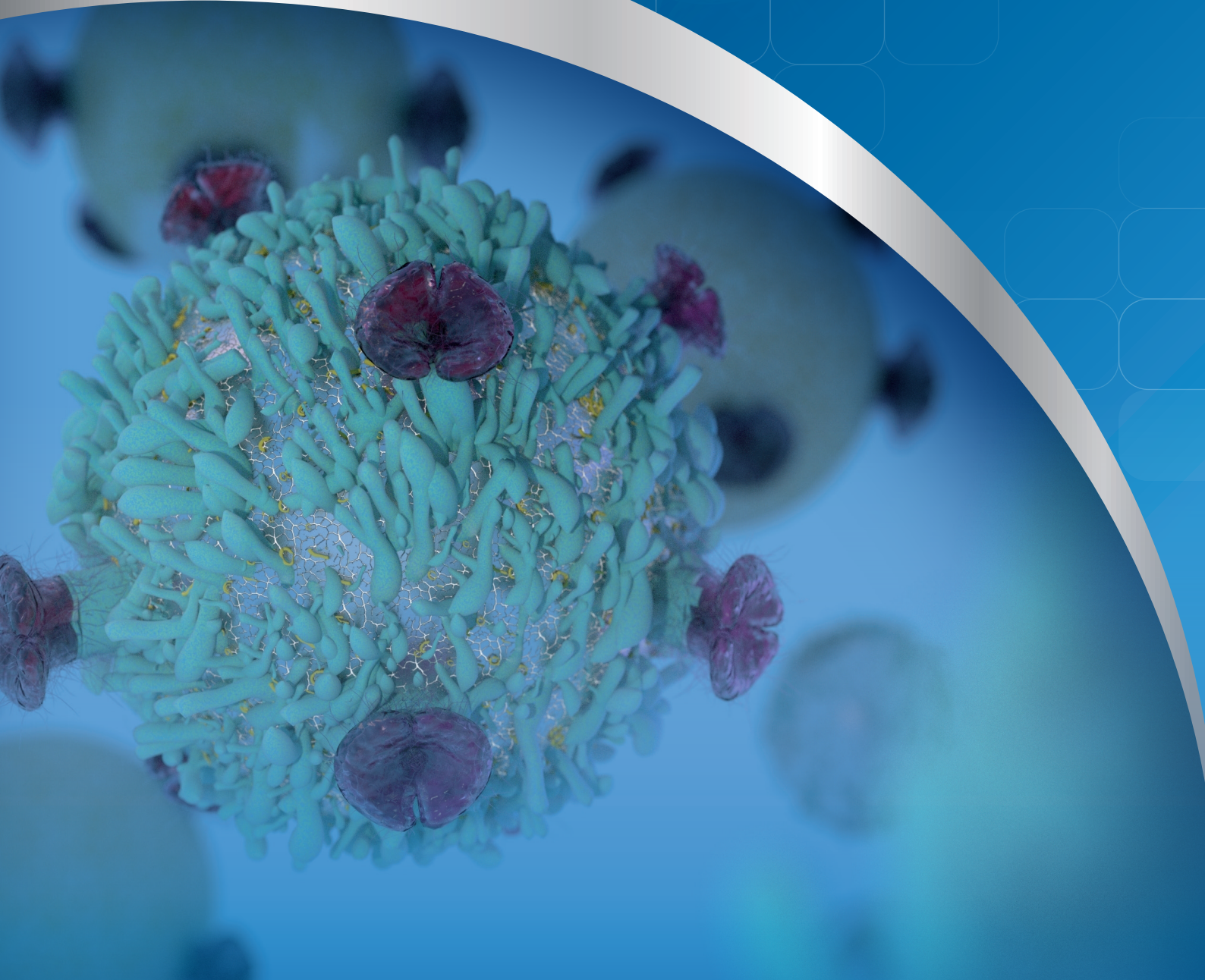


**ESCO**  
HEALTHCARE



# Esco PuriCradle™

Streamlining Cell Therapy  
Workflow: Keeping Cells Viable  
in Every Spin



# Esco PuriCradle™

## Streamlining Cell Therapy Workflow: Keeping Cells Viable in Every Spin



Esco PuriCradle™ is an open / closed system approach to cell isolation and purification in the field of cell therapy, reducing sample contamination risk from R&D to manufacturing. These cutting-edge instruments optimize processes while guaranteeing adherence to relevant regulatory requirements. Their versatility includes the ability to isolate and purify a variety of cell lines. Notably, they can also be used to separate peripheral blood mononuclear cells (PBMC) from whole blood, which is essential for the applications of CAR-T cell therapy.

