CD38 (HB7)

DESCRIPTION

Specificity

The CD38 antibody recognizes an integral membrane glycoprotein of 45 kilodaltons (kDa), with a protein core of 35 kDa.¹ The CD38 antigen is also known as T10, ADP-ribosyl cyclase, and cyclic ADP ribose hydrolase 1.

Antigen distribution

The CD38 antigen is expressed on essentially all pre-B lymphocytes, plasma cells, and thymocytes.¹ It is also present on activated T lymphocytes, natural killer (NK) lymphocytes, myeloblasts, and erythroblasts.¹⁻⁷ The antigen is expressed during the early stages of T- and B-lymphocyte differentiation, is lost during the intermediate stages of maturation, and then reappears during the final stages of maturation.¹,⁵,⁸,⁹ The CD38 antigen is expressed on 90% of CD34⁺ cells, and is not expressed on pluripotent stem cells. Coexpression of CD38 antigen on CD34⁺ cells indicates lineage commitment of those cells.⁷,¹⁰ It is also expressed in T- and B-acute lymphoblastic leukemia (ALL), Burkitt’s lymphoma, multiple myeloma, acute myeloid leukemia (AML),¹¹,¹² and chronic lymphocytic leukemia (CLL).¹³

The CD38 antigen acts as a bifunctional ectoenzyme that catalyzes both the synthesis and the hydrolysis of a Ca++ mobilizing agent, cyclic ADP-ribose.¹⁴ This intracellular calcium plays an important role in cell signaling pathways. The CD38 antigen is a counter-receptor for CD31, playing a role in adhesion of lymphocytes to endothelial cells.¹⁵ The CD38 antigen participates in signal transduction through activation of the Syk and Bruton protein kinases,¹⁶,¹⁷ leading to cell growth, apoptosis, and differentiation.¹⁴

Clone

The CD38 antibody, clone HB7,¹⁸ is derived from the hybridization of P3-X63-Ag8.653 mouse myeloma cells with spleen cells isolated from BALB/c mice immunized with the BJAB cell line.⁵

Composition

The CD38 antibody is composed of mouse IgG₁ heavy chains and kappa light chains.

Analyte Specific Reagent. Analytical and performance characteristics are not established.
The following are supplied in buffer containing a stabilizer and a preservative.

<table>
<thead>
<tr>
<th>Form</th>
<th>Number of tests</th>
<th>Volume per test (µL)</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>6</td>
<td>1</td>
<td>6</td>
<td>Gelatin</td>
<td>0.1% Sodium azide</td>
</tr>
<tr>
<td>PE</td>
<td>100</td>
<td>20</td>
<td>25</td>
<td>2</td>
<td>12.5</td>
<td>Gelatin</td>
<td>0.1% Sodium azide</td>
</tr>
<tr>
<td>PE-Cy™7</td>
<td>100</td>
<td>5</td>
<td>12.5</td>
<td>0.5</td>
<td>25</td>
<td>Gelatin</td>
<td>0.1% Sodium azide</td>
</tr>
<tr>
<td>APC</td>
<td>100</td>
<td>5</td>
<td>12.5</td>
<td>0.5</td>
<td>25</td>
<td>Gelatin</td>
<td>0.1% Sodium azide</td>
</tr>
<tr>
<td>APC-H7</td>
<td>100</td>
<td>5</td>
<td>25</td>
<td>0.5</td>
<td>50</td>
<td>BSA</td>
<td>ProC1n™ 300</td>
</tr>
<tr>
<td>APC-R700b</td>
<td>100</td>
<td>5</td>
<td>12.5</td>
<td>0.5</td>
<td>25</td>
<td>BSA</td>
<td>ProC1n 300</td>
</tr>
<tr>
<td>V450b</td>
<td>100</td>
<td>5</td>
<td>12.5</td>
<td>0.5</td>
<td>25</td>
<td>Gelatin</td>
<td>0.1% Sodium azide</td>
</tr>
<tr>
<td>BV421b</td>
<td>100</td>
<td>5</td>
<td>12.5</td>
<td>0.5</td>
<td>25</td>
<td>BSA</td>
<td>ProC1n™ 950</td>
</tr>
<tr>
<td>BV605b</td>
<td>100</td>
<td>5</td>
<td>25</td>
<td>0.5</td>
<td>50</td>
<td>BSA</td>
<td>0.09% Sodium azide</td>
</tr>
</tbody>
</table>

CAUTION Higher levels of nonspecific staining can result when ammonium chloride lysis is used for cell preparation before staining.

CAUTION Some PE-Cy7, APC-H7, and 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.

CAUTION For optimal results, use BD Horizon™ Brilliant Stain Buffer any time two or more BD Horizon Brilliant™ dyes are used in the same multicolor staining cocktail.

NOTE As a consideration for instrument selection, the APC-R700 conjugate is read off the red laser using an appropriate longpass (LP) mirror and bandpass (BP) filter. (For your information, the technical information for this data sheet was generated on a BD FACSTM brand flow cytometer using a 640-nm red laser, a 685 LP mirror, and a 712/21 BP filter.)

**Purity**

FITC: ≤5% free fluorophore at bottling, as measured by size-exclusion chromatography (SEC)

PE, PE-Cy7, APC, APC-H7, APC-R700, V450: ≤20% free fluorophore at bottling, as measured by SEC

BV421, BV605: ≤25% free fluorophore, as measured by ion-exchange chromatography (IEC)

**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\(^{19,20}\) 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.

Some reagents are bottled with ProClin 300, and contain 0.003% of a mixture of CMIT/MIT (3:1), CAS number 55965-84-9. The reagents are classified as hazardous according to the Globally Harmonized System of Classification and Labelling of Chemicals (GHS). Visit regdocs.bd.com to download the Safety Data Sheet.

<table>
<thead>
<tr>
<th>Warning</th>
</tr>
</thead>
<tbody>
<tr>
<td>H317 May cause an allergic skin reaction.</td>
</tr>
<tr>
<td>Wear protective clothing/eye protection. Wear protective gloves. Contaminated work clothing should not be allowed out of the workplace. Avoid breathing mist/vapors/spray. If skin irritation or rash occurs, get medical advice/attention. Dispose of contents/container in accordance with local/regional/national/international regulations.</td>
</tr>
</tbody>
</table>

**CHARACTERIZATION**

To ensure consistently high-quality reagents, each lot of antibody is tested for conformance with characteristics of a standard reagent.

**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**


