FUJIFILM
Value from Innovation

IrvineScientific

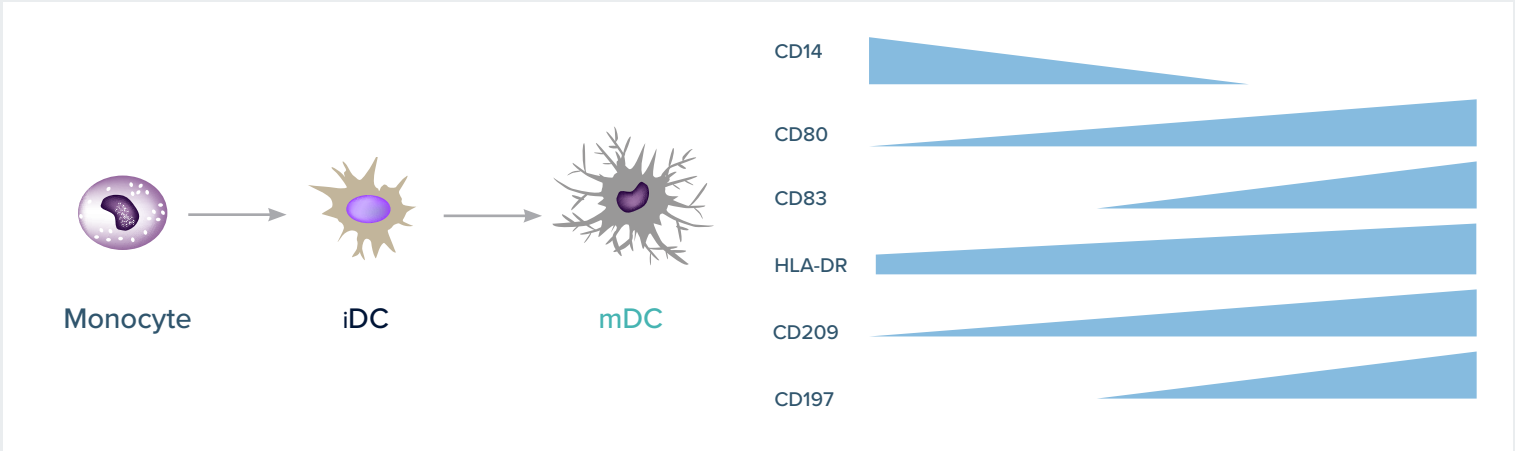
PRIME-XV Dendritic Cell Maturation CDM

Chemically-defined, animal component-free medium for dendritic cell culture

- Optimized for differentiation of monocytes into immature dendritic cells (iDCs) and subsequent maturation of mDCs
- Achieve high yields of DCs with the desired characteristics and morphology
- Maintains potency of dendritic cells for T cell stimulation
- Ready-to-use, just supplement with desired cytokine cocktails
- Designed and manufactured to facilitate transfer from research to clinic

High yields of viable cells in chemically-defined conditions

Dendritic cells (DCs) are the most potent antigen-presenting cells capable of priming naïve T cells and are therefore essential tools in the activation of immune responses to tumors. They can be generated *in vitro* from $CD14^+$ peripheral blood or cord blood derived monocytes through a maturation process. It is essential monocyte-derived DCs (Mo-DCs) maintain their functional capacity – the launching of Ag-specific immunity – leading to T cell proliferation and polarization into effector T cells. Serum and undefined components found in animal- or human-derived raw materials can impact this functional capacity. PRIME-XV Dendritic Cell Maturation CDM provides a controlled, robust process to generate Mo-DCs in chemically-defined culture conditions thereby maintaining their capacity to induce T cell response.



Get to Market Faster with Media Customization and Manufacturing Services

Custom formulas and packaging

Customize our catalog products to suit your requirements for formulation or packaging.

Media Development and Optimization

Save time and costs – let us design the medium that precisely meets your requirements with our Media Development and Optimization (MDO) program.

Express Media Service

Typically provided within 10 working days, our rapid prototyping service offers flexible, small-scale, non-GMP media production of liquid and powder formulations. By using the same raw materials sourced and quality-controlled as for our large-scale GMP manufacturing, this approach greatly facilitates the step from research to commercialization.

Custom cGMP manufacturing

FUJIFILM Irvine Scientific offers industry-leading turnaround times for large-scale manufacturing of powder and liquid media in our state-of-the-art facilities. Comprehensive documentation, including information from Supply Chain Management through to Drug Master Files, is available to help minimize your regulatory burden.

