Anti- Human T CR Cβ 2 (SAM.2.rMAb)

	REF	Σ		[A]	
PE	TCRCB2PE	100 test	2 µl/ test	0,5 mg/ml	RUO

1. PRODUCT DESCRIPTION

Clone: SAM.2.rMAb
Isotype: Mouse IgG1,ĸ
Tested application: flow cytometry
Species reactivity: Human (QC Testing)
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 anti-human 2 T cell receptor (TCR) antibody, clone SAM.2.rMAb, is a monoclonal antibody designed for the identification and enumeration of TCR Cβ2, a member of the immunoglobulin superfamily. This antibody targets a constant region determinant found on the surface of all TCR Cβ2-bearing T lymphocytes1. The TCR Cβ2, in conjunction with CD3, forms the CD3/TCR complex, which is crucial for T cell and thymocyte function2.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 SAM.2.rMAb is a recombinant monoclonal antibody that specifically recognizes the TCR Cβ2 constant region, which is expressed by a significant proportion of CD4+ and CD8+ T cells1. Thymocytes and mature peripheral T cells predominantly express a heterodimeric T cell receptor (TCR αβ) for antigen recognition, which is comprised of disulfide-linked transmembrane α and β chain subunits2. The constant region of the TCR α subunit is encoded by the TRAC gene, whereas the TCR β subunit is encoded by either of two highly homologous constant region genes: TCRB1 for TCR Cβ1 or TCRB2 for TCR Cβ23.

The JOVI.1 antibody (ref. JOVIF) alternatively recognizes the TCR Cβ1 constant region expressed by the other subset of TCR αβ+ T cells4. These antibodies, SAM.2.rMAb and JOVI.1, are effectively used together in multicolor staining and flow cytometric analyses to identify and characterize the nature of TCR Cβ1+ or TCR Cβ2+ T cells within heterogeneous cell populations5.

The TCR αβ complex plays a crucial role in the adaptive immune response by recognizing peptide antigens presented by major histocompatibility complex (MHC) molecules on antigen-presenting cells6. This recognition leads to T-cell activation and subsequent immune responses. The constant regions of the TCR chains are essential for maintaining the structural integrity and proper function of the receptor7.

It is important to note that some human CD3- and TCR-specific antibodies might not be compatible for co-staining human T cells with SAM.2.rMAb8. Therefore, careful selection and validation of antibodies are necessary to ensure accurate and reliable results in flow cytometric analyses.

3. 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.

4. REFERENCES

1. Berg H, Otteson GE, Corley H, et al. Flow cytometric evaluation of TRBC1 expression in tissue specimens and body fluids is a novel and specific method for assessment of T-cell clonality and diagnosis of T-cell neoplasms.. Cytometry B Clin Cytom. 2021; 100(3):361-369.
2. Ferrari M, Baldan V, Ghongane P, et al. Targeting TRBC1 and 2 for the treatment of T cell lymphomas. Abstract. Cancer Res. 2020; 80:2183.
3. Horna P, Shi M, Olteanu H, Johansson U. Emerging Role of T-cell Receptor Constant β Chain-1 (TRBC1) Expression in the Flow Cytometric Diagnosis of T-cell Malignancies.. Int J Mol Sci. 2021; 22(4):1817.

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5. ADDITIONAL INFORMATION

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6. PROTOCOL

Direct Immunofluorescence Cell Surface Staining Protocol

1. Transfer 100 ul (106 cells/test) of the sample to a 12 x 75 mm polystyrene test tube.
2. Add the suggested volume indicated on the antibody vial to the 12x75 mm cytometer tube.
3. Mix well and incubate in the dark at room temperature at 4 °C for 30 minutes or at room temperature (20-25 °C) for 15 minutes.
4. After the incubation period, add 1,5 ml of an erythrocyte-lysing solution and mix. Incubate at room temperature in the darkness (the blood should be well mixed with the lysing solution).
5. Centrifuge tubes at 540xg for 5 minutes. The supernatant is removed with a Pasteur pipette or with a vacuum pump.
6. Resuspend and wash with 3-5 mL of PBS at 540xg for 5 min.
7. After removing the supernatant and resuspending the cell pellet, add 300 µL of PBS and adquire on the flow cytometer are recorded.
8. Analyse on a flow cytometer or store at 2- 8 °C in the dark until analysis. Samples can be run up to 24 hours after lysis.

Indirect Immunofluorescence Cell Surface Staining Protocol

1. Transfer 100 ul (106 cells/test) of the sample to a 12 x 75 mm polystyrene test tube.
2. Add purified reagent according to manufacturer's recommendation and mix gently with a vortex mixer.
3. Incubate in the dark at room temperature at 4 °C for 30 minutes or at room temperature (20-25 °C) for 15 minutes.
4. Add 2 mL 0.01 mol/L PBS (It betters that it containing 2% bovine serum albumin) and resuspend the cells by using a vortex mixer. Centrifuge at 540xg for 5 min in order to remove the McAb not bound to its antigen.
5. Add a secondary conjugated reagent with some fluorochrome and mix. Incubate at room temperature for 15 min in the dark. The absence of light is necessary as the fluorochrome is photoinstability.
6. After the incubation period, add 1,5 ml of an erythrocyte-lysing solution and mix. Incubate at room temperature in the darkness (the blood should be well mixed with the lysing solution). Centrifuge at 540xg for 5 minutes. The supernatant is removed with a Pasteur pipette or with a vacuum pump.
7. Resuspend and a made a final wash with 3-5 mL of PBS at 540xg for 5 min.
8. After removing the supernatant and resuspending the cell pellet, add 300 µL of PBS and adquire on the flow cytometer are recorded.
9. Analyse on a flow cytometer or store at 2- 8 °C in the dark until analysis. Samples can be run up to 24 hours after lysis

7. EXPLANATION OF SYMBOLS

	Form
REF	Catalog reference
Σ	Contains sufficient for <n> test
	Regulatory Status
	Quantity per test
RUO	Research Use Only
[A]	Concentration
	Manufacturer

8. MANUFACTURED BY:

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