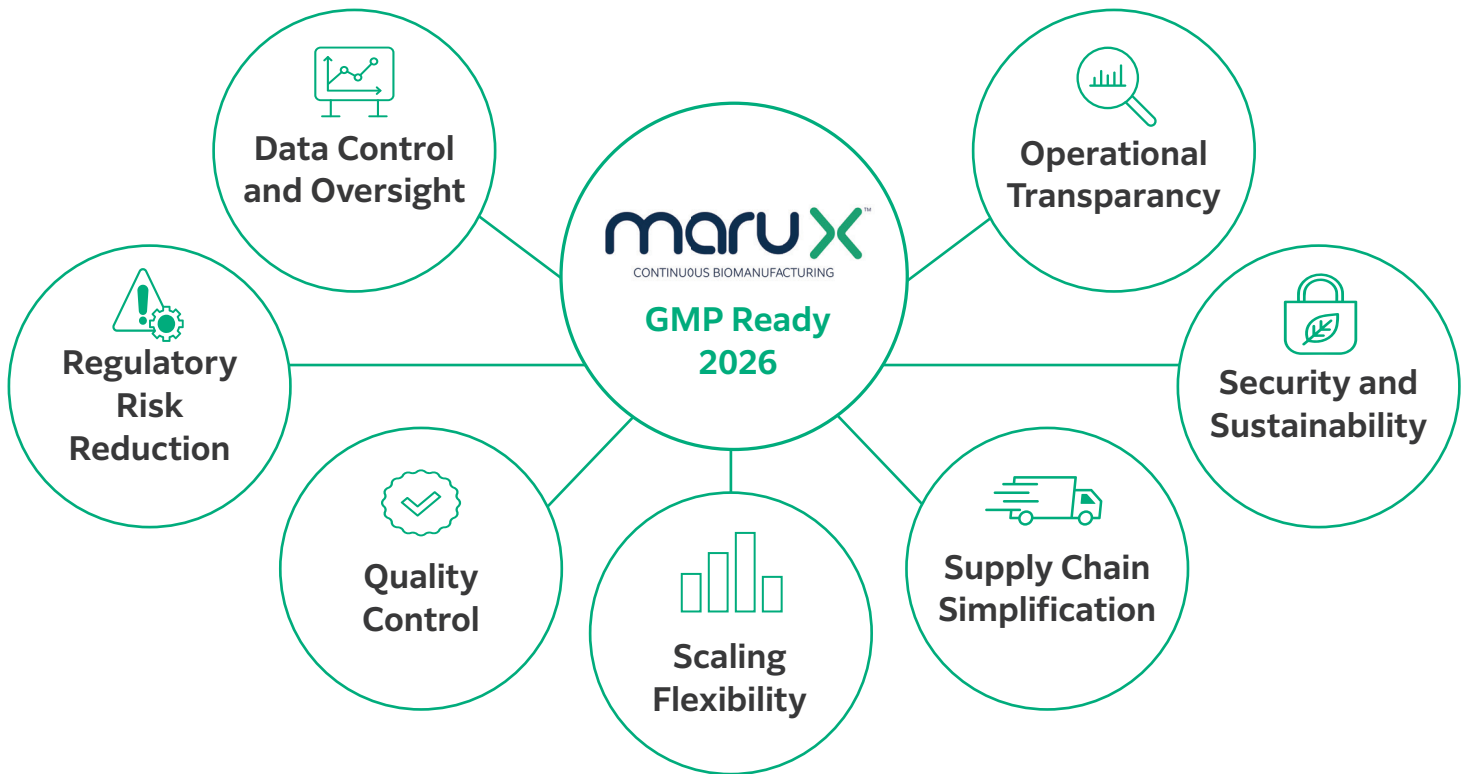


MaruX™: Simplified Continuous Biomanufacturing

A transformative platform for end-to-end monoclonal antibody production



Data Control and Oversight

Elegant universal master files and the harmonized *kojoX™* network control all processes at all facilities, enabling uniform reporting and simplified technology transfer across production locations.

Operational Transparency

Full digital management of identical, linked, multi-functional *SymphonX™* skids provides unparalleled flexibility and process oversight while reducing human error.

Security and Sustainability

Mini-batches reduce financial risk for lost lots, just-in-time buffer dilution reduces waste and potentially harmful byproducts, and fully disposable flow paths enable better asset utilization.

Supply Chain Simplification

Intensified purification reduces the cost of goods while use of concentrated buffer feeds simplifies traceability and logistics

Scaling Flexibility

Intensified batch production enables agile scale adjustments to meet shifting market demands, universal equipment and control allow rapid transfer within FUJIFILM Biotechnologies' global network.

Quality Control

Semi-continuous processing enables perfusion processing, enhanced stability and expression with quality equal to or better than fed-batch cultures.

Regulatory Risk Reduction

Consecutive mini-batches from USP Class IV-compliant, integrated flow paths improve oversight and allow lot-specific analytics, while automated end-to-end processing reduces the opportunity for human error, drift, and contamination.

The proof is in the data.

We ran our 500 L perfusion bioreactor for 24 days.



- 600 L perfusate per day
- Cell density of 120M cells/mL
- Viability >90%
- ApolloX™ cell densities of 120M cells per mL*



- Quality comparable to 50 L pilot run
- Consistent glycan profiles, with man-5 <3%
- Volume exchange rate of only 1.2 volume-vessels/day



- 1.8g full-length mAb/L/day titer upstream
- ~1kg mAb/day supplied downstream
- Overall process yielded 0.54 kg/day purified mAb

MaruX: Your new continuous biomanufacturing *Partner for Life.*

*= suitable for Apollo and other perfusion ready cell lines

GMP-ready in 2026

MaruX: Better from every angle



MaruX™ is just one way FUJIFILM Biotechnologies does things better. Reach out to learn more about our fully disposable end-to-end, automated, integrated continuous bio-production system.

Partners for *Life*

CDMO
LEADERSHIP
AWARDS 2024

“Partners for Life” represents a transformative approach to development and manufacturing, emphasizing relationships founded on trust and transparency — founded in people-centric values, transformative science and innovation, and unprecedented delivery.

FUJIFILM Biotechnologies
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