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
- 13485: 2016 certified
- Drug Master Files registered with FDA

Active high yields of cells with desired characteristics

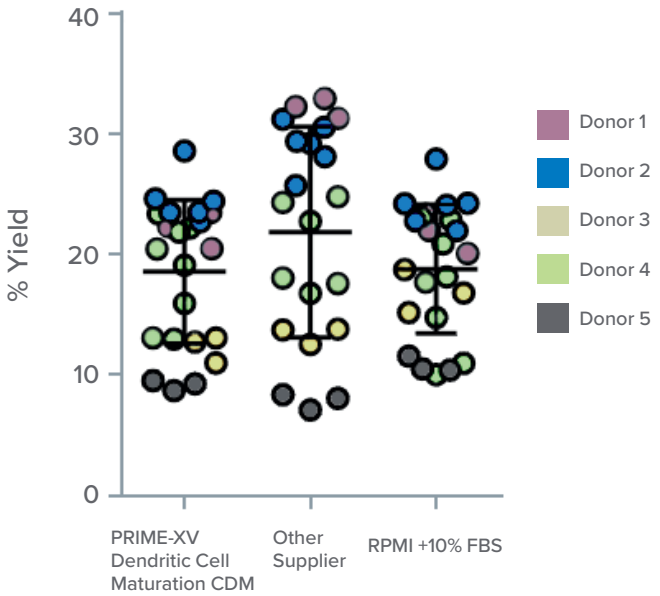
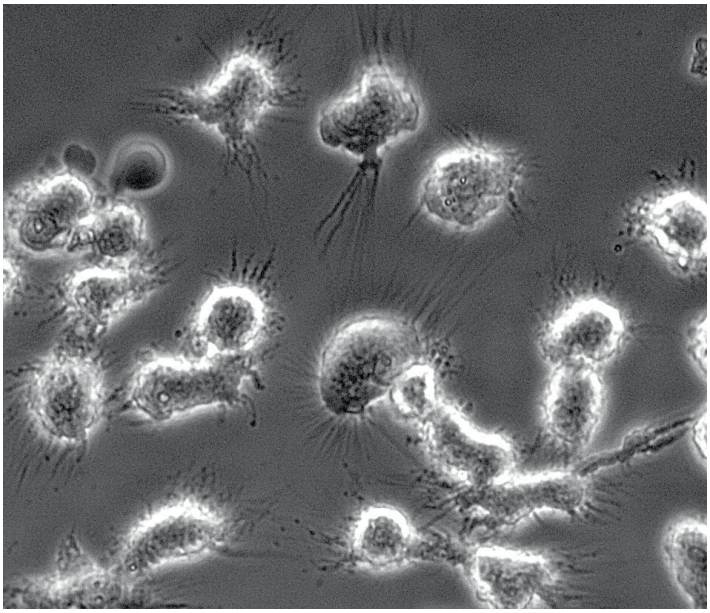


Figure 1. Achieve high viable cell yields in chemically-defined culture conditions. Enriched CD14+ monocytes from 5 different donors were cultured in either PRIME-XV Dendritic Cell Maturation CDM, other commercially available medium, or RMPI +10% FBS for 6 days in the presence of GM-CSF and IL-4 to induce differentiation, then subsequently cultured for 2 more days in TNF-α, IL-1β, IL-6, and PGE_2 to induce maturation for a combined culture duration of 8 days in each respective medium. Resulting cells were analyzed by flow cytometry to measure viable cell density. Yield is shown as total viable cells as a percentage of initial CD14+ monocytes plated on day 0.



