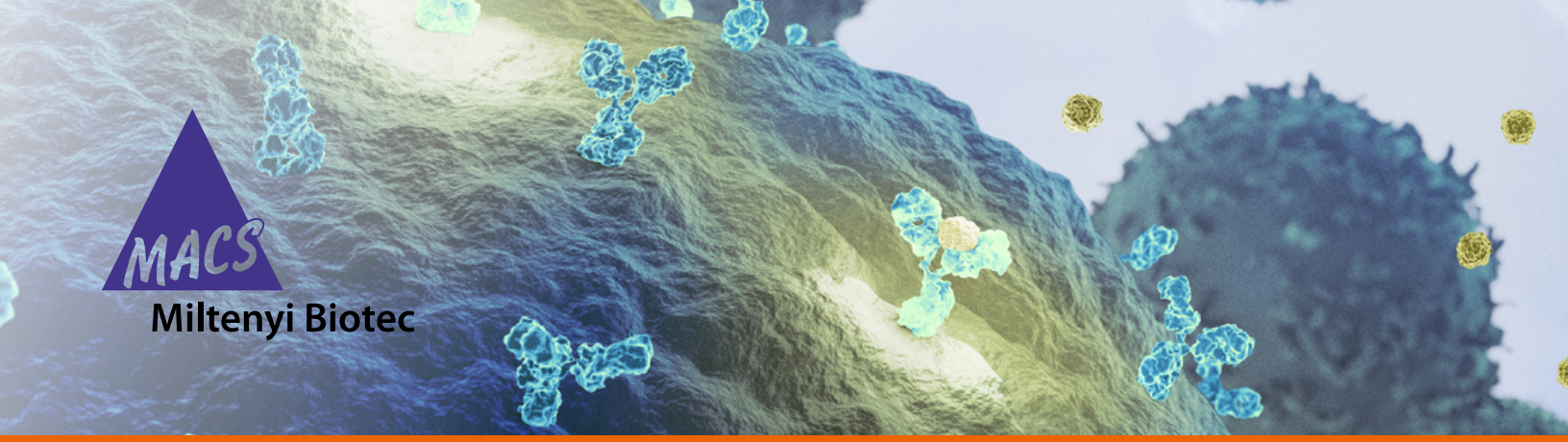

Get reliable results in your T cell differentiation culture

Polarizing TH cells from naive CD4+ T cells

T helper cells – important subsets regulating immune responses

CD4+ T helper (TH) cells play a central role in the adaptive immune system by controlling a variety of cellular responses, defending against intra-vesicular agents (TH1) and external pathogens (TH2). Their cytokine secretion suppresses or stimulates immune responses and leads to antibody production of B cells, immunoglobulin class switch, and macrophage activation. Their crucial impact on immune responses and distinct role in disease, makes TH cells a focus of many researchers studying immune regulation. The various TH cell subsets can be differentiated from naive CD4+ T cells *in vitro* using specific combinations of cytokines (fig. 1).

