Monoclonal Antibodies
Detecting Human Antigens

CD4 v4 (L120)

Research applications include:

- Investigation of the proliferation and activation of T lymphocytes
- Studies of CD4 interactions with human immunodeficiency virus (HIV)\(^1,2\)
- Enumeration of CD4 levels in HIV-infected cultures

DESCRIPTION

Specificity

The CD4 antibody recognizes an antigen, approximately 59 kilodaltons (kDa), that is present on the helper-inducer subset of T lymphocytes and monocytes.\(^3\) The CD4 antigen is involved in the class II recognition of foreign antigens and has been identified as a receptor for HIV.\(^1,6\) Clone L120\(^*\) recognizes amino acids 306-370 of the antigen and does not block the binding of the gp120 of HIV, but inhibits the proliferation of CD4 T lymphocytes to class II antigens.\(^7,8\)

Antigen distribution

The CD4 antigen is present on most thymocytes, approximately 40% of peripheral blood lymphocytes, and at lower density on monocytes.\(^3,9,10\) Peripheral blood CD4\(^+\) lymphocytes are lost over time during HIV infection, and this loss is correlated with disease progression.\(^11,13\)

Clone

The CD4 v4 antibody, clone L120, is derived from hybridization of Sp2/0 mouse cells with spleen cells from BALB/c mice immunized with human peripheral blood lymphocytes.

Composition

The CD4 v4 antibody is composed of mouse IgG\(_1\) heavy chains and kappa light chains.

Product configuration

The following reagents are supplied in phosphate buffered saline (PBS) containing a stabilizer and a preservative.

<table>
<thead>
<tr>
<th>Form</th>
<th>Number of tests</th>
<th>Volume per test (µL)(^a)</th>
<th>Amount provided (µg)</th>
<th>Total volume (mL)</th>
<th>Concentration (µg/mL)</th>
<th>Stabilizer</th>
<th>Preservative</th>
</tr>
</thead>
<tbody>
<tr>
<td>FITC</td>
<td>50</td>
<td>20</td>
<td>12.5</td>
<td>1.0</td>
<td>12.5</td>
<td>Gelatin</td>
<td>0.1% Sodium azide</td>
</tr>
<tr>
<td>PE</td>
<td>50</td>
<td>20</td>
<td>12.5</td>
<td>1.0</td>
<td>12.5</td>
<td>Gelatin</td>
<td>0.1% Sodium azide</td>
</tr>
</tbody>
</table>

\(^a\) Volume required to stain \(10^6\) cells.

\(^*\) This clone has not been submitted to any previous Workshop on Human Leukocyte Differentiation Antigens.

For Research Use Only. Not for use in diagnostic or therapeutic procedures.
PROCEDURE

Visit our website (bdbiosciences.com) or contact your local BD representative for the lyse/wash protocol for direct immunofluorescence.

Add 20 μL of reagent to 100 μL of whole blood in a staining tube. Mix thoroughly and incubate for 15 to 30 minutes in the dark at room temperature (20°C–25°C). Add 2 mL of 1X BD FACS™ lysing solution (Cat. No. 349202) at room temperature and vortex tube thoroughly. Incubate for 10 to 12 minutes at room temperature in the dark. Wash cells with 1X PBS with 0.1% sodium azide, add 0.5 mL of 1% paraformaldehyde, mix thoroughly, and analyze. If samples will not be analyzed immediately, mix thoroughly just prior to analysis. Refer to the BD FACS lysing solution package insert.

REPRESENTATIVE DATA

Performed on peripheral blood with scatter gates set on the lymphocyte fraction. Laser excitation is at 488 nm.

Figure 1 Two-parameter display of peripheral blood lymphocytes analyzed with a BD FACScan™ flow cytometer

HANDLING AND STORAGE

Store vials at 2°C–8°C. Conjugated forms should not be frozen. Protect from exposure to light. Each reagent is stable until the expiration date shown on the bottle label when stored as directed.

WARNING

All biological specimens and materials coming in contact with them are considered biohazards. Handle as if capable of transmitting infection14,15 and dispose of with proper precautions in accordance with federal, state, and local regulations. Never pipette by mouth. Wear suitable protective clothing, eyewear, and gloves.

CHARACTERIZATION

To ensure consistently high-quality reagents, each lot of antibody is tested for conformance with characteristics of a standard reagent. Representative flow cytometric data is included in this data sheet.

WARRANTY

Unless otherwise indicated in any applicable BD general conditions of sale for non-US customers, the following warranty applies to the purchase of these products.

THE PRODUCTS SOLD HEREUNDER ARE WARRANTED ONLY TO CONFORM TO THE QUANTITY AND CONTENTS STATED ON THE LABEL OR IN THE PRODUCT LABELING AT THE TIME OF DELIVERY TO THE CUSTOMER. BD DISCLAIMS HEREBY ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING WARRANTIES OF MERCHANTABILITY AND FITNESS FOR ANY PARTICULAR PURPOSE AND NONINFRINGEMENT. BD’S SOLE LIABILITY IS LIMITED TO EITHER REPLACEMENT OF THE PRODUCTS OR REFUND OF THE PURCHASE PRICE. BD IS NOT LIABLE FOR PROPERTY DAMAGE OR ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES, INCLUDING PERSONAL INJURY, OR ECONOMIC LOSS, CAUSED BY THE PRODUCT.

REFERENCES


7. Merkenschlager M, Buck D, Beverley PCL, Sattenua QJ. Functional epitope analysis of the human CD4 molecule: The MHC class II-dependent activation of resting T cells is inhibited by monoclonal antibodies to CD4 regardless whether or not they recognize epitopes involved in the binding of MHC class II or HIV gp120. J Immunol. 1990;145(9):2839-2845.


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