

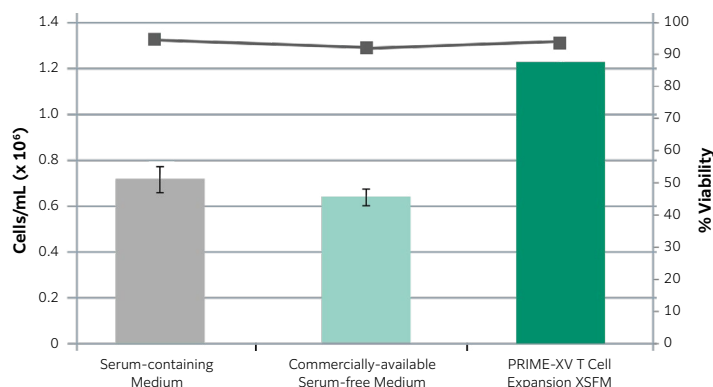
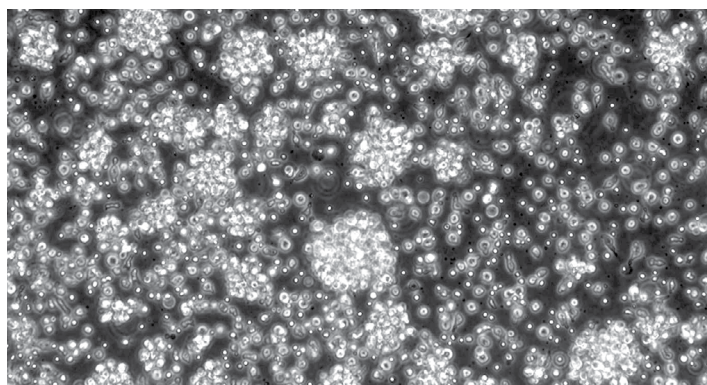
# PRIME-XV T Cell Expansion XSFM

Xeno-free, serum-free medium for T cell expansion

- Optimized for activation and expansion of human T lymphocytes
- Maintains potency of major T cells subsets such as CD4<sup>+</sup> and CD8<sup>+</sup>
- Supports expansion of reactivated T cells
- Serum-free, xeno-free formula reduces risk of contamination and provides lot-to-lot consistency
- Contains gentamicin for reduced contamination of culture components

