

TURN OUR
Advances
INTO YOUR
Advantage

FiberCell Systems has unlocked the
real power of hollow fiber cell culture



Most
in vivo-like
conditions

Easy cell
culture
scale-up

APPLICATIONS

Monoclonal Antibodies

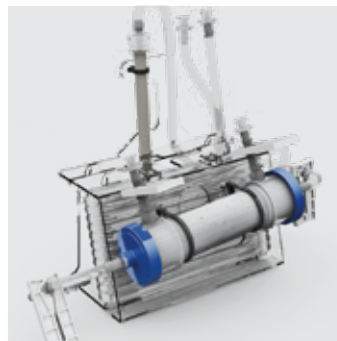
Recombinant Proteins

3-D Cell Culture

Exosomes

PK/PD

Cell Co-culture

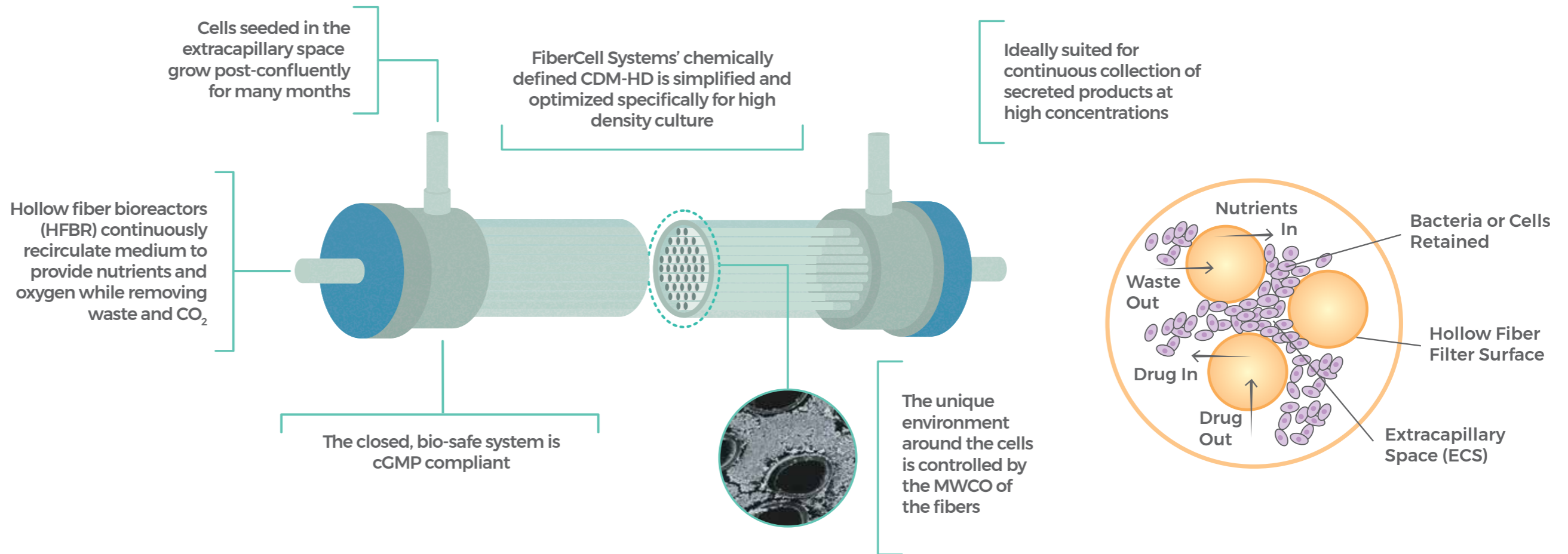


Up to 100x
greater
productivity

Take Advantage of our Advances

Hollow Fiber Bioreactors: A Better Way to Grow Cells

A closer look
at the
FiberCell
Systems
cartridge



APPLICATIONS



3-D Cell Culture

The medium-sized cartridge offers 3,000 cm² of surface area, equivalent to 40 T-75 flasks, but can support up to 2x10⁹ cells



Monoclonal Antibody Production

In the HFBR, hybridomas can yield up to 100 mg of antibody every two days, for months of culture



Recombinant Protein Production

Typical protein harvests from FiberCell Systems' cartridges contain 100 µg/mL/day or higher. Daily harvests are 2 mg to 10 mg a day.



Exosome Production

Gram quantities of exosomes can be produced in HFBRs



Cell Co-culture

The PVDF fiber allows various matrix proteins to be bound to its surface



PK/PD

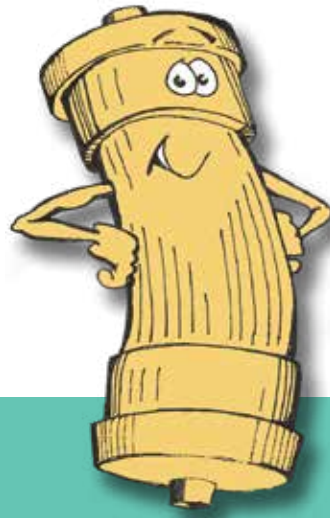
Mimic human bioavailability of antibiotics



Learn more at www.fibercellsystems.com

Discover

what so many researchers and biotech companies already know.