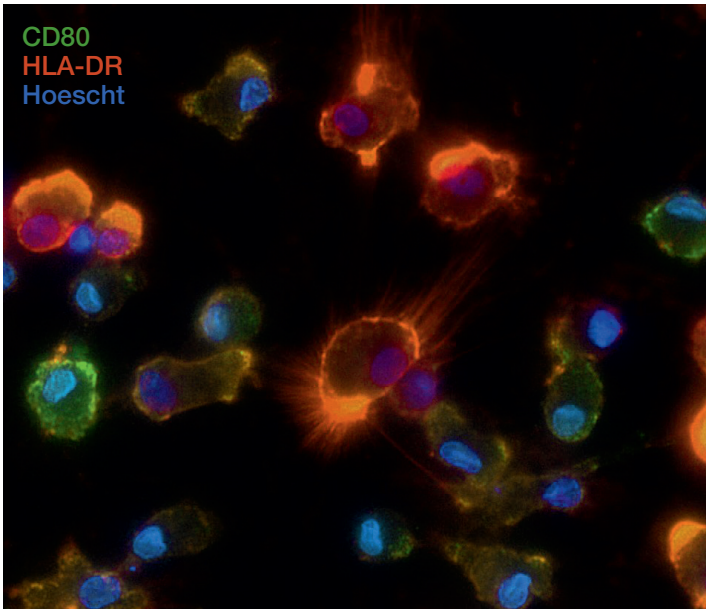


Figure 2. Dendritic cells matured in PRIME-XV Dendritic Cell Maturation CDM demonstrate desired phenotype and morphology. Negatively enriched CD14+ monocytes were cultured in PRIME-XV Dendritic Cell Maturation CDM for 6 days in the presence of GM-CSF and IL-4 to induce differentiation, then subsequently cultured for 2 more days in TNF-α, IL-1β, IL-6, and PGE_2 to induce maturation for a combined culture duration of 8 days. The cells were labeled with mouse anti-human CD80 (Biolegend, Catalog # 305211), HLA-DR (Biolegend, Catalog# 307611), and Hoechst 33342 (ThermoFisher, Catalog# 62249). Immunofluorescence images were taken at 30x magnification.