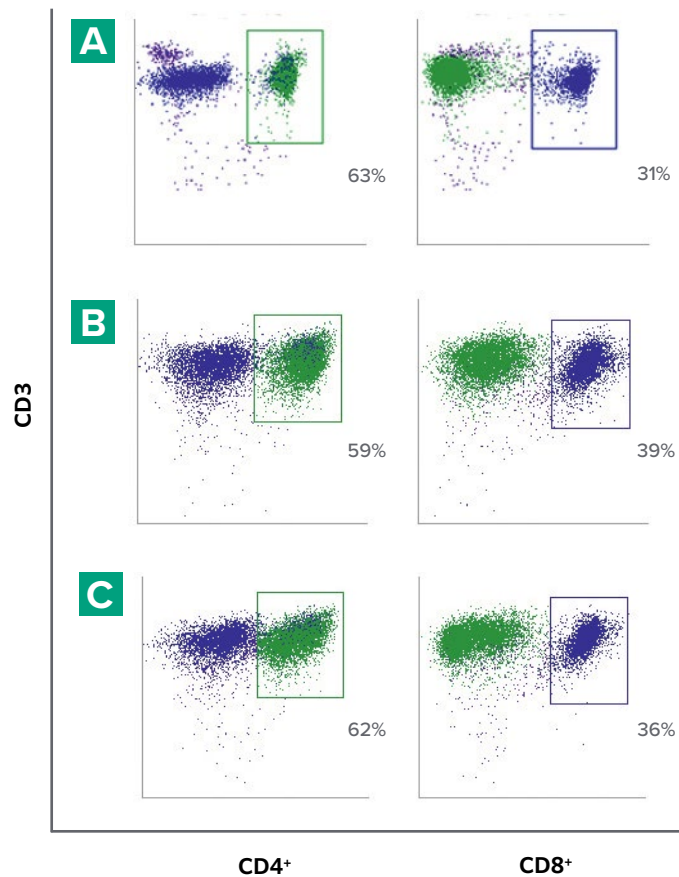


*Supports better T cell expansion compared to serum-containing media*

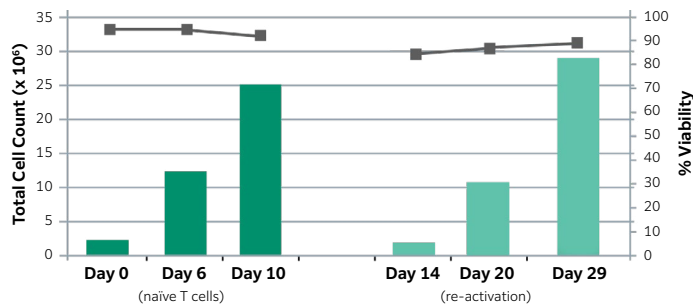


**Figure 1.** PRIME-XV T Cell Expansion XSFM maintains characteristic morphology of activated T cell blasts as observed after 4 days of incubation supplemented with Shenandoah CTGrade GMP rh IL-2<sub>C126S</sub>. Naive CD3<sup>+</sup> T cells were cultured for 4 days in PRIME-XV T Cell Expansion XSFM. The cells were plated at  $5 \times 10^5$  cells/mL on anti-human CD3 (clone UCHT1) and anti-human CD28 (clone CD28.2) antibody-coated plates. Images were taken at 40X magnification.

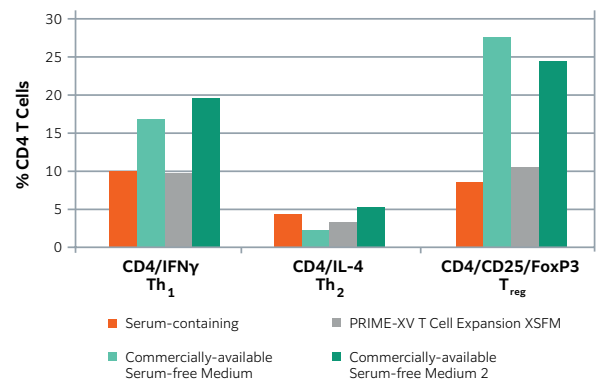
**Figure 2.** PRIME-XV T Cell Expansion XSFM supports higher growth than commercially-available and serum-containing media. CD3<sup>+</sup> T cells were cultured for 4 days in PRIME-XV T Cell Expansion XSFM, serum-containing medium, and in a commercially-available serum-free medium on anti-human CD3 and anti-human CD28 antibody-coated plates at a density of  $5 \times 10^5$  cells/mL. Fresh media supplemented with 100 ng/mL of CTGrade GMP rh IL-2<sub>C126S</sub> was added to each well on the third day. Cells were harvested, counted, and stained with trypan blue for viability on the fourth day.



**Figure 3. PRIME-XV T Cell Expansion XFSM supports expansion of both CD4<sup>+</sup> and CD8<sup>+</sup> T cells.** Naïve CD3<sup>+</sup> T cells were cultured for 4 days in PRIME-XV T Cell Expansion XFSM and a commercially- available serum-free medium on anti-human CD3 and anti-human CD28 antibody-coated plates. Flow cytometry analysis was performed to show the representative populations after the initial thaw of the cells (A), after 4 days of culture in PRIME-XV T Cell Expansion XFSM (B), and other suppliers medium (C). CD4<sup>+</sup>CD3<sup>+</sup> cells are shown in green and CD8<sup>+</sup>CD3<sup>+</sup> are shown in blue.



**Figure 4. PRIME-XV T Cell Expansion XFSM supports T cell expansion after re-activation.** Naïve CD3<sup>+</sup> T cells were cultured for 3 days in PRIME-XV T Cell Expansion XFSM on anti-human CD3 and anti-human CD28 antibody-coated plates. Activated T cells were subsequently cultured in PRIME-XV T Cell Expansion XFSM with the addition of CTGrade GMP rh IL-2<sub>C1265</sub>. On Day 14, T cells were reactivated with anti-human CD3 and anti-human CD28 antibody coated plates and then cultured in PRIME-XV T Cell Expansion XFSM with the addition of CTGrade GMP rh IL-2<sub>C1265</sub>. Fresh media supplemented with 50 ng/mL of CTGrade GMP rh IL-2<sub>C1265</sub> was added to each well every 3-4 days. Cultures were split when cell density reached >1 × 10<sup>6</sup> cells/mL, and diluted with fresh media to 5 × 10<sup>5</sup> cells/mL. Cells were assessed for viability and density.



