

**Terumo Blood and Cell Technologies presents first Quantum Flex data for multiple size bioreactors showing rapid T-Cell expansion to numbers equivalent to a therapeutic dose**

- **Presentation at CAR-TCR Summit Europe demonstrates scalability and reduced media usage enable lower cost to produce a dose of autologous T-cell therapy**
- **Quantum Flex expands as few as 6 million T cells to over 2 billion in 8 days**
- **Lower seeding requirements may extend availability of some cell therapies to patients whose low cell counts would otherwise preclude them from treatment options**

**Lakewood, Colorado, February 23, 2023** – [Terumo Blood and Cell Technologies](#) (Terumo BCT), a medical technology company, for the first time today shared data generated from its Quantum Flex Cell Expansion System at a major conference, demonstrating how its hollow-fiber perfusion technology accelerates T-cell therapy development in a variety of bioreactors. In today's presentation at CAR-TCR Summit Europe in London, Terumo BCT scientists detailed the outcome of multiple T-cell expansion runs, with a 60 percent to 70 percent reduction in media usage and 8.7 to 9.6 population doublings over the course of 8 days.

In a small bioreactor with a cost-effective profile, like those commonly used for process development of autologous CAR-T cell therapies, Quantum Flex expanded 6 million CD3+ T cells at seed to over 2 billion viable cells in just 8 days. And in a standard bioreactor, the yield was even greater, expanding 30 million CD3+ T cells to up to 22 billion cells in the same length of time. The expanded cells displayed an optimal phenotype, including subsets of memory T cells, with minimal exhaustion marker expression. [1]

In a separate experiment, Terumo BCT scientists showed that even when starting with a reduced number of 1 million cells at seed, continuous perfusion feeding allowed Quantum Flex to expand the population beyond the 2 billion-cell threshold in 10 days, with 95 percent viability at harvest. This lower seeding requirement may extend availability of some cell therapies to patients whose low cell counts would otherwise preclude them from treatment options.

One key to Quantum Flex's efficiency is a design feature allowing for flexible media usage. Using bags with dual ports allows for recirculation of media, which may enable cost savings compared with single-use media consumption. As the latest data reinforces, the approach is scalable from process development through commercial manufacturing across a range of cell and gene therapy products.

"This is an impressive first demonstration of Quantum Flex's advancements over even the previous generation of Quantum technology, which has shown robust T-cell expansion with generation of stem-like memory T cells," [2] said Dalip Sethi, Director of Scientific Affairs at Terumo BCT. "It also highlights the 'flex' in Quantum Flex, revealing how adaptable the system can be for the highly variable patient starting materials. We look forward to sharing additional data on the platform later this year."

To learn more, visit <https://reach.terumo-bct.com/quantum-flex-2022>.

[1] *Elevate your T-cell manufacturing process. RegMedNet webinar. Accessed February 21, 2023.*

[2] *Cunningham AW, et al. Stem-like memory T cells are generated during hollow fiber perfusion-based expansion and enriched after cryopreservation in an automated modular cell therapy manufacturing process. Cytotherapy. 2022;24(11):1148-1157.*

**ENDS**

**About Terumo Blood and Cell Technologies**

Terumo Blood and Cell Technologies is a medical technology company. Our products, software and services enable customers to collect and prepare blood and cells to help treat challenging diseases and conditions. Our employees worldwide believe in the potential of blood and cells to do even more for

patients than they do today. This belief inspires our innovation and strengthens our collaboration with customers.

Terumo Blood and Cell Technologies' customers include blood centers, hospitals, therapeutic apheresis clinics, cell collection and processing organizations, researchers and private medical practices. Our customers are based in over 130 countries across the globe. We have 750+ granted patents, with more than 150 additionally pending.

We have global headquarters in Lakewood, Colorado, U.S.A., along with five regional headquarters, seven manufacturing sites and six innovation and development centers across the globe. Terumo Blood and Cell Technologies is a subsidiary of Terumo Corporation (TSE:4543), a global leader in medical technology.