Proper marker expression maintained throughout maturation

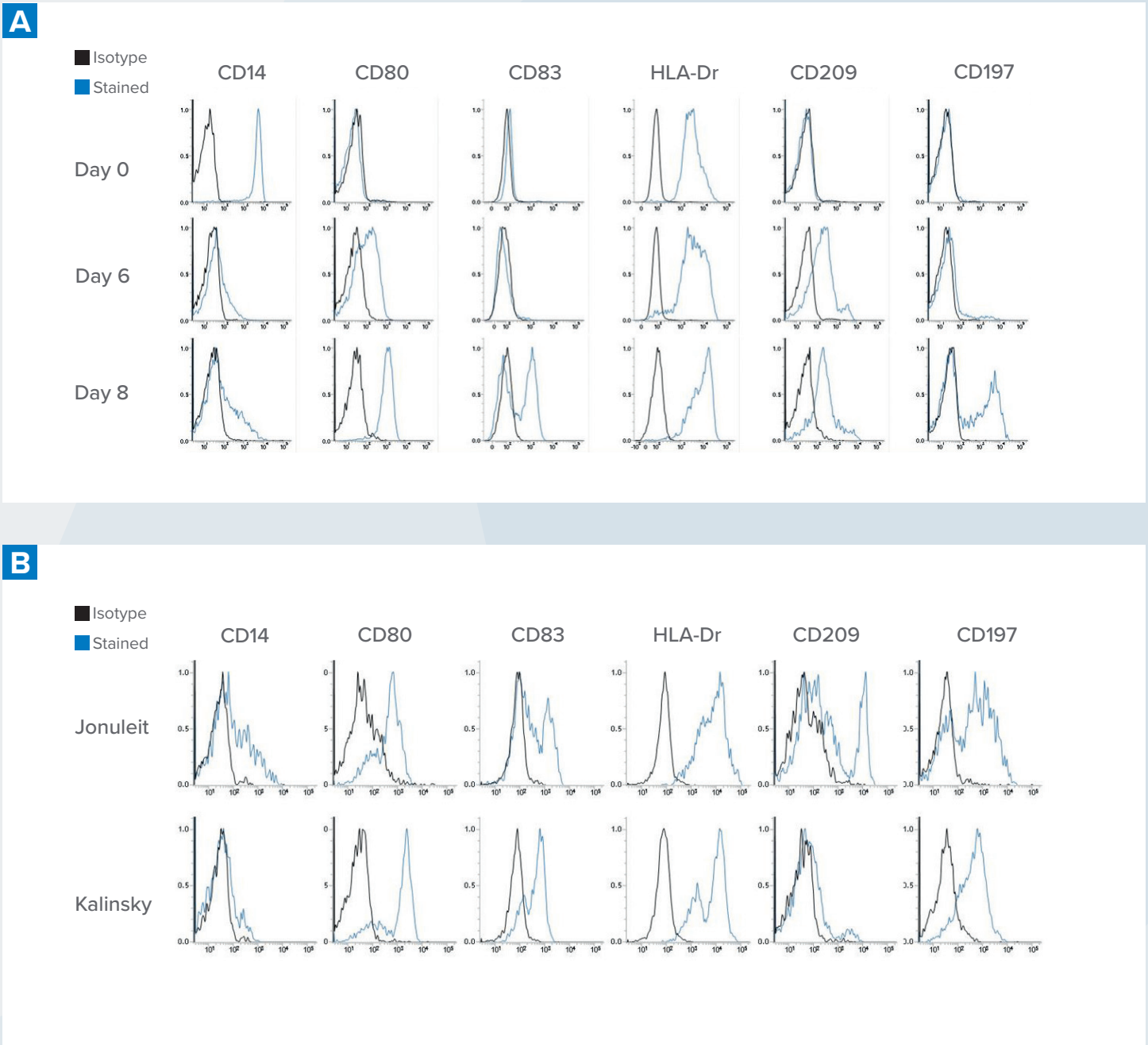
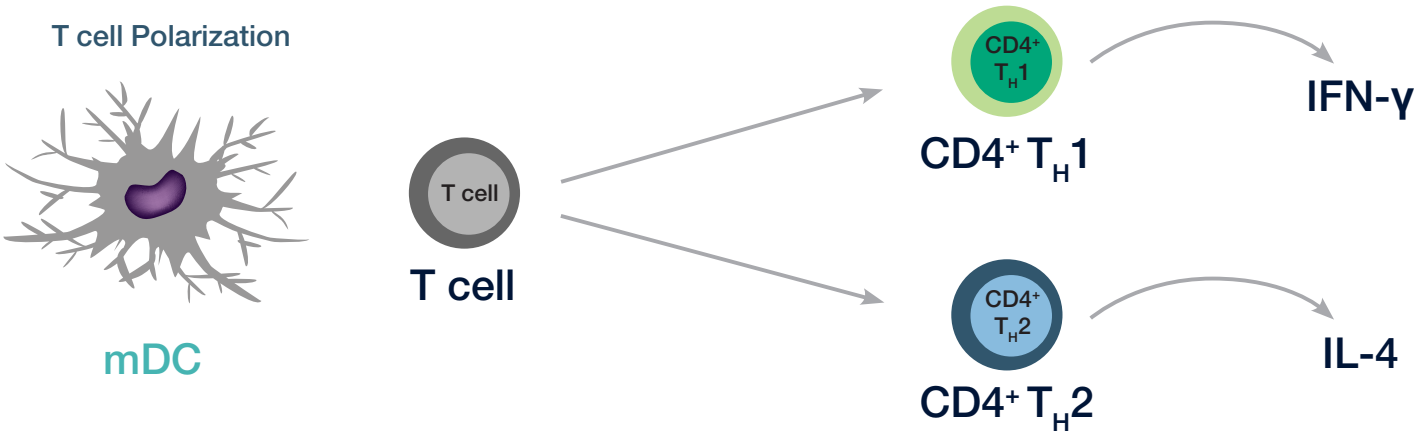
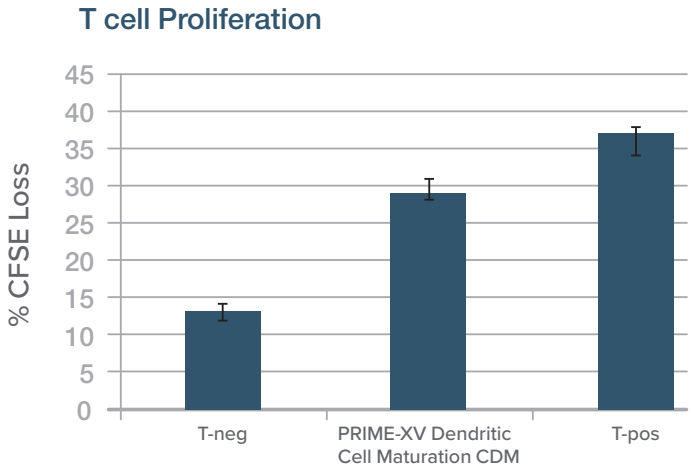