**Figure 5. PRIME-XV T Cell Expansion XFSM supports T cell differentiation into major T cell subsets.** Naïve CD3<sup>+</sup> T cells were cultured for 5 days in PRIME-XV T Cell Expansion XFSM, two different commercially-available serum-free media, and serum-containing medium on anti-human CD3 and anti-human CD28 antibody-coated plates. On Day 2 of the culture, polarization cocktails of rh IL-12 and polyclonal goat anti-human IL-4 for Th<sub>1</sub>, rh IL-4 and polyclonal goat anti-IFNγ for Th<sub>2</sub>, and rTGF-β1 and retinoic acid for T<sub>regs</sub> were added to the solution. On the fifth day, the cells were harvested after a treatment for 6 hours of Brefeldin A. All cells were stained and gated with anti-human CD4. Percentage values for the major T cell subsets were estimated based on further staining with anti-human IFNγ for Th<sub>1</sub>, anti-human IL-4 for Th<sub>2</sub>, and anti-human CD25 and FoxP3 for T<sub>regs</sub>.

# A PRIME-XV Solution for Any Cell Type at Any Scale

Routine production of homogeneous cell populations with the desired functionality is key for high-quality research and the smooth transition from development to commercial-scale manufacture. PRIME-XV media consistently equals or outperform leading commercially-available alternatives and serum-containing media.

Each PRIME-XV medium is developed and verified using functional assays most relevant to the specific cell type, thereby providing an optimal *ex vivo* environment during manipulations, such as expansion and differentiation.

## Transfer smoothly to larger-scale production and fulfill regulatory demands

As potential therapies move towards commercialization, the need to grow sufficient numbers of cells for effective therapeutic doses using a well-controlled, optimized process becomes paramount. PRIME-XV media is manufactured following GMP to ensure a smooth transition to large-scale production. When you are ready for that transition, our regulatory experts are available to discuss how to meet proper global and regional regulatory standards.

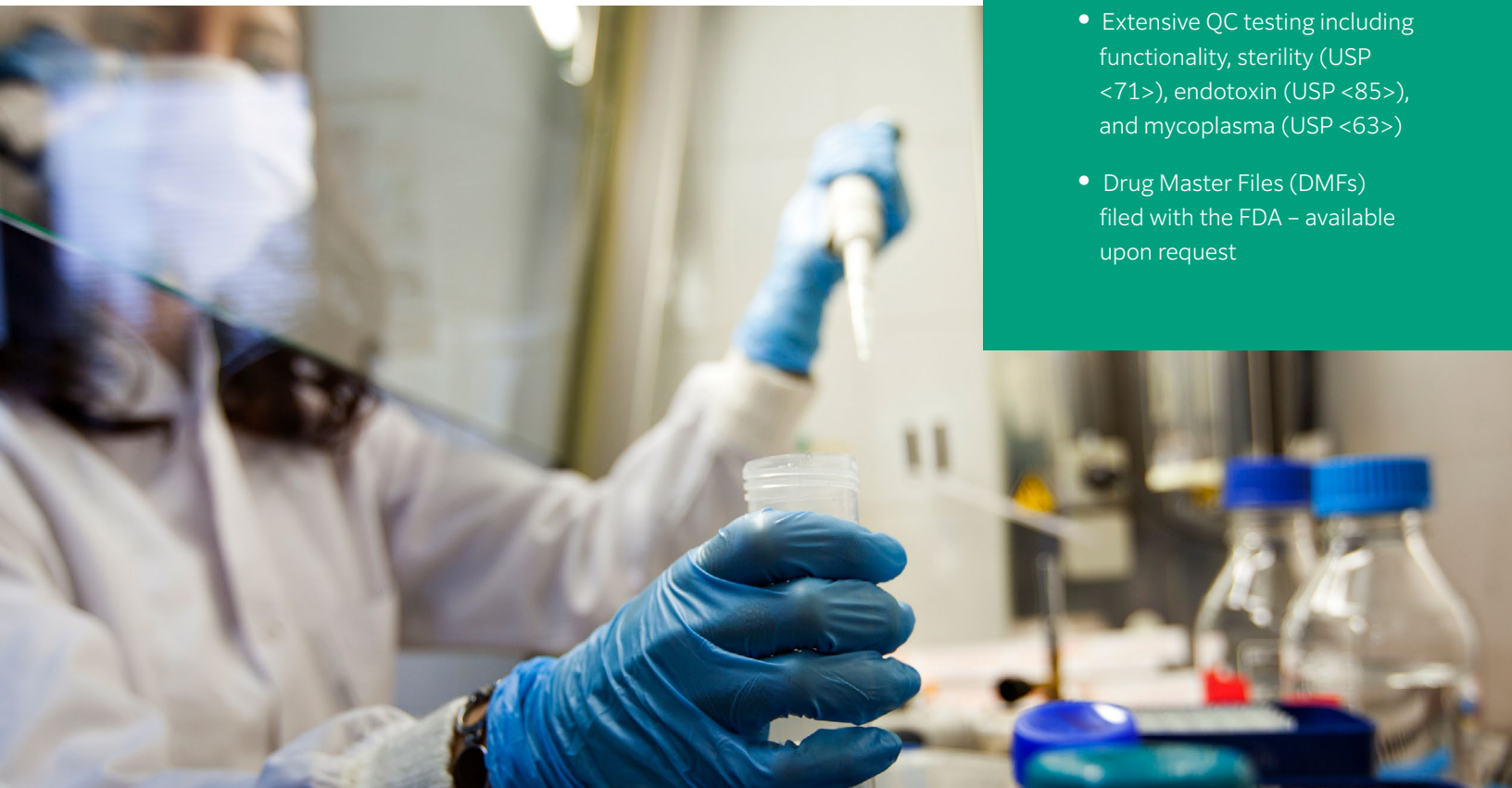
## Cell-specific media development, optimization, and manufacture

