

CD197 (CCR7) Monoclonal Antibody (4B12), eFluor™ 450, eBioscience™

Product Details	
Size	100 µg
Species Reactivity	Mouse
Published Species	Mouse
Host/Isotype	Rat / IgG2a, kappa
Recommended Isotype Control	Rat IgG2a kappa Isotype Control (eBR2a), eFluor™ 450, eBioscience™
Class	Monoclonal
Type	Antibody
Clone	4B12
Conjugate	eFluor™ 450
Excitation/Emission Max	405/445 nm
Form	Liquid
Concentration	0.2 mg/mL
Purification	Affinity chromatography
Storage buffer	PBS, pH 7.2
Contains	0.09% sodium azide
Storage conditions	4° C, store in dark, DO NOT FREEZE!
RRID	AB_1944351

Applications	Tested Dilution	Publications
Immunocytochemistry (ICC/IF)	-	1 Publication
Flow Cytometry (Flow)	1 µg/test	21 Publications

Product Specific Information

Description: The 4B12 monoclonal antibody reacts with mouse CCR7, also known as EBI-1 and CD197. CCR7 is a chemokine receptor for the chemokines CCL19 (CK11, ELC, MIP3, Scya19, Exodus-3) and CCL21 (CK9, SLC, MIP2, Scya21, Exodus-2). In recent years, the role of chemokines in directing the migration of lymphocytes has been well-characterized. One of the most important mediators of homeostatic trafficking of naive T cells to secondary lymphoid organs (SLO) is the chemokine receptor CCR7. Binding of its ligands, CCL19 and CCL21, mediates the trans endothelial migration of T cells across high endothelial venules into SLO. It has also been demonstrated that CCR7 plays a role in the localization of dendritic cells and B cells during an immune response.

CCR7 is a chemokine receptor for the chemokines CCL19 (CK11, ELC, MIP3, Scya19, Exodus-3) and CCL21 (CK9, SLC, MIP2, Scya21, Exodus-2).

In addition to its significant role in the chemotaxis of lymphocytes, human CCR7 has also been recognized as a marker for a distinct subset of memory T cells, the central memory (TCM) population. These cells are characterized by the expression of CCR7 and CD62L and reside within peripheral lymphoid organs. CCR7 also plays a role in thymocyte development and its deficiency leads to disturbed thymic architecture, aberrant T cell development, and limited thymocyte expansion.

For optimal visualization of CCR7 expression on different cell types it is necessary to use multi-color staining to discriminate

different cell subsets as well as following the protocol (incubation at 37C may be necessary). To address specificity, the staining profile of 4B12 has been compared to a polyclonal antibody generated against a CCR7 peptide (Bjorkdahl et al). This analysis confirms that the polyclonal antibody and 4B12 stain similar populations of cells. Furthermore, 4B12 stains mouse CCR7-GFP fusion protein-transfected RBL cells (see data in cat. 14-1971).

Applications Reported: This 4B12 antibody has been reported for use in flow cytometric analysis.

Applications Tested: This 4B12 antibody has been tested by flow cytometric analysis of mouse splenocytes. This can be used at less than or equal to 1 µg per test. A test is defined as the amount (µg) of antibody that will stain a cell sample in a final volume of 100 µL. Cell number should be determined empirically but can range from 10⁵ to 10⁸ cells/test. It is recommended that the antibody be carefully titrated for optimal performance in the assay of interest.

Important: Staining with the 4B12 monoclonal antibody requires different conditions than typically used for surface-antigen staining. Please use the protocol below. Moreover, we have found that staining at 37°C, rather than 2-8°C, results in brighter 4B12 staining, as well as better resolution between positive and negative populations. Please see data for the PE 4B12 (cat. 12-1971) which demonstrates a comparison of staining at 2-8°C and 37°C. Staining with 4B12 at 37°C is not expected to interfere with co-staining other antigens, however this should be evaluated for individual experiments.

1. Prepare cell suspension as normal and block Fc gammaIIIR/Fc gammaIIIR with 5 µg/million cells purified anti-mouse CD16 /32 (cat. 14-0161) for 15 minutes on ice. If red blood cell lysis is carried out as part of cell preparation, ensure that fixatives are not present in the red blood cell lysis solution as this will eliminate 4B12 staining.
2. Without washing, add 1 µg/million cells 4B12 and incubate in a 37°C waterbath or at 2-8°C (please see notes above) for 0.5 hours.
3. Wash cells 1X with 3 mL of Flow Cytometry Staining Buffer (cat. 00-4222) and decant supernatant.
4. Analyze cells on flow cytometer or proceed with secondary staining on ice as normal.

