

Data Sheet

Mobius[®] CellReady 3 L Bioreactor

Optimize and Scale Up Your Stem Cell Process With Mobius[®] Single-Use Bioreactor Technology

The Mobius[®] CellReady 3 L bioreactor is a convenient and cost-effective tool for the culture of clinical grade human mesenchymal stem cells (hMSCs). Popular multi-layer flatbed culture expansion techniques are cumbersome, time consuming and do not allow a constant monitoring of cells during the manufacturing process. The Mobius[®] CellReady 3 L bioreactor enables the cells to be cultured under tightly controlled conditions, improving cell yields and reducing batch variability.

Process Monitoring with Real-Time Control

A stirred-tank bioreactor platform enables real-time monitoring feedback control of critical parameters such as pH and DO to facilitate optimized feeding strategies that maximize yield while maintaining the desired undifferentiated state of the cells.

Convenient and Cost-Effective Model

The Mobius[®] CellReady 3 L bioreactor requires >50% less media and manipulation compared to multi-layer flatbed culture, reducing costs and risk of contamination. The Mobius[®] CellReady 3 L bioreactor is ready to use out of the box complete with protocols for transferring and optimizing your stem cell culture in a bioreactor format.

Scalable Platform

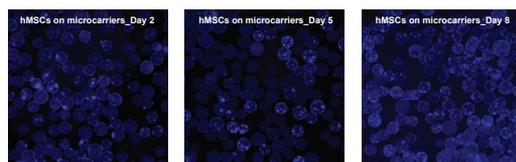
Stir tank bioreactors are a commonly used vehicle for the scale-up of cell growth in mAb and vaccine production. The Mobius[®] CellReady bioreactor platform is available in 3 L, 50 L and 200 L scales to support your changing stem cell production needs.



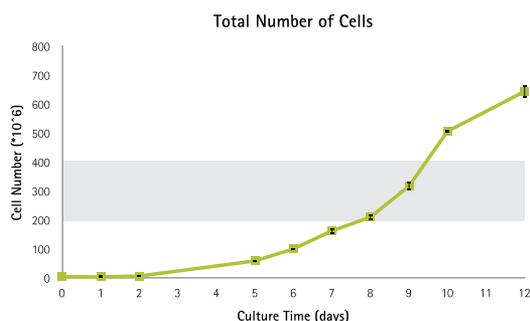
Comparable Cell Culture Performance

hMSCs can be successfully expanded in the Mobius CellReady 3 L Bioreactor with microcarriers and exhibit similarities in flow cytometry profiles, differentiation abilities and functional assays to cells produced in a two-dimensional flatbed culture.

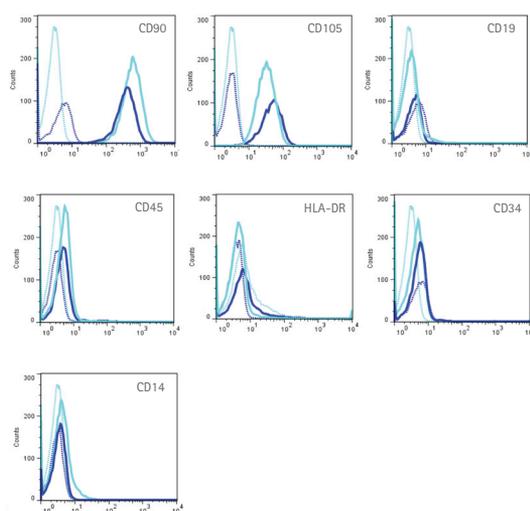
Figure 1.
Comparison of hMSCs growth in Mobius® CellReady 3 L bioreactor with 10-stack multi-layer flatbed device.



A) Time-course staining of hMSCs on microcarriers in Mobius® CellReady 3 L bioreactor. After expansion, hMSCs not only proliferated on initial seeded microcarriers but also colonized empty microcarriers.

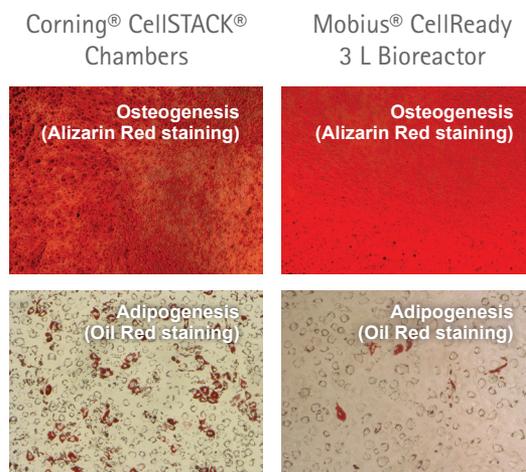


B) After 1-3 day lag phase, hMSCs expanded quickly in the bioreactor and reached maximum cell number (~600 million cells) in 12 days. The gray bar represents the expected cell number from a 10-stack multi-layer device in 14 days.



