



ACCELERATING THERAPIES
FROM START TO SCALE

PBS MINI PSC PERFUSION

PBS-0.5 VERTICAL-WHEEL® PSC PERFUSION VESSELS

Maximize PSC Differentiation Success with All-New Integrated Perfusion Capabilities



BIOREACTOR OF
THE YEAR 2025

Awarded By
Life Sciences
Review

NPS
Score **50**

Best In Class Service Score

Driven By Vertical-Wheel® Technology

Vertical-Wheel® Technology enables the performance, precision, and scalability across our family of bioreactors



Product Overview

The PBS Mini Perfusion Vertical-Wheel® Bioreactor is designed to maximize downstream differentiation efficiency of PSC aggregates for cell therapy and regenerative medicine applications. It incorporates an integrated, sterile perfusion assembly with a retention filter specifically optimized for medium exchange in cultures of pluripotent stem cells (PSCs), adherent cells on microcarriers, and other large particles. This system provides all of the benefits of our Vertical-Wheel® technology such as scalability, gentle, and unmatched homogenous mixing, while introducing key new features to optimize downstream differentiation success.

Key Benefits

Enhanced Cell Quality and Yield

The PBS Mini Perfusion system significantly improves aggregate size homogeneity, viability, yield, and differentiation efficiency¹. The integrated perfusion system ensures that you consistently produce high-quality cells, improving yield and efficiency without increasing costs.

Proven Performance in Scalability

The PBS Mini Perfusion system incorporates our proven Vertical-Wheel® Technology that drives the entire family of PBS single-use bioreactor systems. The gentle, homogeneous mixing technology ensures predictable and linear scalability from smaller scale research sizes to larger production volumes.

Reduce Cost and Human Error

Reduce media and labor costs with automatic feeding vs. manual media exchange. Hands-free operation reduces variables, human error, and labor time.

Seamless Compatibility with Existing Equipment

Designed to seamlessly integrate with your existing laboratory equipment and set-up. The system features both standard and Masterflex® High-Performance Precision Pump silicone tubing, ensuring compatibility with various brands of peristaltic pumps. The included C-Flex® tubing supports sterile connections and enables extended line lengths, providing additional adaptability for your needs.

Download Our Whitepaper

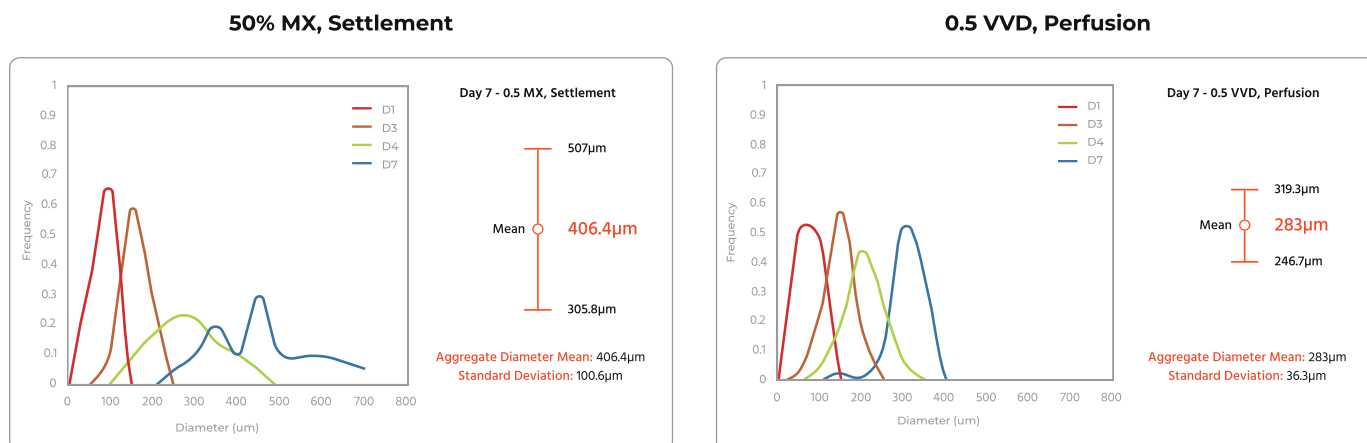
Discover how PBS Mini Perfusion cuts costs and scales — download our free whitepaper.

