FUJIFILM
Value from Innovation

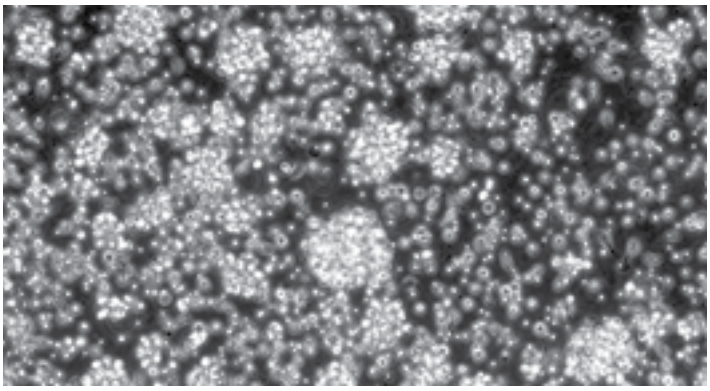
IrvineScientific

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 T cell potency
- Supports expansion of re-activated T cells
- Serum-free, xeno-free formula minimizes risks for adventitious agents and provides lot-to-lot consistency
- Manufactured in compliance with cGMP conditions
- Traceability documentation provided including Certificates of Analysis, Certificates of Origin, and a Drug Master File (DMF) filed with the US FDA

Supports better T cell expansion compared to serum-containing media



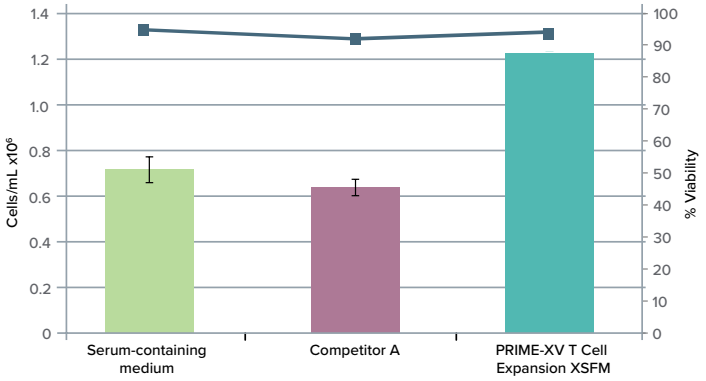


Figure 1. PRIME-XV T Cell Expansion XSFM maintains characteristic morphology of activated T cell blasts as observed after four days of incubation supplemented with IL-2. Naïve $CD3^+$ T cells were cultured for four days in PRIME-XV T Cell Expansion XSFM. The cells were plated at 0.5 x 10^6 cells/mL on 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 equivalent or higher growth than commercially-available and serum-containing media. $CD3^+$ T cells were cultured for four days in PRIME-XV T Cell Expansion XSFM, serum-containing medium, and in a competitor's serum-free medium on anti-human CD3 and anti-human CD28 antibody coated plates at a density of 0.5 x 10^6 cells/mL. Fresh media supplemented with 100 ng/mL of IL-2 was added to each well on the third day. Cells were harvested, counted and stained with trypan blue for viability on the fourth day.

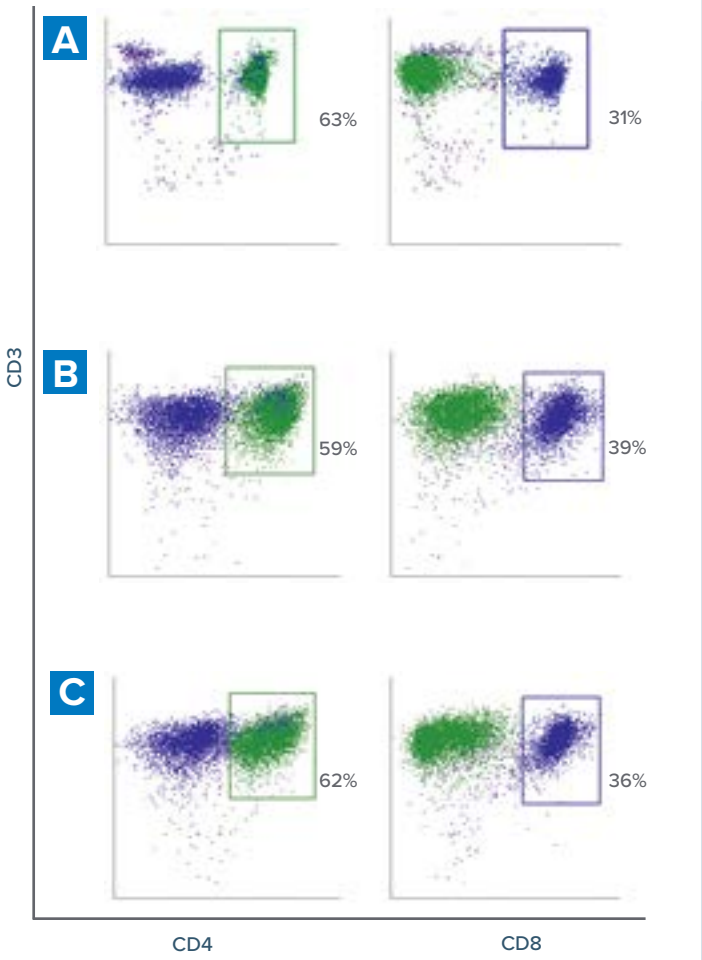


Figure 3. PRIME-XV T Cell Expansion XSFM supports expansion of both CD4⁺ and CD8⁺ T cells. Naïve CD3⁺ T cells were cultured for four days in PRIME-XV T Cell Expansion XSFM and a commercially available serum-free medium on anti-human CD3 and anti-human CD28 antibody coated plates. Flow cytometry analysis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