Figure 3. Functionality demonstrated by surface marker expression profile. Negatively selected $CD14^+$ monocytes were cultured in PRIME-XV Dendritic Cell Maturation CDM for 6 days in the presence of GM-CSF and IL-4 to induce differentiation, and subsequently cultured for 2 more days in either the Jonuleit cocktail (TNF-α, IL-1β, IL-6, and PGE_2) or the Kalinsky cocktail (TNF-α, IL-1β, IFN-γ, IFN-α, and Poly(I:C)) to induce maturation for a combined culture duration of 8 days. The cells were harvested and analyzed by flow cytometry for surface marker expression. Cells cultured with the Jonuleit cocktail were analyzed at day 0 (monocyte), day 6 (immature DC), and day 8 (mature DC) and demonstrated typical surface marker expression profiles throughout DC maturation (A). Jonuleit cocktail cultures and Kalinsky cocktail cultures were analyzed at day 8 and demonstrated typical surface marker expression profiles characteristic of maturation in each respective cocktail methodology (B).

Maintains potency for T Cell stimulation





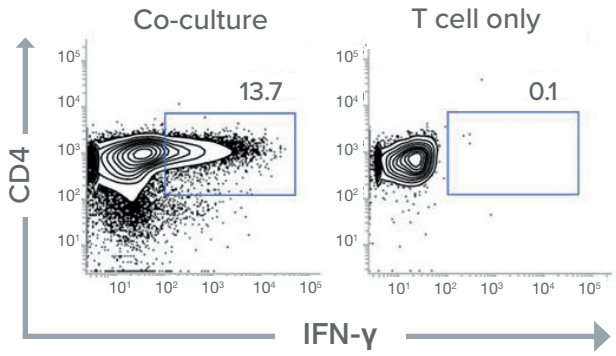


Figure 4. PRIME-XV Dendritic Cell Maturation CDM generates DCs capable of inducing T cell proliferation. Day 8 Mo-DCs cultured in PRIME-XV Dendritic Cell Maturation CDM were harvested and co-cultured with allogeneic $CD4^+$ T cells at a ratio of 1:20 (DC to T) in T cell expansion medium supplemented with IL-2 for 6 days. T cell stimulatory capacity was confirmed by loss of CFSE (n=3). $CD4^+$ T cells cultured without Mo-DC were cultured in IL-2 alone or supplemented with anti-CD3/anti-CD28 to serve as negative and positive controls, respectively.

Figure 5. PRIME-XV Dendritic Cell Maturation CDM generates DCs capable of inducing T cell polarization. Day 8 Mo-DCs cultured in PRIME-XV Dendritic Cell Maturation CDM were harvested and co-cultured with allogeneic $CD4^+$ T cells at a ratio of 1:10 (DC to T) in T cell expansion medium supplemented with IL-2 for 6 days. Flow cytometry performed on day 6 shows increased IFN-γ expression in co-cultured cells.

PRIME-XV Dendritic Cell Maturation - Manufactured to facilitate transfer from research to clinic

- Chemically-defined, animal component-free formula minimizes risks from adventitious agents
- Traceability documentation provided including Certificates of Analysis, Certificates of Origin, and a Drug Master File (DMF) filed with the US FDA
- Robust raw material controls and supply chain management
- Extensive QA testing including functionality, sterility, and endotoxin
- Custom sizes and packaging available on request

Ordering Information

Media	Catalog #	Size*	Additional Information
PRIME-XV Dendritic Cell Maturation CDM	91146	500 mL	Chemically-defined, animal component-free formula. Does not contain antibiotics or phenol red.

Related Products

Item	Catalog #	Size*	Additional Information
PRIME-XV T Cell CDM	91154	1 L	Chemically-defined, animal component-free formula. Does not contain antibiotics or phenol red.
Recombinant Human GM-CSF ACF	95112	20 µg	Animal component-free. Accession Number: P04141
Recombinant Human TNF-α ACF	95117	10 µg	Animal component-free. Accession Number: P01375
Recombinant Human IL-6 ACF	95121	20 µg	Animal component-free. Accession Number: P05231
Recombinant Human IL-4 ACF	95114	20 µg	Animal component-free. Accession Number: P05112
Recombinant Human IL-2 ACF	95118	10 µg	Animal component-free. Accession Number: P60568
PRIME-XV FreezIS	91139	100 mL 10 mL	Chemically-defined, free from animal components and proteins. Contains 10% DMSO.

*Custom sizes and packaging available on request.

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PRIME-XV and ancillary products are for research use or further manufacturing use only. Not for injection or diagnostic procedures.