The conventional methods for cell separation and washing pose challenges due to their labor-intensive nature and the increased risk of contamination associated with open system operations. Moreover, the intricate procedures often lead to decreased cell recovery and survival rates. In contrast, Esco's PuriCradle™ provides a solution by facilitating the precise separation, washing, resuspension, and concentration of target cells within a sterile environment. This innovative system offers customizable process flows tailored to meet user requirements, thereby ensuring consistently high recovery rates.

### Features

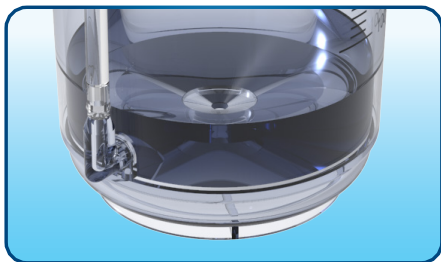


Can be utilized across open and closed system options

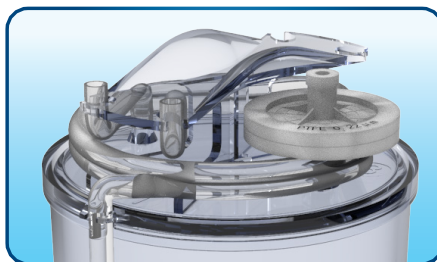


Equipped with 0.22µm filter, ensuring no pressure differential is achieved

*Spinning blood in special tubes with a layered solution (density gradient centrifugation) allows for the separation and collection of PBMCs. This method keeps the cells sterile and yields a large number of viable cells.*



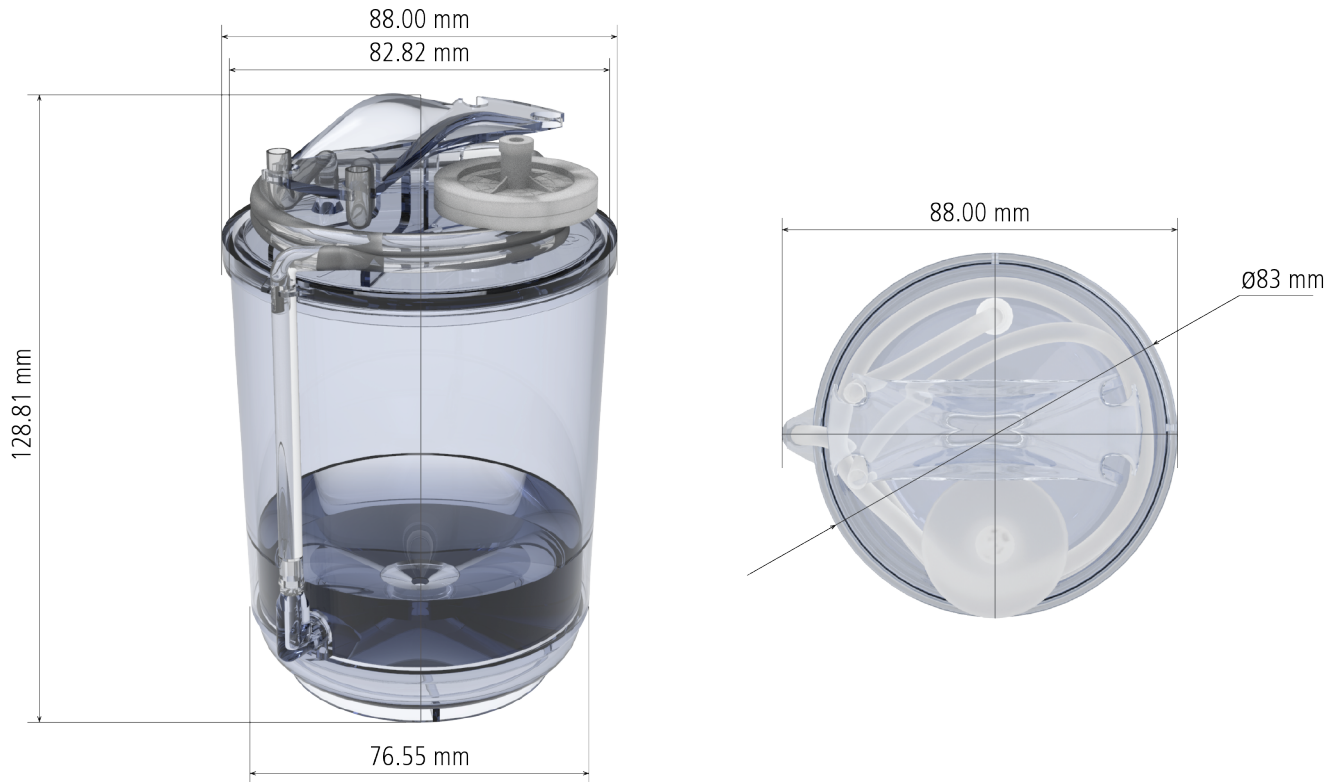
Upper and lower chambers for easier isolation of target cells