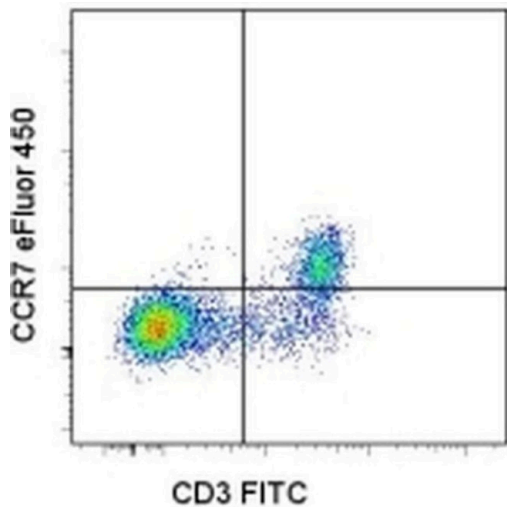
Note: Co-staining mouse CCR7 with the 4B12 antibody and the CCR7 ligand CCL19-Fc (cat. 14-1972) may be difficult due to different binding conditions required for the antibody versus the ligand, and steric hindrance which may prevent co-staining of 4B12 and CCL19-Fc. Cross-blocking experiments have demonstrated that 4B12 binding is able to prevent the detectable binding of CCL19-Fc, however not the opposite. Furthermore, the correlation between 4B12 and CCL19-Fc staining may be difficult to predict due to the presence of unknown CCL19-Fc receptors in addition to CCR7.

eFluor® 450 is an alternative to Pacific Blue®. eFluor® 450 emits at 445 nm and is excited with the Violet laser (405 nm). Please make sure that your instrument is capable of detecting this fluorochrome.

Excitation: 405 nm; Emission: 445 nm; Laser: Violet Laser.

Filtration: 0.2 µm post-manufacturing filtered.

Product Images For CD197 (CCR7) Monoclonal Antibody (4B12), eFluor™ 450, eBioscience™



CD197 (CCR7) Antibody (48-1971-82) in Flow
Staining of C57BL/6 splenocytes at 37°C with Anti-Mouse CD3e FITC (Product # 11-0031-82) and 1.0 µg of Anti-Mouse CD197 (CCR7) eFluor® 450. Cells in the lymphocyte gate were used for analysis.

🔖 22 References

Immunocytochemistry (1)

<div>Regenerative biomaterials</div> <div>Induced migration of endothelial cells into 3D scaffolds by chemoattractants secreted by pro-inflammatory macrophages <i>in situ</i>.</div> <div>"Published figure using CD197 (CCR7) monoclonal antibody (Product # 48-1971-82) in Immunofluorescence"</div> <div>Authors: Li X,Dai Y,Shen T,Gao C</div>	<div>Year</div> <div>2017</div>
--	---------------------------------

Flow Cytometry (21)

<div>iScience</div> <div>Profiling of Tregs across tissues reveals plasticity in ST2 expression and hierarchies in tissue-specific phenotypes.</div> <div>"Published figure using CD197 (CCR7) monoclonal antibody (Product # 48-1971-82) in Flow Cytometry"</div> <div>Authors: Spath S,Roan F,Presnell SR,Hölldbacher B,Ziegler SF</div>	<div>Year</div> <div>2022</div>
<div>International journal of biological sciences</div> <div>MiR-103 protects from recurrent spontaneous abortion via inhibiting STAT1 mediated M1 macrophage polarization.</div> <div>"Published figure using CD197 (CCR7) monoclonal antibody (Product # 48-1971-82) in Flow Cytometry"</div> <div>Authors: Zhu X,Liu H,Zhang Z,Wei R,Zhou X,Wang Z,Zhao L,Guo Q,Zhang Y,Chu C,Wang L,Li X</div>	<div>Year</div> <div>2021</div>

View more Flow references on thermofisher.com

More applications with references on thermofisher.com

For Research Use Only. Not for use in diagnostic procedures. Not for resale without express authorization. Products are warranted to operate or perform substantially in conformance with published Product specifications in effect at the time of sale, as set forth in the Production documentation, specifications and/or accompanying package inserts ("Documentation"). No claim of suitability for use in applications regulated by FDA is made. The warranty provided herein is valid only when used by properly trained individuals. Unless otherwise stated in the Documentation, this warranty is limited to one year from date of shipment when the Product is subjected to normal, proper and intended usage. This warranty does not extend to anyone other than the Buyer. Any model or sample furnished to Buyer is merely illustrative of the general type and quality of goods and does not represent that any Product will conform to such model or sample. NO OTHER WARRANTIES, EXPRESS OR IMPLIED, ARE GRANTED INCLUDING WITHOUT LIMITATION, IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR ANY PARTICULAR PURPOSE, OR NON INFRINGEMENT. BUYER'S EXCLUSIVE REMEDY FOR NON-CONFORMING PRODUCTS DURING THE WARRANTY PERIOD IS LIMITED TO REPAIR, REPLACEMENT OF OR REFUND FOR THE NON-CONFORMING PRODUCT(S) AT SELLER'S SOLE OPTION. THERE IS NO OBLIGATION TO REPAIR, REPLACE OR REFUND FOR PRODUCTS AS THE RESULT OF (I) ACCIDENT, DISASTER OR EVENT OF FORCE MAJEURE, (II) MISUSE, FAULT OR NEGLIGENCE OF OR BY BUYER, (III) USE OF THE PRODUCTS IN A MANNER FOR WHICH THEY WERE NOT DESIGNED, OR (IV) IMPROPER STORAGE AND HANDLING OF THE PRODUCTS. Unless otherwise expressly stated on the Product or in the documentation accompanying the Product, the Product is intended for research only and is not to be used for any other purpose, including without limitation, unauthorized commercial uses, in vitro diagnostic uses, ex vivo or in vivo therapeutic uses, or any type of consumption by or application to human or animals.