Monoclonal Antibodies Detecting Human Antigens

**CD7 (M-T701)**

### Form and Catalog number

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<th>Form</th>
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<td>PE</td>
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<td>APC-R700</td>
<td>659124</td>
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<tr>
<td>V450</td>
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Product availability varies by region. Contact BD Biosciences Customer Support or your local sales representative for information.

### RESEARCH APPLICATIONS

Research applications include:

- Characterization of T-acute lymphoblastic leukemia and other T-cell leukemias and lymphomas\(^1\)\(^-\)\(^6\)
- Research on rheumatoid arthritis\(^7\)\(^,\)\(^8\)
- Study of T-cell proliferation, activation, and apoptosis\(^9\)\(^,\)\(^10\)
- Research on NK-cell activation\(^11\)\(^,\)\(^12\)

### DESCRIPTION

#### Specificity

The CD7 antibody recognizes a 40-kilodalton (kDa) type I transmembrane glycoprotein that is a member of the immunoglobulin superfamily (IgSF).\(^2\)\(^,\)\(^13\)\(^,\)\(^14\) The CD7 antigen is also known as Leu-9, TP41, Tp40, GP40, and T-cell leukemia antigen.

#### Antigen distribution

The CD7 antigen is expressed throughout T-lymphocyte differentiation.\(^13\) It is present on 85% to 90% of peripheral blood T lymphocytes.\(^13\) In normal individuals, the CD7 antibody reacts with all CD8\(^\text{a}\) (Leu-2a) lymphocytes, approximately 90% of CD4\(^\text{a}\) lymphocytes, and most NK lymphocytes.\(^13\) The CD7 antibody is weakly reactive with monocytes and does not react with granulocytes\(^2\) or B lymphocytes,\(^13\) although the CD7 antigen is expressed on a subset of CD19\(^\text{a}\) cells in fetal bone marrow.\(^15\) The CD7 antigen is expressed on 50% of thymocytes in suspension.\(^2\) In leukemias, the CD7 antigen is present on the majority of T-lymphoid lineages.\(^5\)

Ligation of the CD7 antigen by monoclonal antibodies provides a co-stimulatory signal for T-cell proliferation, particularly in T-cell receptor \(\gamma\delta\) cells.\(^9\) Ligation of the CD7 antigen on NK cells leads to an increase in cytoplasmic free calcium, secretion of interferon-\(\gamma\), increased NK cell activity, tyrosine phosphorylation, and adhesion to fibronectin.\(^11\)\(^,\)\(^12\) The CD7 antigen binds to galectin-1, an endogenous lectin expressed in lymphoid organs, and delivers a pro-apoptotic signal to T cells.\(^10\) The CD7 antigen is also a receptor for K12/SECTM1, a member of the IgSF which is secreted by thymic epithelial cells.\(^16\)\(^,\)\(^17\)

#### Clone

The CD7 antibody, clone M-T701,\(^18\) is derived from the hybridization of P3-X63-Ag8.653 mouse myeloma cells with spleen cells isolated from BALB/c mice immunized with P-CLL and Jurkat cells.

#### Composition

The CD7 antibody is composed of mouse IgG\(_1\) heavy chains and kappa light chains.

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For Research Use Only. Not for use in diagnostic or therapeutic procedures.
**Product configuration**

The following are supplied in buffer containing a stabilizer and a preservative.

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<td>Gelatin</td>
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</tbody>
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<sup>a</sup> Volume required to stain 10<sup>6</sup> cells.

<sup>b</sup> BD Horizon<sup>™</sup> APC-R700, BD Horizon<sup>™</sup> V450

**PROCEDURE**

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

**CAUTION** Some APC-R700 conjugates show changes in their emission spectra with prolonged exposure to paraformaldehyde or light. For overnight storage of stained cells, wash and resuspend in buffer without paraformaldehyde after 1 hour of fixation.

**CAUTION** Prolonged exposure of cells to paraformaldehyde can lead to increased autofluorescence in the violet channels. For overnight storage of stained cells, wash and resuspend in buffer without paraformaldehyde after 1 hour of fixation.

**REPRESENTATIVE DATA**

Flow cytometric analysis was performed on whole blood stained with the indicated conjugated antibody. Laser excitation was at 405 nm, 488 nm, 635 nm, or 640 nm.

The APC-R700 conjugate is read off the red laser (640 nm) using a 685 longpass mirror with a 712/21 bandpass filter.

Representative data analyzed with a BD FACS™ brand flow cytometer is shown in the following plots.

**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 infection\textsuperscript{19,20} 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.

The APC-R700 conjugate is bottled with ProClin 300 and contains 0.003% of a mixture of CMIT/MIT (3:1), CAS number 55965-84-9.

### 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.

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### REFERENCES


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