Monoclonal Antibodies
Detecting Human Antigens

CD42a (Beb1)

Form       Catalog number
FITC       348083
PerCP      340537

Research applications include studies of:
• The identification of platelets in peripheral blood
• The identification of megakaryocytes
• Glycoprotein deficiency disorders
• Metabolic reactions responsible for platelet surface changes
• Platelet adhesion

DESCRIPTION

Specificity
The CD42a antibody recognizes a 17 to 22-kilodalton (kDa) single-chain, platelet membrane glycoprotein, also known as gpIX that forms a noncovalent complex with gpIb and gpV. Glycoprotein Ib consists of an α–chain disulfide-linked to a β chain. Glycoproteins Ibα (140 to 145 kDa), Ibβ (24 to 25 kDa), and V (82 to 86 kDa) have been designated as CD42b, CD42c and CD42d respectively. CD42a has been reported to react with both gpIX and the gpIb-IX-V complex.

Antigen distribution
The gpIX antigen, along with gpIb and gpV, is a member of the leucine-rich glycoprotein (LRG) family of proteins, each of which is encoded by a separate gene. The function of the gpIb-IX-V complex is essential for normal platelet adhesion and activation. The gpIb-IX-V complex contains a binding site for von Willebrand factor (vWF) that mediates the activation-independent, shear-dependent adhesion of platelets to the exposed vascular subendothelium. The gpIb-IX-V complex functions as a high affinity thrombin binding site. The glycoprotein Ib-IX-V complex functions as an attachment site anchoring the plasma membrane to its subjacent cytoskeleton, thereby stabilizing the membrane and maintaining platelet shape and vWF function.

The CD42a antigen is present on resting and activated platelets and on megakaryocytes. Resting platelets display approximately 25,000 copies each of gpIbα and gpIX and 11,000 copies of gpV. Downregulation of the platelet surface gpIb-IX-V complex in whole blood occurs upon activation via rapid redistribution of gpIb-IX-V to the surface-connected canalicular system (SCCS). Downregulation of vWF binding to gpIb-IX-V, following platelet activation, may be an important pathway biasing platelets toward aggregation over vessel wall adhesion. The gpIb-IX-V complexes are absent or quantitatively decreased in platelets of patients with the Bernard-Soulier syndrome, a bleeding disorder characterized by giant platelets, reduced ristocetin-dependent binding of vWF, reduced adhesion to sub-endothelium and vWF, and decreased platelet response to activation by thrombin.

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

The CD42a antibody, clone Beb1,13 is derived from hybridization of Sp2/0 mouse myeloma cells with spleen cells from BALB/c mice immunized with normal human platelets.

Composition

The CD42a antibody is composed of mouse IgG1 heavy chains and kappa light chains.

Product configuration

The following 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>
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<tbody>
<tr>
<td>FITC</td>
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<td>20</td>
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<td>0.1% Sodium azide</td>
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<tr>
<td>PerCP</td>
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<td>12.5</td>
<td>Gelatin</td>
<td>0.1% Sodium azide</td>
</tr>
</tbody>
</table>

a. Volume required to stain 10⁶ cells.

PROCEDURE

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

REPRESENTATIVE DATA

Performed on fixed platelets with scatter gates set on the platelet fraction. Laser excitation is at 488 nm. Refer to our procedure, Platelet Activation, Staining, and Analysis, for details on instrument setup and for information on three-color analysis.

Figure 1  Representative data analyzed with a BD FACSTM brand 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.

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REFERENCES


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