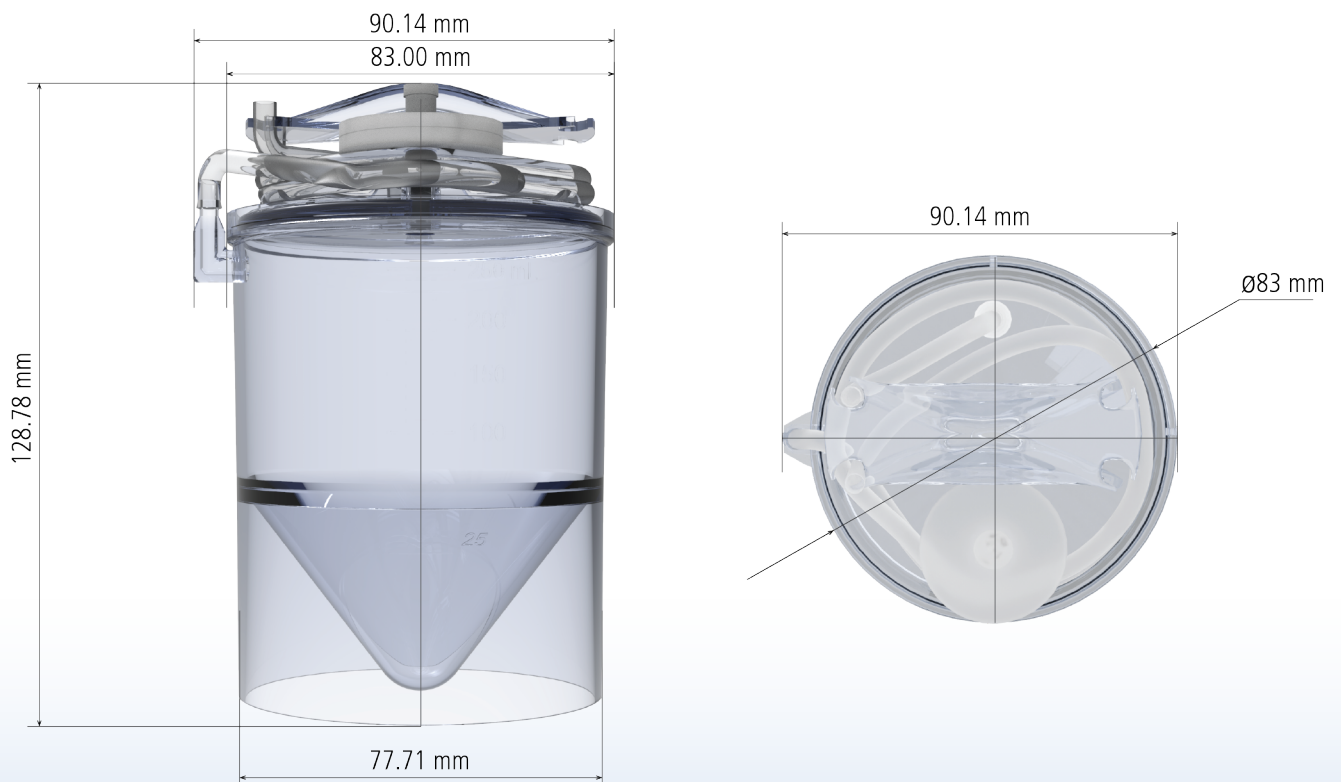
Top butterfly clamp design guarantees secure tubing fixation, preventing detachment even under centrifugation

