

# Cytek® cFluor® MDSC Kit

## Accelerate cancer research and drug discovery

Myeloid-derived suppressor cells (MDSCs) are neutrophils and monocytes with significant immunosuppressive activity that diminish immune cell activation and proliferation. MDSCs have been identified as one of the mechanisms underlying the deficient immune response found in many acute and chronic disease states such as cancer. Assessing the levels of MDSC infiltration provides an important indication in the outcome of cancer therapy.<sup>1, 2, 3</sup>

Cytek has developed an MDSC flow cytometry assay to support translational research and the development of cancer therapy. The Cytek cFluor MDSC Kit includes 15 markers and allows enumeration of both granulocytic/polymorphonuclear MDSC (PMN-MDSC) and monocytic MDSC (M-MDSC) populations.

This advanced assay is designed with the ability to detect three novel antigens that have proven useful in detecting MDSCs. The use of CD84 allows better discrimination of both PMN-MDSC and M-MDSC, while LOX-1 (lectin-type oxidized LDL receptor) allows for enhanced discrimination of PMN-MDSC, and CD181 (CXCR1) allows enhanced discrimination of M-MDSC.<sup>2</sup>

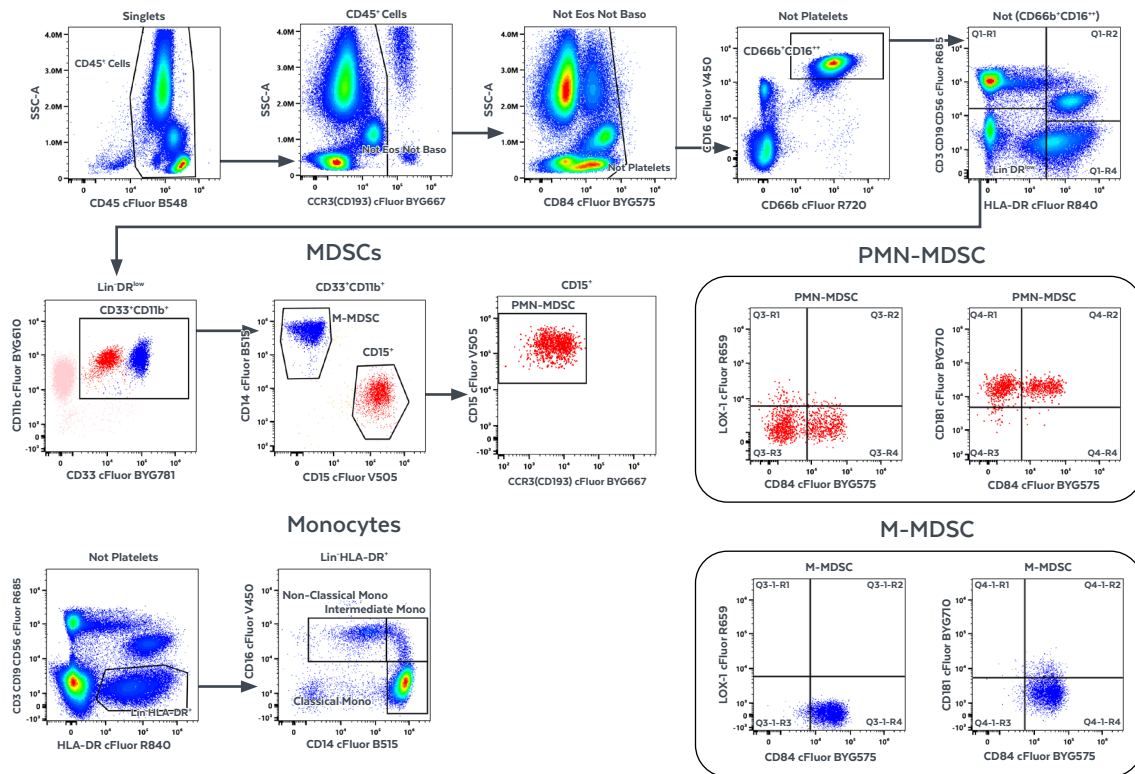
| Violet      |       |              | Blue          |           |                | Red         |        |              |
|-------------|-------|--------------|---------------|-----------|----------------|-------------|--------|--------------|
| Specificity | Clone | Fluorochrome | Specificity   | Clone     | Fluorochrome   | Specificity | Clone  | Fluorochrome |
| CD16        | 3G8   | cFluor® V450 | CD14          | MEM-18    | cFluor® B515   | LOX-1       | 15C4   | cFluor® R659 |
| CD15        | W6D3  | cFluor® V505 | CD45          | HI30      | cFluor® B548   | CD3         | SK7    | cFluor® R685 |
|             |       |              | CD84          | CD84.1.21 | cFluor® BYG575 | CD19        | H1B19  | cFluor® R685 |
|             |       |              | CD11b         | ICRF44    | cFluor® BYG610 | CD56        | TULY56 | cFluor® R685 |
|             |       |              | CD193 (CCR3)  | 5E8       | cFluor® BYG667 | CD66b       | G10F5  | cFluor® R720 |
|             |       |              | CD181 (CXCR1) | 8F1-1-4   | cFluor® BYG710 | HLA-DR      | L243   | cFluor® R840 |
|             |       |              | CD33          | WM-53     | cFluor® BYG781 |             |        |              |

