Anti-Human CD4/CD8/CD3
(33-2A3/HP2-6/D3/9)

	REF		
FITC/PE/PerCP	4F18PE13PP2-100T	100 test	RUO
FITC/PE/PE-Cyanine5.5	4F18PE13PC2-100T	100 test	

1. PRODUCT DESCRIPTION

Clones: HP2/6; 143-44; UCHT1
Isotype: IgG2a, IgG1, IgG1
Tested application: flow cytometry
Immunogen: The anti-CD4 monoclonal antibody
derives from T cells from leukemic HPB-ALL.
The anti-CD8 monoclonal antibody derives from human T cells. The anti-human CD3 Monoclonal antibody derives from Human infant thymocytes and peripheral blood lymphocytes from a Sezary Syndrome donor.
Species reactivity: Human
Storage instruction: store in the dark at 2-8 °C
Storage buffer: aqueous buffered solution containing protein stabilizer and 0.09% sodium azide (NaN3).
Recommended usage: Immunostep's CD3/CD4/CD8 is a monoclonal antibody combination intended for immunophenotypic identification and enumeration of T-lymphocyte subpopulations in human peripheral blood or other biological samples. This reagent allows the simultaneous detection of total T cells ($CD3^+$), helper/inducer T cells ($CD4^+$), and cytotoxic/suppressor T cells ($CD8^+$) by flow cytometry. The combined analysis of these markers provides valuable information for the assessment and monitoring of immune status in various clinical conditions, including immunodeficiencies, autoimmune diseases, infectious processes, and hematologic disorders. This reagent is effective for direct immunofluorescence staining of human tissue for flow cytometric analysis using 1 test for 106 cells.
Presentation: liquid
Source: Supernatant proceeding from an in vitro cell culture of a cell hybridoma.
Purification: Affinity chromatography.

2. ANTIGEN DETAILS

Large description: The CD3 monoclonal antibody is directed against the CD3 antigen (T3-antigen), a component of the T-cell receptor complex expressed on the surface of human T lymphocytes. This antibody reacts with 80–90% of human peripheral T cells and medullary thymocytes. It does not react with B cells, monocytes, granulocytes, or platelets. The CD3 antigen is involved in signal transduction following antigen recognition and is essential for T-cell activation. The antibody may be mitogenic for resting T lymphocytes and can block the cytolytic activity of cytotoxic T lymphocyte (CTL) clones.

The CD4 monoclonal antibody recognizes the CD4 antigen (T4-antigen), a glycoprotein expressed on approximately 60–65% of human peripheral T lymphocytes and on most thymocytes. CD4 is a co-receptor for the T-cell receptor (TCR) that binds to MHC class II molecules, facilitating T-cell activation. The antibody may show weak reactivity with monocytes and macrophages but does not react with B cells, granulocytes, or platelets. CD4 expression defines the helper/inducer T-cell subset, which plays a central role in immune regulation and coordination.

The CD8 monoclonal antibody is directed against the CD8 antigen (T8-antigen), a cell surface glycoprotein expressed on approximately 25–35% of peripheral T lymphocytes and on a subset of thymocytes. CD8 acts as a co-receptor for the TCR complex in recognition of antigens presented by MHC class I molecules. The antibody does not react with B cells, monocytes, granulocytes, or platelets. CD8 expression defines the cytotoxic/suppressor T-cell subset responsible for direct killing of target cells and immune surveillance.

Together, the CD4/CD8/CD3 combination allows for the immunophenotypic identification and enumeration of total T cells and their major functional subsets (helper/inducer and cytotoxic/suppressor T lymphocytes) by flow cytometry. This combination provides valuable information for the evaluation of immune status in both physiological and pathological conditions, including immunodeficiencies, autoimmune disorders, infections, and hematologic malignancies.

Please, refer to www.immunostep.com technical support for more information.

Revision N 1. Emission date: 14/10/2025

3. INSTRUCTIONS FOR USE

Store Diluting RBCX10 Lysis Solution:

Performing Quality Control: In accordance with the College of American Pathologists (CAP) guidelines, we recommend running two levels of liquid control material (process control).
Controls should be run at least once each day that patient testing is performed. Use commercial controls providing established values for percent positive and absolute counts with each run to assess system performance. Immunostep recommends using CDChex Plus (Streck) normal and CD4 Low as process controls.

To perform quality control: Thoroughly mix the appropriate CD-Chex Plus (Streck) control, or equivalent process control. See the IFU for the control for detailed instructions.

1. Stain the control sample using Immunostep's CD3/CD8/CD45/CD4 antibody as described in te following section. The control sample should be processed like patient samples to monitor the ongoing performance of the entire analytic process.
2. Acquire the stained control sample on the flow cytometer.
3. Visually inspect the CD45 vs SSC dot plot. The lymphocyte population should appear as a bright, compact cluster with low SSC. Monocytes and granulocytes should also appear as distinct clusters. Do not proceed with analysis if populations are diffuse and there is little or no separation between clusters.
4. Verify that the results are within the values reported on the Assay Values sheet.