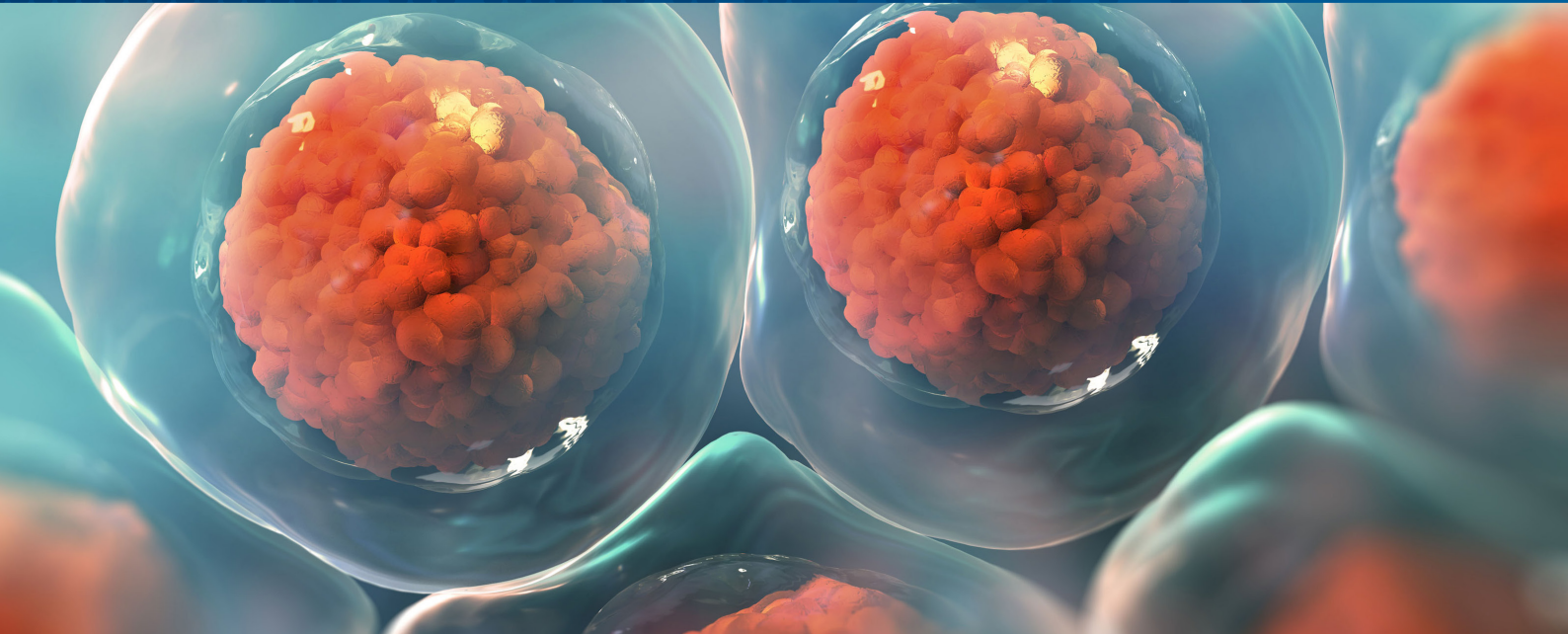


## Separation Cup



## Washing Cup





## Applications

- Isolation of PBMCs from whole blood/peripheral blood
- Isolation of bone marrow mesenchymal stromal cells (BM-MSCs) from bone marrow aspirate
- Cell concentration
- Cell washing
- Dimethylsulfoxide (DMSO) removal from cryopreserved cells
- Red blood cell separation
- Protein-based therapy from PBMCs
- Hematopoietic stem cell (HSC) therapy

## Esco Infinity™ Range Centrifuge

Esco's cGMP-compliant centrifuge is meticulously engineered for both open and closed processing especially for CAR-T cell therapy applications. Its compact design saves space and its low noise performance is preferred in most laboratory setting.