Table 1: Cytek cFluor MDSC Kit Composition.

The pre-optimized Cytek cFluor MDSC Kit takes away the need for time consuming, labor intensive, and costly panel design and optimization. This kit consists of 15 single vial cFluor reagents, allowing enumeration of both PMN-MDSC and M-MDSC populations. Cytek also provides the following tools to streamline the laboratory workflow:

- Complete protocols for sample preparation, staining, and acquisition
- Experiment and analysis templates to streamline workflow and improve laboratory efficiency

The Cytek cFluor MDSC Kit has been tested and shown to be compatible with blood samples collected in EDTA, Heparin, Cyto-Chex®, and ACD blood collection tubes. This provides more flexibility to your research projects.



**Figure 1:** Cell gating hierarchy for identifying MDSCs using the Cytek cFluor MDSC Kit. Data was generated using whole blood collected in EDTA from a healthy donor. Sequential gates are set to select single cells and remove debris. Total white blood cells are identified as CD45<sup>+</sup> single cells. Additional gates are followed to exclude eosinophils, basophils, potentially contaminated platelets, and CD66<sup>+</sup>CD16<sup>+</sup> classical neutrophils. The remaining cells are used to gate on lymphoid lineage negative and HLA-DR<sup>low</sup> or negative cells. From the CD33<sup>+</sup>CD11b<sup>+</sup> gate myeloid cells that contain the MDSC population are further classified into CD14<sup>+</sup> M-MDSCs and CD15<sup>+</sup> PMN-MDSCs. An additional gate on the CCR3<sup>+</sup> region further eliminates eosinophil contamination if present. The level of expression of the additional markers CD84, CD181, and LOX-1 are assessed on MDSC subsets.

| Component                         | P/N          |
|-----------------------------------|--------------|
| Cytek® cFluor® MDSC Kit           | R7-40010     |
| Cytek® RBC Lyse/Fix Solution 10X  | R7-60010     |
| Cytek® FSP™ CompBeads             | B7-10011     |
| Ghost Dye™ Violet 540 - 100 tests | 13-0879-T100 |

#### References:

1. Bronte V, Brandau S, ... Gabrilovich DI. 2016. Nature Communications. 7:12150
2. Veglia F, Sanseviero E and Gabrilovich DI. 2021. Nature Reviews Immunology. 21:485
3. Barry ST, Gabrilovich DI, Sansom OJ, Campbell AD and Morton JP. 2023. Nature Reviews Cancer. 3192:2

cFluor® B515, cFluor® B548, cFluor® R685 and cFluor® R720 are equivalent to CF®488A, CF®514, CF®660C and CF®700 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.

cFluor® BYG610, cFluor® BYG667, cFluor® BYG710, and cFluor® BYG781 are tandem dyes made with R-PE. cFluor® R840 is a tandem dye made with APC. Caution - Tandem dyes may show changes in their emission spectra with prolonged exposure to light or fixatives.

Cytek® FSP™ CompBeads are developed and manufactured by Slingshot Biosciences, Inc., Emeryville, CA

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