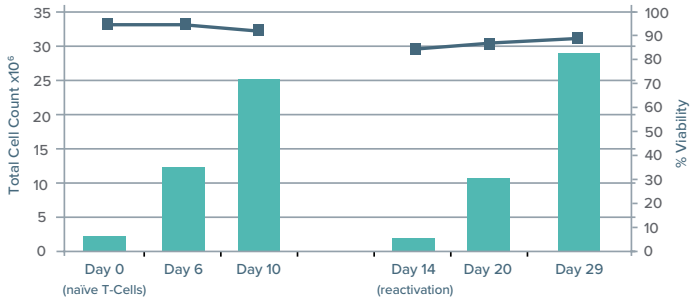


Figure 4. PRIME-XV T Cell Expansion XSFM supports T cell expansion after re-activation. Naïve $CD3^+$ T cells were cultured for three days in PRIME-XV T Cell Expansion XSFM on anti-human CD3 and anti-human CD28 antibody coated plates. Activated T cells were subsequently cultured in PRIME-XV T Cell Expansion XSFM with the addition of rIL-2. On day fourteen, T cells were re-activated with anti-human CD3 and anti-human CD28 antibody coated plates and then cultured in PRIME-XV T Cell Expansion XSFM with the addition of rIL-2. Fresh media supplemented with 50 ng/mL of rIL-2 was added to each well every 3–4 days. Cultures were split when cell density reached >1 x 10^6 cells/mL, and diluted with fresh media to 0.5 x 10^6 cells/mL. Cells were assessed for viability and density.

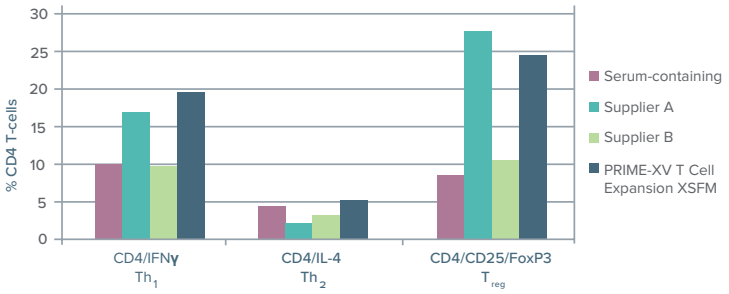


Figure 5. PRIME-XV T Cell Expansion XSFM supports T cell-differentiation into major T cell subsets. Naïve $CD3^+$ T cells were cultured for five days in PRIME-XV T Cell Expansion XSFM, two different competitor serum-free media, and serum-containing medium on anti-human CD3 and anti-human CD28 antibody coated plates. On day two of the culture, polarization cocktails of rIL-12 and polyclonal goat anti-human IL-4 for Th_1, rIL-4 and polyclonal goat anti-IFNγ for Th_2, and rTGF-β1 and retinoic acid for T_{regs} were added to the solution. On the fifth day, the cells were harvested after a six-hour treatment 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 antihuman IFNγ for Th_1, anti-human IL-4 for Th_2, and anti-human CD25 and FoxP3 for T_{regs}.

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

Routine production of homogeneous cells with the desired functionality and in sufficient quantity is key for high quality research and a smooth transition from development to commercial-scale manufacture.

PRIME-XV media consistently equal or outperform leading commercially-available alternatives and serum-based 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 toward clinical trials, the need to grow sufficient numbers of cells for effective therapeutic doses using a safe, well-controlled, optimized process becomes paramount. PRIME-XV media are verified beyond the laboratory, often in bioreactor culture systems, to assist in a smooth transfer to clinical production while adhering to global and regional regulatory standards.

Cell-specific media development, optimization and manufacture

Since 1970, FUJIFILM Irvine Scientific has been meeting the demand for proprietary and customized media solutions for an increasing diversity of cell types. Clients benefit from well-established, proven services, supported by years of knowledge and experience.

Our specialists will be happy 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@irvinesci.com** or visit our website at **www.irvinesci.com/contact-us**

- FDA-regulated
- cGMP compliant manufacture
- ISO 13485: 2016 certified
- Drug Master Files
- FDA registered

Ordering Information

Media	Catalog #	Size*	Additional Information
PRIME-XV T Cell Expansion XSFM	91141	1 L	Serum- and xeno-free medium
PRIME-XV T Cell CDM	91154	1 L	Chemically-defined, animal component-free formula. Does not contain antibiotics or phenol red.

Related Products

Item	Catalog #	Size*	Additional Information
Recombinant Human IL-2 ACF	95118	10 µg	Animal component-free. Accession Number: P60568
Recombinant Human IL-3 ACF	95113	10 µg	Animal component-free. Accession Number: P08700
Recombinant Human IL-4 ACF	95114	20 µg	Animal component-free. Accession Number: P05112
PRIME-XV FreezIS	91139	10 mL	Chemically-defined, free from animal components and proteins. Contains 10% DMSO.

*Custom sizes and packaging available on request.

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