



**CYTEK**®  
TRANSCEND THE CONVENTIONAL



# Cytek® cFluor® 21-Color Human T-Cell Kit

Deeper T Cell Analysis Without The Hassle

# Cytek cFluor 21-Color Human T-Cell Kit

Comprehensive immune profiling of T cells and their functional status are essential for understanding immune responses in health and disease, particularly in complex conditions such as leukemia, solid tumors, chronic infections, and immune deficiency disorders. T cells exhibit substantial phenotypic and functional heterogeneity, and it is critical to precisely characterize their differentiation states, lineage commitments, and activation status for elucidating mechanisms of disease progression, therapeutic response, and immune dysregulation.

To facilitate deeper T cell analysis, Cytek has developed an optimized 21-color kit designed for use on full spectrum flow cytometers. The Cytek cFluor 21-Color Human T-Cell kit enables identification of major T cell populations, including CD4+, CD8+, and TCR $\gamma\delta$ + T cells, with further delineation of naive, central memory, effector memory, and terminal effector subsets based on established differentiation markers.

This pre-optimized panel utilizes markers to define specialized CD4+ T helper populations, including Th1, Th2, Th17, Th22, ThGM-CSF, and T follicular helper (Tfh) cells, as well as CD8+ cytotoxic T cell subsets such as, Tc1, Tc2, Tc17, and Tc22. These populations play distinct roles in inflammation, humoral immunity, tissue-specific immune responses, and tumor microenvironment modulation. The panel also incorporates activation and exhaustion markers to further enable functional assessment of T cells, providing insight into immune activation dynamics, chronic stimulation, and potential dysfunction across diverse sample types.

The Cytek cFluor 21-Color Human T-Cell kit provides a comprehensive and scalable platform for high-resolution T cell profiling. Its ability to simultaneously characterize lineage, differentiation state, and functional status supports broad applications in immunology research, translational studies, biomarker discovery, and immune monitoring.

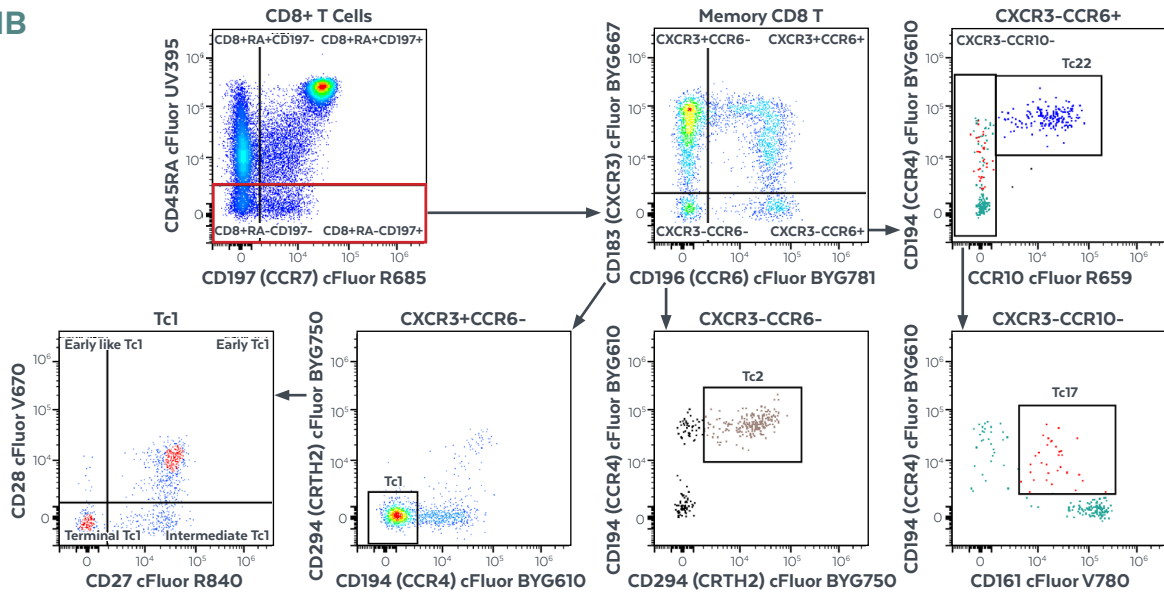
UV			Violet			Blue			Yellow-Green			Red		
Specificity	Clone	Fluorochrome	Specificity	Clone	Fluorochrome	Specificity	Clone	Fluorochrome	Specificity	Clone	Fluorochrome	Specificity	Clone	Fluorochrome
CD45RA	HI100	cFluor UV395	CD366 (TIM-3)	CF23A02R	cFluor V435	CD8	SK1	cFluor B515	CD279 (PD-1)	EH12.2H7	cFluor BYG575	CCR10	CF23A01R	cFluor R659
			CD4	SK3	cFluor V450	CD3	SK7	cFluor B548	CD194 (CCR4)	L291H4	cFluor BYG610	CD197 (CCR7)	G043H7	cFluor R685
			CD45	HI30	cFluor V547				CD183 (CXCR3)	CEW33D	cFluor BYG667	TIGIT	MBSA43	cFluor R720
			CD185 (CXCR5)	MUSUBEE	cFluor V605				TCR $\gamma\delta$	11F2	cFluor BYG710	CD38	HB7	cFluor R780
			CD28	CD28.2	cFluor V670				CD294 (CRTH2)	BM16	cFluor BYG750	CD27	O323	cFluor R840
			HLA-DR	L243	cFluor V715				CD196 (CCR6)	G034E3	cFluor BYG781			
			CD161	HP-3G10	cFluor V780									