### Features

- Benchtop design and Siemens HMI/PLC, compliant with 21 CFR part 11 standards that offers intuitive operation and effortless navigation
- Engineered with Siemens technology for motor and aerosol tight seals
- Interchangeable rotor (fixed/swing type) with 4x250 ml and 4x50 ml round bucket for biocontainment.
- Designed with aerosol-tight buckets provide an additional layer of protection
- With features that facilitate pressure testing
- With advanced temperature control capabilities
- Tailored to seamlessly integrate with Esco PuriCradle™ cups





## Cell Processing Isolator (CPI) Integration

The Cell Processing Isolator (CPI) integrated with Infinity™ range centrifuge enables seamless operation throughout the entire cell therapy process, from initial cell collection to final product preparation. It facilitates the isolation of products or processes while ensuring the necessary sterile or aseptic conditions required for cell therapy applications.



With the Esco CPI, procedures such as cell density gradient separation, washing, centrifugation, cell activation, harvesting, and preparation of the final product can be efficiently carried out. Moreover, it offers comprehensive protection for personnel, the product, and the environment, ensuring optimal safety and efficacy throughout the cGMP manufacturing process.

### Features

- Easily customizable, depending on client's requirements
- Designed for cGMP Manufacturing of Cell, Tissue, and Gene Therapy Products (CTGTP)
- Modular and adaptable solutions for cell and gene therapy, tissue engineering, seed banking, and cell processing
- Integrates Esco PuriCradle™ cell centrifuge, separation, and washing cups
- Option of docking/undocking capabilities for CO<sub>2</sub> incubator or bioreactor (e.g. static bags/WAVE/Tide)
- Applicable for both autologous and allogeneic cell therapy applications

## Esco Infinity Cell Processing Workstation

The Esco Infinity Cell Processing Workstation is designed based on Esco's certified biological safety cabinets. Integrated with Infinity™ range centrifuge, this can support the entire cell therapy workflow. It offers unmatched convenience and safety, ideal for laboratory facilities, featuring an ULPA filtration system with 10x the efficiency of HEPA filters. In addition, the technology is equipped with energy-efficient DC ECM that allows up to 70% energy savings versus AC motor.



### Features

- Incorporates Siemens HMI/PLC technology
- Includes a shaking incubator for cell culture applications
- With viable and non-viable particle counter which offers monitoring capabilities for both living and non-living particles
- Option for docking/undocking feature of CO<sub>2</sub> incubator/bioreactor (e.g. static bags/WAVE/Tide)



### Custom Adapter Solutions

These tools are meticulously engineered to ensure precise compatibility with Esco PuriCradle™ cups, catering particularly to clients utilizing centrifuges outside the Esco Infinity™ range.