[Perfusion Medium Exchange in Vertical-Wheel® Bioreactors for Scalable PSC Production Whitepaper](#)

¹ Borys, B. S., et al. Overcoming bioprocess bottlenecks in the large-scale expansion of high-quality hiPSC aggregates in vertical-wheel stirred suspension bioreactors. Stem Cell Research & Therapy, 12, 55 (2021). <https://doi.org/10.1186/s13287-020-02109-4>



Tight Aggregate Size Distribution with Perfusion

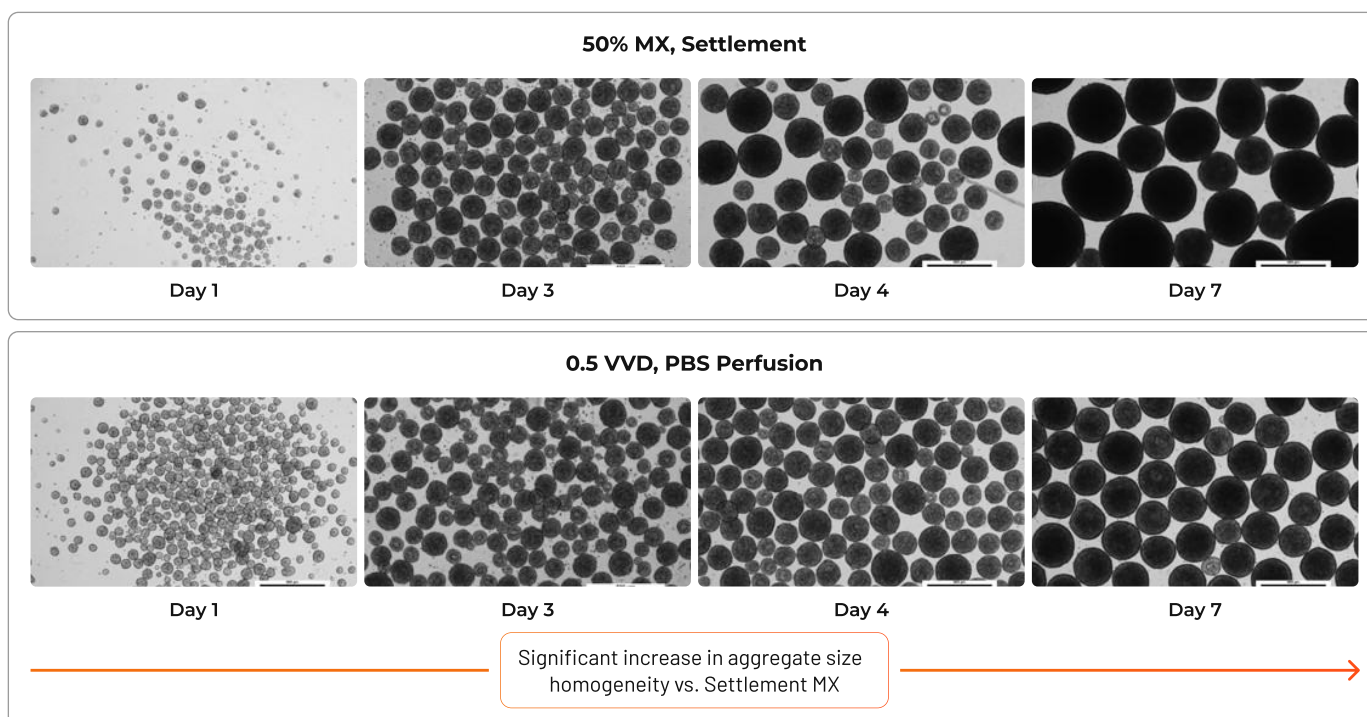


The **standard deviation** of aggregate size distribution with **Perfusion** improved **270%** over Settlement MX. **Mean aggregate size diameter** is **44%** smaller with **Perfusion** compared to Settlement MX with the same agitation rate.