For more than 55 years, FUJIFILM Biosciences has delivered proprietary and customized media solutions for an increasing diversity of cell types. Customers benefit from well-established, proven services, supported by years of knowledge and experience.

Our specialists are available to discuss the development of a new customized medium for your specific cell type or to assist with the optimization of your current PRIME-XV medium for scale-up and manufacture.

To discuss your requirements, contact us at [getinfo@fujifilm.com](mailto:getinfo@fujifilm.com) or visit our website at [fujifilmbiosciences.fujifilm.com/contact-us](https://fujifilmbiosciences.fujifilm.com/contact-us)

- FDA, Federal, and State registered GMP manufacture
- EN ISO 13485:2016 certified
- Extensive QC testing including functionality, sterility (USP <71>), endotoxin (USP <85>), and mycoplasma (USP <63>)
- Drug Master Files (DMFs) filed with the FDA – available upon request



## ORDERING INFORMATION

Product Description	Catalog #	Size*	Additional Information
PRIME-XV T Cell Expansion XSFM	91141	1 L	Xeno-free, serum-free T cell medium. Contains Gentamicin.

## RELATED PRODUCTS

Product Description	Catalog #	Size*	Additional Information
PRIME-XV FreezIS	91139	10 mL 100 mL	Protein-free, chemically defined, animal component-free cryopreservation medium. Contains DMSO.
PRIME-XV FreezIS DMSO-Free	91140	10 mL 100 mL	Protein-free, chemically defined, animal component-free cryopreservation medium. Does not contain DMSO.
PRIME-XV T Cell CDM	91154	1 L	Chemically defined, animal component-free formula. Does not contain antibiotics or phenol red.
Click's Medium (EHAA)	9195	500 mL	Contains 1,350 mg/L sodium bicarbonate. Does not contain L-glutamine or 2-mercaptoethanol.
Shenandoah CTGrade GMP rh IL-2 <sub>C126S</sub>	500-01	50 ug 100 ug 1 mg	<p>Manufactured following GMP in a facility that does not use or process beta-lactam containing materials, no histidine tags, and 0.2 micron filtered.</p> <p>No animal- or human-derived materials were used during manufacturing or as ingredients.</p>
Shenandoah CTGrade GMP rh IL-7	500-07	50 ug 100 ug 1 mg	
Shenandoah CTGrade GMP rh IL-10	500-16	50 ug 100 ug 1 mg	
Shenandoah CTGrade GMP rh IL-15	500-08	50 ug 100 ug 1 mg	
Shenandoah CTGrade GMP rh IL-21	500-09	50 ug 100 ug 1 mg	
PBS + EDTA 1mM + 0.5% HSA**	99942	1 L	

\*Custom sizes and packaging available upon request.

\*\*This item is made-to-order only.