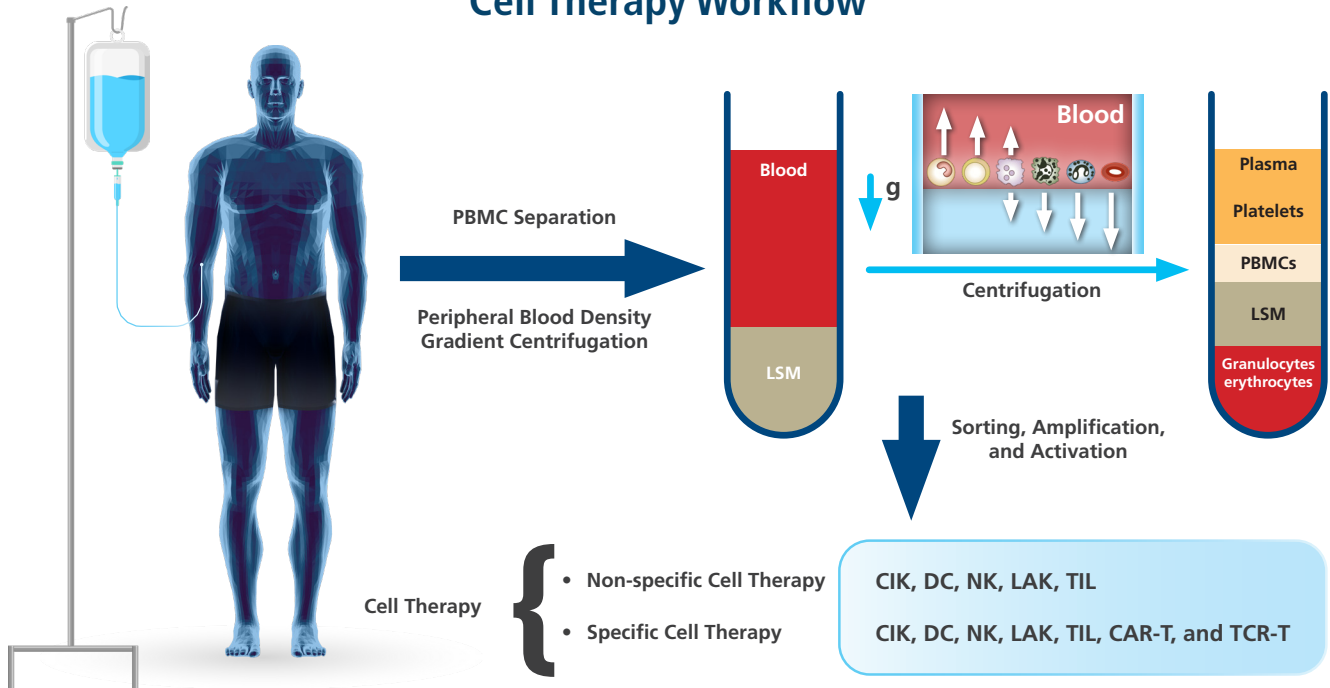
## Starting Cell Source

This table presents a comparative analysis between the two primary cell sources used in the manufacturing process of CAR-T Cell Therapy.