Why Use Hollow Fiber

Models the mammalian circulatory system for *in vivo*-like conditions

Eliminates the need to split cells

Enables high density cell growth as in the human body

Stabilizes pH of cell culture system

Reduces serum requirements and allows for use of protein-free media like CDM-HD

Increases concentration of secreted product by 10 to 100 times

Provides for many months of continuous production

Why Choose FiberCell Systems

Concentrates secreted product in small volume area within cartridge shell

Eliminates dead spots by using fibers that are wavy and uniformly spaced

Provides for easy cell culture scale up

Handles large cell numbers (up to 10^{11})

Enhances bio-safety with closed system

CDM-HD, a protein-free serum replacement, is optimized for the unique cell culture environment within a hollow fiber bioreactor

Facilitates nutrient and waste exchange with our unique Duet Pump

Fits easily into standard CO₂ incubator

Proprietary high gross filtration fibers for improved viability and cell growth

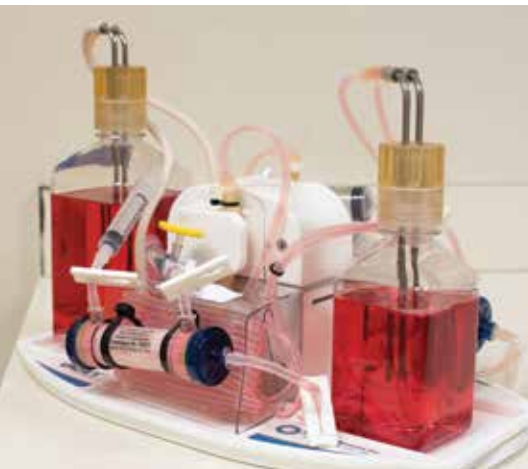
Over 15 years of experience with hollow fiber application development and support

Products

Pumps
Cartridges
Accessories
CDM-HD

PUMPS

The FiberCell Systems Duet (Cat # P3202) pump provides flexible flow rate support for one or two hollow fiber bioreactor cartridges with independent medium reservoirs. It utilizes a unique positive pressure displacement pumping mechanism to provide high flow rates without friction on the pump tubing. It occupies 1/2 shelf, 1/3 height in a standard CO₂ incubator and comes with a thin cord to fit through the incubator door. Full two year limited warranty.



FiberCell Systems Duet Specifications

DIMENSIONS:
9.5"X16.5"X8"
(W x L x H)

WEIGHT: 4.3 kg

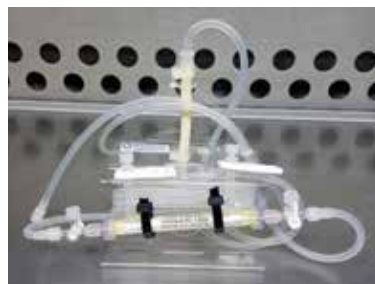
VOLTAGE: 100, 120,
200 (50 or 60 hz)

FLOW RATE: 1-160
mL/minute,
continuously
variable.

CARTRIDGES

SMALL CARTRIDGES

Cat # C2025 - 0.1 µm pore size for the highest exchange rates but without protein retention. 80 cm² outer surface area. PVDF fiber allow for the attachment of matrix proteins, cytokines and antibodies. Ideal fiber for endothelial cell culture under shear.



Cat # C2025D - 20 kD MWCO polysulfone fiber with 450 cm² of surface area. Only one wrap of oxygenation tubing to reduce system dead volume.

MEDIUM CARTRIDGES

Cat # C2008 - Low MWCO (5 kD @ 50%) hydrophilic polysulfone fiber for recombinant proteins between 25 kD and 100 kD. Appropriate for adherent and suspension cell lines including CHO, HeLa and 293. Can support up to 10⁹ cells and produce 100 µg/mL/day or more of recombinant protein in 20 mL ECS.



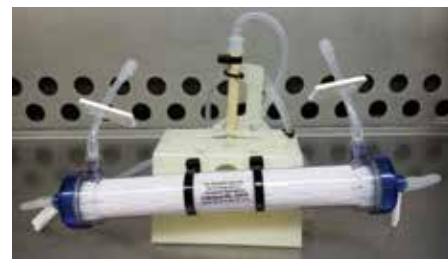
Cat # C2011 - High MWCO (20 kD @ 50%) hydrophilic polysulfone fiber for monoclonal antibodies and larger recombinant proteins (100 kD or larger). Can support up to 10⁹ cells and produce 1-20 mg of a recombinant protein every day or 5-50 mg of a monoclonal antibody every other day. This is the cartridge of choice for PK/PD studies.