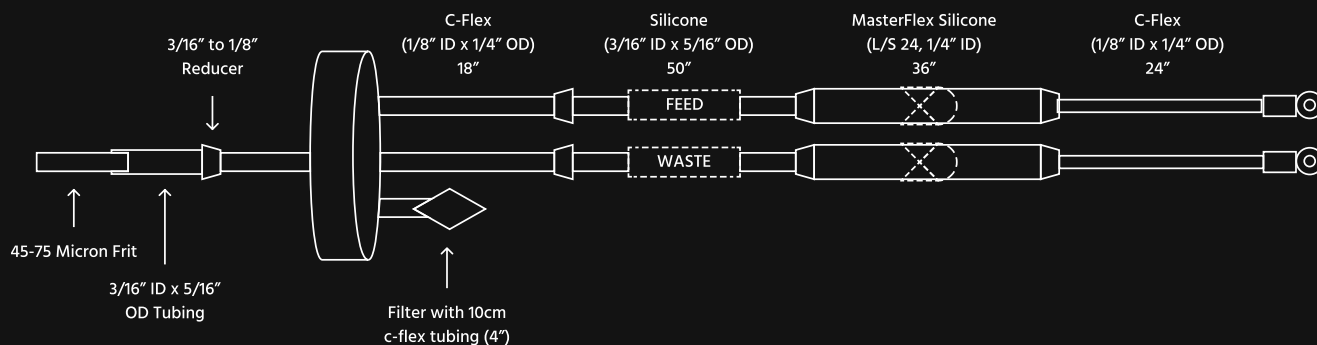
Superior Aggregate Homogeneity with Perfusion

Settlement medium exchange (MX): Involves stopping agitation to let cells settle, then removing spent media from the top and replacing it with fresh media. Settlement steps result in compounding heterogenous aggregate formation.

Perfusion MX: Continuously replaces spent media with fresh media while retaining cells in suspension using a retention device. Perfusion enables continuous aggregates suspension with no settlement to the bottom of the vessel.



Perfusion Cap Diagram



Specification		Silicone	Masterflex® Silicone	C-Flex
	Description	Platinum-Cured Silicone	High-Performance Precision Pump Tubing, Platinum-Cured Silicone	Thermoplastic Elastomer
	Dimensions	3/16" ID, 5/16" OD	1/4" ID, L/S 24	1/8" ID, 1/4" OD
	Durometer	50, Shore A	45-55, Shore A	59, Shore A

Required	Item	Part No.
	PBS-Mini Bioreactor Base Unit	FA-UNI-B-501

Available Products	Item	Part No.
	PBS 0.5L Vessel w/ PSC Perfusion Filter (60µm)	IA-0.5-D-201
	PBS-3 Vertical-Wheel® Bioreactor	IA-3-B-711
	PBS-3 Single-Use Vessel, SUS, Floored	GA-3-D-714
	PBS-3 Dip Tube Assembly	IA-3-BA-007
	60 Micron Plastic (PE) Retention Filter (5-Pack)	IC01036

Ordering Information

For more information or to place an order, please contact:

Phone: +1 805 482-7272

Email: sales@pbsbiotech.com

Expert Bioprocess Development and Support Services

PBS Biotech offers comprehensive services to support your cell therapy production needs, including:

Custom Process Development Services

Proof-of-Concept Studies

Tailored studies to demonstrate bioreactor capabilities.

Process Optimization & Scale-Up

Efficient transition from R&D to commercial manufacturing.

Comprehensive Risk Analysis

Evaluating materials and processes for potential issues.

Specialized Consulting

Expertise in therapeutic iPSCs, hMSCs, T cells, and NK-cells.

cGMP Tech Transfer

Support for Good Manufacturing Practice (GMP) compliance and process transfer.

Global Reach

Trusted by leading cell therapy companies worldwide.

Customer-Focused Approach

Dedicated application support and process development teams invested in your success.

Contact Us



Contact us today to place an order, assist you in scaling processes.