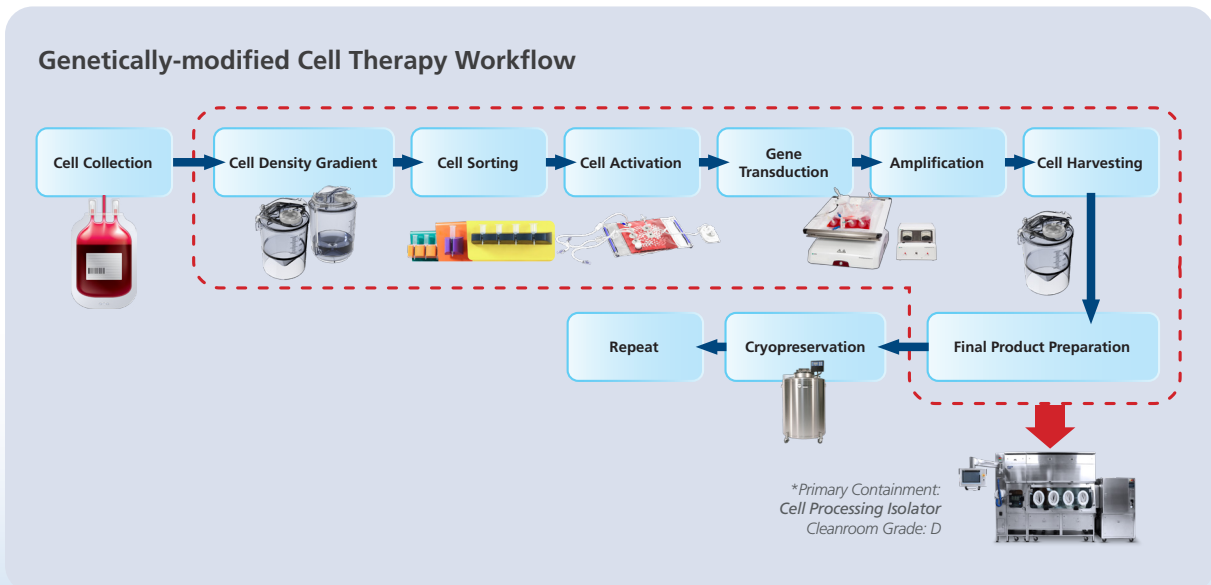
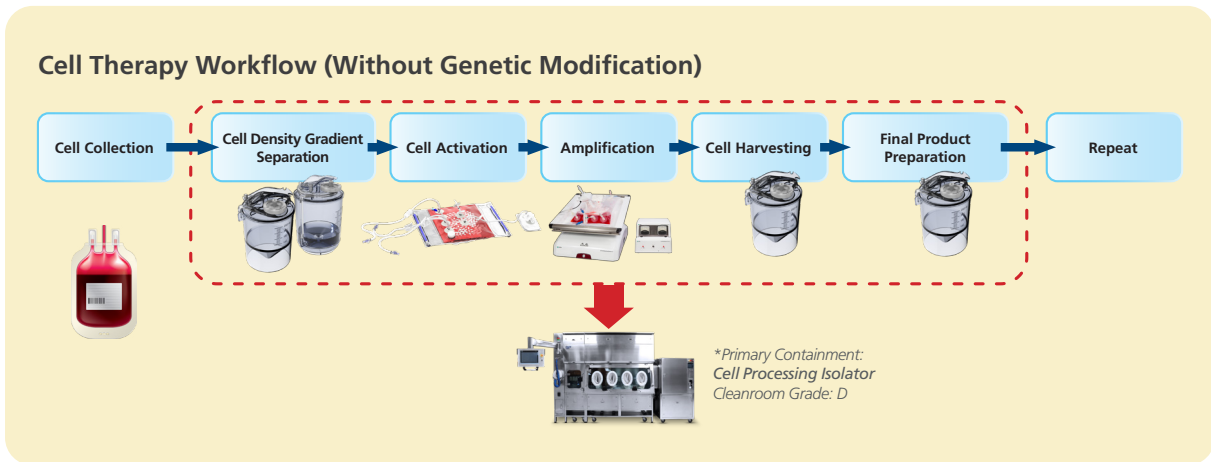
FEATURES	PBMCs	LEUKAPHERESIS
VOLUME	<p>Lower volume/small quantity of highly potent CAR-X cells can be obtained</p> <p>App. 60 ml*</p> <p><i>* in a regular 450ml blood donation (buffy coat)</i></p>	<p>Larger volume can be obtained as it follows a selective collection process.</p> <p>App. 100 ml*</p> <p><i>* depending on absolute lymphocyte count and total blood volume to process per patient.</i></p>
VASCULAR ACCESS	Requires standard phlebotomy procedures	Requires standard phlebotomy procedures but may also involve accessing large veins (e.g. internal jugular) for specialized collection tools such as central venous catheters.
INVASIVENESS AND COMPLEXITY	Less invasive procedure	Quite invasive and complex procedure
AVAILABILITY	More readily available as it can be obtained from routine blood donations	Requires scheduling and specialized equipment, making it less immediately available.
PLATELET/RBC CONTAMINATION	Potentially higher risk of platelet and RBC contamination due to standard phlebotomy procedures	Reduced RBC and platelet contamination due to selective collection via leukapheresis.
MATERIAL HANDLING	Easier to handle and process due to the smaller volume of blood collected.	Requires more complex handling and processing, including the use of apheresis machines for cell isolation/separation.
DONOR ATTRITION	Less invasive procedure, potentially leading to higher donor retention rates.	Quite invasive procedure which may result in donor attritions, especially if the donors find the process uncomfortable or inconvenient.
EXPERTISE REQUIREMENT	Requires highly skilled phlebotomist	Requires highly skilled phlebotomist and proficient in operating apheresis machines.
FACILITY REQUIREMENT	Requires facilities equipped for standard blood draw procedures and suitable for smaller-scale manufacturing processes, hence may not require highly specialized facilities.	Facilities need specialized equipment for leukapheresis procedures and typically performed in specialized centers with apheresis machines and trained personnel.
ADVERSE EVENTS	Mild, infrequent adverse reactions	Potentially more frequent, slightly severe adverse reactions
HEALTHCARE SERVICES	Out-patient setting which can lower overall cost	In-patient setting which may contribute to higher overall cost