Cat # C5011 - The C5011 is the same cartridge as the C2011 but with twice the oxygenation capacity. It is specifically designed for hybridoma scale-up with 2X greater productivity and twice the antibody concentration of the C2011.

Cat # C3008 - Low MWCO (5kD at 50%) cellulosic fiber for PK/PD studies. Cellulosic fiber will have resistance to many solvents and low non-specific binding for certain compounds.

LARGE CARTRIDGES

Cat # C2003 - Low MWCO (5 kD @ 50%) hydrophilic polysulfone fiber for recombinant proteins between 25 kD - 100 kD. 1.2 m² of surface area will support up to 5X10¹⁰ cells and produce 5-20 mg of recombinant protein every day in an ECS volume of 60 mL.



Cat # C2018 - High MWCO (20 kD @ 50%) hydrophilic polysulfone fiber for larger recombinant proteins (100 kD or larger). Can support up to 5X10¹⁰ cells and produce 5-20 mg of protein every day in a volume of 60 mL. Appropriate for adherent or suspension cell lines including CHO, HeLa, BHK and 293 cells.

RESERVOIR CAPS

33 mm (Cat # A1005) - Reservoir Cap Assembly fits standard glass bottles. The assembly includes one medical grade polysulfone cap with molded-in silicone plug, two 516 stainless steel delivery tubes one .062" thick white silicone gasket. Withstands repeated autoclaving.



38 mm (Cat # A1006) - Reservoir Cap Assembly fits standard plastic media bottles. The assembly includes one medical grade polysulfone cap with molded-in silicone plug, two 516 stainless steel delivery tubes and one .062" thick white silicone gasket. Withstands repeated autoclaving.



45 mm (Cat # A1008) - Reservoir Cap Assembly fits Gibco® media bottles. The assembly includes a 516 stainless steel cap assembly with two angled tubes, a 45 mm threaded sealing ring and one white silicone gasket to seal the bottle firmly against the cap for leak proof operation.

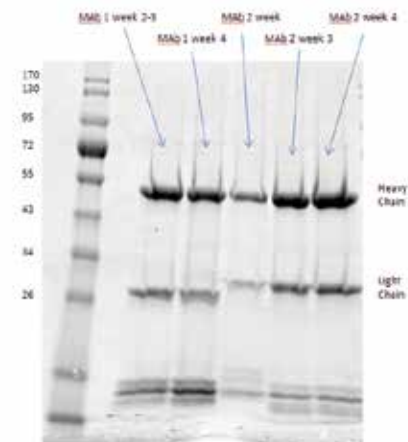
PK/PD Reservoir Cap (Cat # A1007) - The 5 port in vitro toxicology reservoir cap is intended to allow the introduction of drugs and diluent to the central reservoir while maintaining a constant volume.



CDM-HD

CDM-HD (Cat # CDM-1) is designed specifically for the culture of cells at high density and optimized for use in our hollow fiber bioreactor systems.

CDM-HD provides lot-to-lot consistency and is an economical replacement for serum. It is available as a dry powder to make up one liter and is used at a concentration of 10%.



Cartridge/Flowpath Specifications

Catalog No.	Size	Surface Area	Fiber Type	Packing Density	ECS Volume	MWCO 50%	Maximum Cell#	Oxygenator
C2025	Small	80 cm ²	PVDF	39%	3.9 mL	0.1 µm	10 ⁸	1.5 m
C2025D	Small	450 cm ²	high flux PS	50%	3.2 mL	20 kD	10 ⁸	.65 m
C2025E	Small	360 cm ²	cellulosic	39%	4.4 mL	5 kD	10 ⁸	.65 m
C2025F	Small	450 cm ²	polysulfone	50%	4.4 mL	5 kD	10 ⁸	.65 m
C2008	Medium	3000 cm ²	low flux PS	50%	20 mL	5 kD	10 ⁹	4 m
C2011	Medium	3000 cm ²	high flux PS	50%	20 mL	20 kD	10 ⁹	4 m
C3008	Medium	2000 cm ²	cellulosic	38%	12 mL	5 kD	10 ⁹	3 m
C5011	Medium	3000 cm ²	high flux PS	50%	20 mL	20 kD	2 x 10 ⁹	6.1 m
C2003	Large	1.2 m ²	low flux PS	50%	70 mL	5 kD	5 x 10 ¹⁰	6.1 m
C2018	Large	1.2 m ²	high flux PS	50%	70 mL	20 kD	5 x 10 ¹⁰	6.1 m

www.FiberCellSystems.com To order call 301-471-1269 or 435-512-8658
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