C) Flow cytometry data illustrated no difference in cell surface antigen expression between hMSCs expanded in 10-stack multi-layer device and bioreactor with microcarriers (dotted line: isotype control; dark blue line: bioreactor; light blue line: 10-stack multi-layer flatbed device).

Figure 2.
Characterization of hMSCs expanded in Mobius® CellReady bioreactor and CellSTACK® multilayered flask. After expansion for 2 weeks in Nunc® Cell Factory systems and bioreactor, hMSCs were exposed to differentiation media toward adipogenic, osteogenic and chondrogenic lineages. Both immunostaining and PCR showed that expanded hMSCs have multipotent differentiation abilities.



Specifications

Volume		Gas Filters	
Total	3.0 L	Overlay and sparge inlets	Millipore Millex® 33 mm 0.22 µm PVDF (hydrophobic)
Minimum	1.0 L	Vent outlet	Millipore 50 mm, 0.22 µm nylon (hydrophobic)
Maximum Working	2.4 L	Sampling	
Dimensions		Luer actuated valve	
Vessel diameter (inner)	5.3" (137.0 mm)	Weldable tube with clamp	
Overall height	9.6" (249.0 mm)	Sparging	
Overall weight	1.5 lb (680.0 g)	Sintered Polyethylene Microsparger (pore size)	The inserted frit has been designed to produce a 15-30 micron nominal pore size
Base diameter	9.5" (241.0 mm)	Open pipe sparger diameter	0.09" (2.3 mm)
Thermowell diameter	0.4 (7.6 mm)	Compatibility	
Impeller diameter (Marine; Scoping)	3.0" (76.2 mm)	Motor Drive Adapter required	Integrates with most standard 3 L motors
Materials		Heating blankets	Compatible with most standard 3 L heating blankets - Please call for details
Vessel, shaft and base	Polycarbonate	Recommended Application: Mammalian cell culture Gamma Irradiated to dose exceeding 25kGy 100% Integrity testing	
Headplate, thermowell and impeller	HDPE		
O-rings and seals	Silicone		
Check valve	Silicone, Polypropylene		
Septum	ABS, Polyisoprene		
Probe port plug	TPE		
Ports			
PG 13.5 threaded (3)	Fits standard 12 mm probes (200-235 mm length)		

Connections

C-Flex® Clear 374 Tubing ID							
	Location	1/8 in. (3.2 mm)	1/4 in. (6.4 mm)	Connector	Filter	Component	
Fluid addition 1	Headplate	yes		1/8" Male Luer with Cap		Septum	
Fluid addition 2	Headplate	yes	yes				
Fluid addition 3	Vessel	yes					Check valve
Fluid addition 4	Vessel	yes					Check valve
Harvest	Vessel	yes	yes				Clamp
Fluid Addition or Outlet Line	Vessel	yes				Clamp	
Air inlet (overlay)	Headplate	yes					
Sparge 1 (micro-sparger)	Vessel	yes			yes	Check valve	
Sparge 2 (open pipe)	Vessel	yes				Check valve	
Air outlet (vent)	Headplate		yes		yes		

Ordering Information

Description	Catalogue No.
Mobius® CellReady 3 L bioreactor	CR0003 L200
Mobius® CellReady 3 L motor adapter - Applikon® Style	CR0003 L102
Mobius® CellReady 3 L motor adaptor - Sartorius BIOSTAT® bioreactor A+ (1L, 2L, 5L) Style	CR0003 L103
Mobius® CellReady 3 L motor adaptor - Sartorius BIOSTAT® bioreactor B-DCU II Style	CR0003 L104
Mobius® CellReady 3 L motor adaptor - New Brunswick Celligen® bioreactor Plus Style	CR0003 L107
Mobius® CellReady 3 L motor adaptor - New Brunswick Celligen® bioreactor 115 Style	CR0003 L108

To Place an Order or Receive Technical Assistance

In the U.S. and Canada, call toll-free 1-800-645-5476

For other countries across Europe and the world, please visit: www.emdmillipore.com/offices

For Technical Service, please visit: www.emdmillipore.com/techservice



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