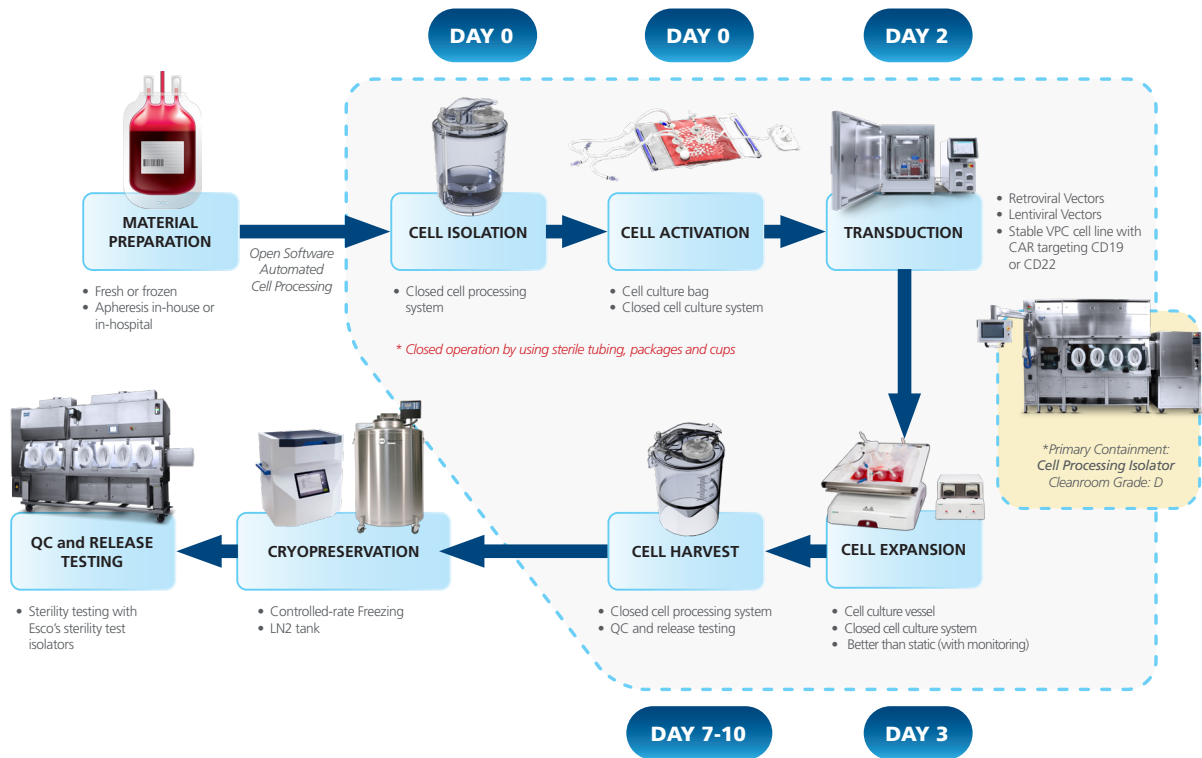
## Cell Therapy Workflow



### Cell Centrifuge, Separation, and Washing Cup Closed System Applications: Immune Cell Therapy Products



## Esco Aster's cGMP CAR-X Cell Therapy Manufacturing Process



Contact [mail@escoaster](mailto:mail@escoaster) for CRDMO services and comparability studies.

## Ordering Information

Item Code	Description
2220009	Infinity, Benchtop Refrigerated Centrifuge (With Siemens HMI/PLC)
5220002	4 x 50 ml Rotor Fixed (For Infinity Range Centrifuge)
5220003	4 x 50 ml Rotor Swing (For Infinity Range Centrifuge)
5220004	4 x 250 ml Rotor Fixed (For Infinity Range Centrifuge)
5220005	4 x 250 ml Rotor Swing (For Infinity Range Centrifuge)
5220006	Closed Bucket for PuriCradle
5220007	PuriCradle Separation Cup
5220008	PuriCradle Washing Cup

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Since 1978, Esco has emerged as a leader in the development of controlled environment, laboratory and pharmaceutical equipment solutions. Products sold in more than 100 countries include biological safety cabinets, fume hoods, ductless fume hoods, laminar flow clean benches, animal containment workstations, cytotoxic cabinets, hospital pharmacy isolators, and PCR cabinets and instrumentation. With the most extensive product line in the industry, Esco has passed more tests, in more languages, for more certifications, throughout more countries than any biosafety cabinet manufacturer in the world. Esco remains dedicated to delivering innovative solutions for the clinical, life science, research and industrial laboratory community.

PuriCradle Cell Centrifuge Cup, Brochure\_A4(BI)U\_VA\_08202024  
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