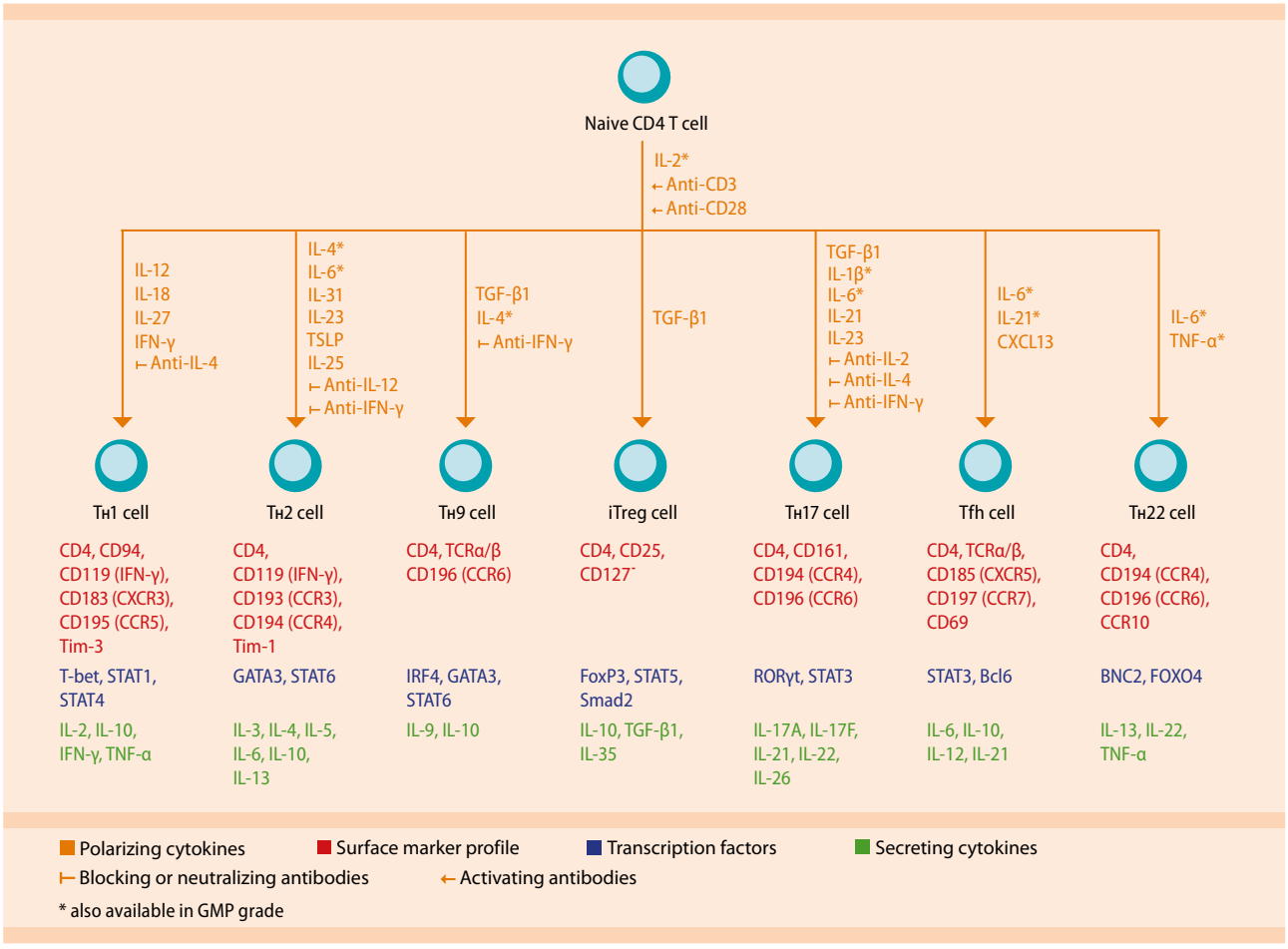

Figure 1: Polarization of naive CD4+ T cells into TH cell subsets.

Polarizing T helper cells from naive CD4+ T Cells

Miltenyi Biotec provides the tools and support you need to differentiate T helper cells – from sample preparation, cell enrichment and cell culture, to analysis.

- Eliminate variability in cell culture with premium MACS® Cytokines
- Serum-free T cell culture medium for standardized cell culture conditions
- Comprehensive technical support from the experts in T cells

Start with gentle sample preparation

Get high yields of viable cells with preserved epitopes for your downstream applications. The gentleMACS™ Dissociators with MACS Tissue Dissociation Kits enable gentle and effective dissociation of many tissue types, including tumor and skin.

Figure 2: The gentleMACS Family for standardized tissue dissociation or homogenization.

Isolate highly pure naive CD4+ T cells

In about 18 minutes, you can have pure, viable naive CD4+ T cells for high-quality results. Automate the process with the autoMACS® Pro Separator for greater convenience and reproducibility. Need to process multiple samples in parallel? Choose the MultiMACS™ Cell24 Separator Plus.

Figure 3: The MultiMACS Cell24 Separator Plus and autoMACS Pro Separator enable automated multisample cell separation for reproducible results.

Standardize your cell culture

Increase reproducibility in your polarization experiments with TexMACS™ Medium, an optimized serum-free T cell culture medium available in research and GMP grade. Get consistent cell growth and eliminate lot-to-lot variability with premium MACS Cytokines to ensure identical unit dosage.

Figure 4: TexMACS Medium and MACS Cytokines enable consistent polarization of naive CD4+ T cells into TH subsets.

Sensitive flow cytometry

Detect and enrich viable cytokine-secreting cells without fixation of dead cells by using MACS Cytokine Secretion Assays. For fast cytokine detection, check out the Rapid Cytokine Inspector Kits. Also, detect multiple cytokines in a single sample with MACSplex Cytokine Kits and the MACSQuant® Analyzer 10. Our flow cytometer's pre-installed Express Mode enables full automation of acquisition, gating strategy, and analysis.

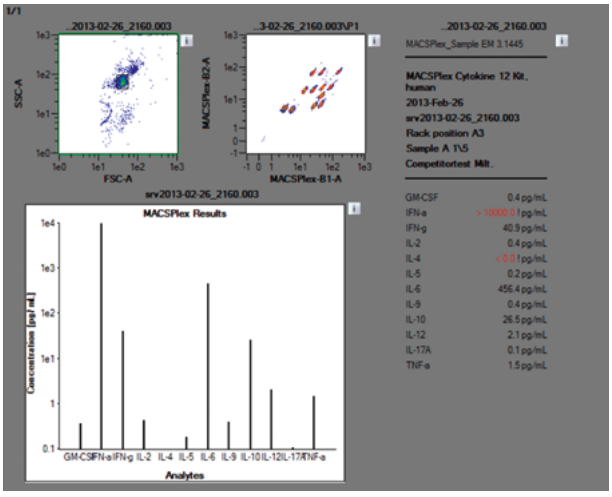

Figure 5: MACSplex Cytokine Kit analysis template using the MACSQuant Analyzer's Express Mode configuration.

See the whole solution for polarizing T helper cells from naive CD4+ T cells at

▸ **miltenyibiotec.com/polarizing**

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