Trusted Solutions for Cell Therapy Productions

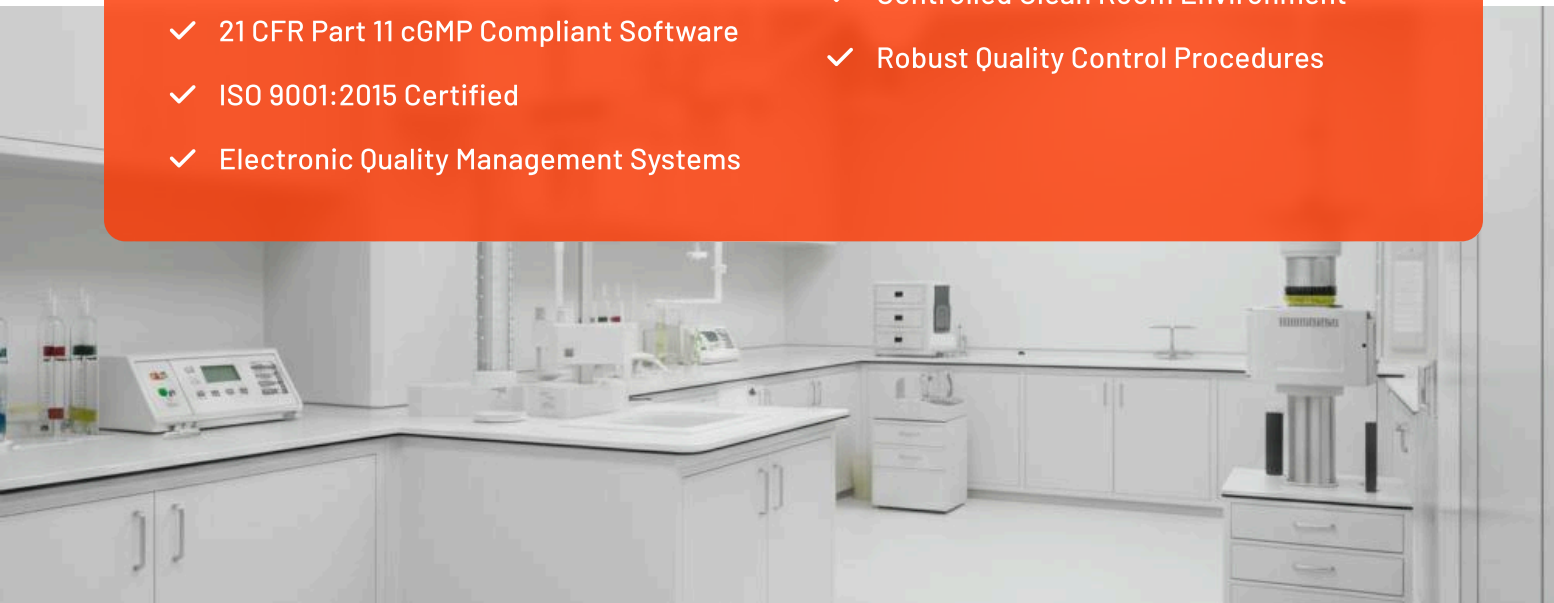
About PBS Biotech

Founded in 2006, PBS Biotech is a leading provider of single-use bioreactor systems and process development services for the cell therapy industry. Our innovative Vertical-Wheel® technology is trusted by top biotech companies and research institutions worldwide to deliver superior mixing, cell quality, and scalability.

All Vertical-Wheel® Bioreactors and Single-Use Vessels are manufactured under cGMP standards, ensuring strict control, quality, and safety. We are committed to enabling our customers to meet their regulatory requirements and maximize speed to market.

We are cGMP Compliant

- ✓ Committed to Supporting cGMP Processes
- ✓ Validated Manufacturing Processes
- ✓ 21 CFR Part 11 cGMP Compliant Software
- ✓ Controlled Clean Room Environment
- ✓ ISO 9001:2015 Certified
- ✓ Robust Quality Control Procedures
- ✓ Electronic Quality Management Systems



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I would highly recommend the PBS Minis, and just the PBS line in general, just from how well they worked with iPSCs

Principal Research Associate
Allogeneic Cell Therapy Company

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Life Sciences Review



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The PBS Mini Bioreactor 90-Day Guarantee

If you are not satisfied with the performance of the PBS Mini products or accessories, get your money back. Must show necessary performance documentation to qualify.



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For more information or to place an order, contact us at sales@pbsbiotech.com. Our team is ready to support your cell therapy development and scaling needs.