**Table 1.** Composition of the Cytek cFluor 21-Color Human T-Cell kit (P/N R7-40012).

This reagent kit is pre-optimized for immunophenotyping of peripheral blood mononuclear cells (PBMCs) and whole blood samples, providing high-resolution, reproducible results across donors and sample types. This panel empowers labs to easily conduct T cell analysis right out of the box, streamlining workflows and saving time and precious samples. This panel can be utilized as a backbone from which labs can expand into broader applications. To enable easy implementation into your workflow, Cytek equips your lab with complete protocols for sample preparation, staining, and acquisition, as well as experiment and analysis templates designed to streamline workflows and improve laboratory efficiency.



**Figure 1B**



**Figure 1: B)** Memory CD8+ T cells were further divided into cytotoxic T subsets.

## Ordering Information

Description	Part Number
Cytek® cFluor® 21-Color Human T-Cell Kit	R7-40012
Cytek® Flow Staining Buffer (IX)*	TNB-4222-L500
Cytek® RBC Lyse/Fix Solution 10X*	R7-60010
Cytek® Fixation Buffer*	TNB-8222-L100
Cytek® ViaDye™ Red Fixable Viability Dye Kit*	R7-60008

\*Product required for certain protocols, available for purchase separately.

### References

- Moussset C.M., et al. 2019. Cytometry A. 95:647
- Yoshitomi H., et al. 2020. Cell. Mol. Immunol. 18:523
- Rasouli J., et al. 2015. J of Immunol. 194:5085
- Laidlaw B.J., et al. 2016. Nat. Rev. Immunol. 16:102
- Golubovskaya V., et al. 2016. Cancers. 8:36
- Hu Y., et al. 2023. Signal Transduct. Target. Ther. 8:434
- Baessler A., et al. 2024. Annu. Rev. Immunol. 42:179
- Mosopust D., et al. 2026. Nat. Rev. Immunol. 26:298

### For Research Use Only. Not for use in diagnostic procedures.

cFluor® V547, cFluor® B515, cFluor® B548, cFluor® BYG610, cFluor® R685, cFluor® R720, and cFluor® R840 are equivalent to CF<sup>®</sup>405L, CF<sup>®</sup>488A, CF<sup>®</sup>514, RPE-CF<sup>®</sup>596R, CF<sup>®</sup>660C, CF<sup>®</sup>700, and APC-CF<sup>®</sup>790T respectively, manufactured and provided by Biotium, Inc. under an Agreement between Biotium and Cytek (LICENSEE). The manufacture, use, sale, offer for sale, or import of the product is covered by one or more of the patents or pending applications owned or licensed by Biotium. The purchase of this product includes a limited, non-transferable immunity from suit under the foregoing patent claims for using only this amount of product for the purchaser's own internal research. No right under any other patent claim, no right to perform any patented method, and no right to perform commercial services of any kind, including without limitation reporting the results of purchaser's activities for a fee or other commercial consideration, is conveyed expressly, by implication, or by estoppel.

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