Staining the Cells:
Use care to protect the tubes from direct light. Perform the procedure at room temperature. See Precautions and Interfering Conditions.

1. For each patient sample, label a 12 × 75-mm tube with the sample identification number. For absolute counts, label an STEPCOUNT counting tube in place of the 12 × 75-mm tube. Note: Before use, verify that the STEPCOUNT bead pellet is intact and within the metal retainer at the bottom of the tube. If this is not the case, discard the STEPCOUNT counting tube and replace it with another.
2. Pipette 20 µL of Immunostep's CD3/CD8/CD45/CD4 antibody into the bottom of the tube. Note: If using an STEPCOUNT counting tube, pipette the reagent onto the side of the tube, just above the metal retainer, without touching the bead pellet.
3. Pipette 50 µL of well-mixed, anticoagulated whole blood into the bottom of the tube. Note: If using an STEPCOUNT counting tube, we recommend using the reverse pipetting technique to pipette the sample onto the side of the tube just above the metal retainer. Avoid smearing blood down the side of the tube. If whole blood remains on the side of the tube, it will not be stained with the reagent and can affect results.
4. Cap the tube and vortex gently to mix.
5. Incubate for 15–30 minutes in the dark at room temperature (20–25 °C).
6. Add 450 µL of 1X RBCX10 lysis solution to the tube.
7. Cap the tube and vortex gently to mix.
8. Incubate for 15–30 minutes in the dark at room temperature (20–25 °C). The sample is now ready tobe analyzed on the flow cytometer. If samples will not be analyzed immediately after staining, store them in the dark at room temperature (20–25°C).

Acquiring the Samples:

1. Vortex the cells thoroughly at low speed. It is important to reduce aggregation before running samples on the flow cytometer.Note: If you are using a Loader, vortex tubes immediately before placing them into the Loader racks.
2. Install the tube on the cytometer and acquire the sample. Before acquiring samples, adjust the threshold to minimize debris and ensure that populations of interest are included.
3. Analyze the data using the appropriate cytometer-specific software. See the cytometer's IFU for more information.

Results: Results are reported as the percentage of positive cells per lymphocyte population or as the number of positive cells per microliter of blood (absolute count).

Calculating Absolute Counts: During analysis, the absolute number (cells/µL) of positive cells in the sample can be determined by comparing cellular events to bead events. If Immunostep software is used, absolute counts will be determined by the software. For manual data analysis, the absolute count of the cell population (A) can be calculated using the following equation: $A=X/Y\times N/V$

Where:

- X is the number of positive cell events
- Y is the number of bead events
- N is the number of beads per test, which is found on the STEPCOUNT counting tubes foil pouch and can vary from lot to lot
- V is the sample volume (50 µL)

Controls:

- Positive Controls: Use CD-Chex Plus (Streck) normal and CD4 Low to validate the staining protocol.
- Negative Controls: Include isotype controls and unstained cells to set proper gating strategies.

Material Not Supplied:

- STEPCOUNT counting tubes (ref. 1399991218)
- RBCX10 lysis solution (ref. RBCX10-50ML)
- CD-Chex Plus (Streck) normal and CD4 Low

4. WARRANTY

Warranted only to conform to the quantity and contents stated on the label or in the product labelling at the time of delivery to the customer. Immunostep disclaims hereby other warranties. Immunostep's sole liability is limited to either the replacement of the products or refund of the purchase price.

5. REFERENCES

1. Tunnacliffe A, Olsson C, Traunecker A, Krissansen GW, Karjalainen K, de la Hera A. T3.2. The majority of CD3 epitopes are conferred by the epsilon chain. In: Knapp W, Dörken B, Gilks WR, Rieber EP, Schmidt RE, Stein H, et al., editors. Leucocyte typing IV. White cell differentiation antigens. Proceedings of the 4th International Workshop and Conference; 1989 Feb 21-25; Vienna, Austria. Oxford, New York, Tokyo: Oxford University Press; 1989. p. 295-6.
2. Orfao, J. Almeida, M.L. Sánchez, F.M. Sánchez-Guijo, C. Vallejo, M.C. López-Berges, M.A. García-Marcos, M.J. Moro, J.F. San Miguel. Incidence of aberrant phenotypes in a large series of B-cell chronic lymphoproliferative disorders, implication for minimal residual disease.
3. 3Orfao A, Ciudad J, López-Berges MC, López A, Vidriales B, Caballero MD. Acute lymphoblastic leukemia (ALL): detection of minimal residual disease (MRD) at flow cytometry. Leuk Lymph 1994;13:87-90.

6. EXPLANATION OF SYMBOLS

	Form
REF	Catalog reference
Σ	Contains sufficient for > test
	Quantity per test
	Regulatory Status
RUO	Research Use Only
	Manufacturer

7. MANUFACTURED BY:

Address: Avda. Universidad de Coimbra, s/n
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