

# BD CD38 (HB7)

## Monoclonal Antibodies Detecting Human Antigens

Form	Catalog number	Form	Catalog number
Pure	347680	APC	340439
FITC	340927	APC-H7	656646
PE	347687	APC-R700	659127
PE-Cy7	335790	V450	646851

Product availability varies by region. Contact BD Biosciences Customer Support or your local sales representative for information.

## Research Applications

Research applications include:

- Studies of T-lymphocyte activation<sup>1-3</sup>
- Examination of B-lymphocyte differentiation<sup>1,3</sup>
- Research on human immunodeficiency<sup>1,4-7</sup>
- Investigation into leukemia cells<sup>1,2,8,9</sup>

## Description

### Specificity

The CD38 antibody recognizes an integral membrane glycoprotein of 45 kilodaltons (kDa), with a protein core of 35 kDa.<sup>10</sup> 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.<sup>10</sup> It is also present on activated T lymphocytes, natural killer (NK) lymphocytes, myeloblasts, and erythroblasts.<sup>3-5,10-13</sup>

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.<sup>3,6,7,10</sup> The CD38 antigen is expressed on 90% of CD34<sup>+</sup> cells, and is not expressed on pluripotent stem cells. Coexpression of CD38 antigen on CD34<sup>+</sup> cells indicates lineage commitment of those cells.<sup>13,14</sup> It is also expressed in T- and B-acute lymphoblastic leukemia (ALL), Burkitt's lymphoma, multiple myeloma, acute myeloid leukemia (AML),<sup>2,9</sup> and chronic lymphocytic leukemia (CLL).<sup>8</sup>

The CD38 antigen acts as a bifunctional ectoenzyme that catalyzes both the synthesis and the hydrolysis of a Ca<sup>++</sup> mobilizing agent, cyclic ADP-ribose.<sup>15</sup> 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.<sup>16</sup> The CD38 antigen participates in signal transduction through activation of the Syk and Bruton protein kinases,<sup>17,18</sup> leading to cell growth, apoptosis, and differentiation.<sup>15</sup>

### Clone

The CD38 antibody, clone HB7,<sup>19</sup> 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.<sup>3</sup>

### Composition

The CD38 antibody is composed of mouse IgG<sub>1</sub> heavy chains and kappa light chains.

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

## Product configuration

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

Form	Number of tests	Volume per test (µL)	Amount provided (µg)	Total volume (mL)	Concentration (µg/mL)	Stabilizer	Preservative
Pure	100	20	50	2.0	25	Gelatin	0.1% Sodium azide
FITC	50	20	6	1.0	6	Gelatin	0.1% Sodium azide
PE	100	20	25	2.0	12.5	Gelatin	0.1% Sodium azide
PE-Cy7	100	5	12.5	0.5	25	Gelatin	0.1% Sodium azide
APC	100	5	12.5	0.5	25	Gelatin	0.1% Sodium azide
APC-H7	100	5	25	0.5	50	BSA	CMIT/MIT (3:1)
APC-R700 <sup>a</sup>	100	5	12.5	0.5	25	BSA	CMIT/MIT (3:1)
V450 <sup>a</sup>	100	5	12.5	0.5	25	Gelatin	0.1% Sodium azide

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

**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.

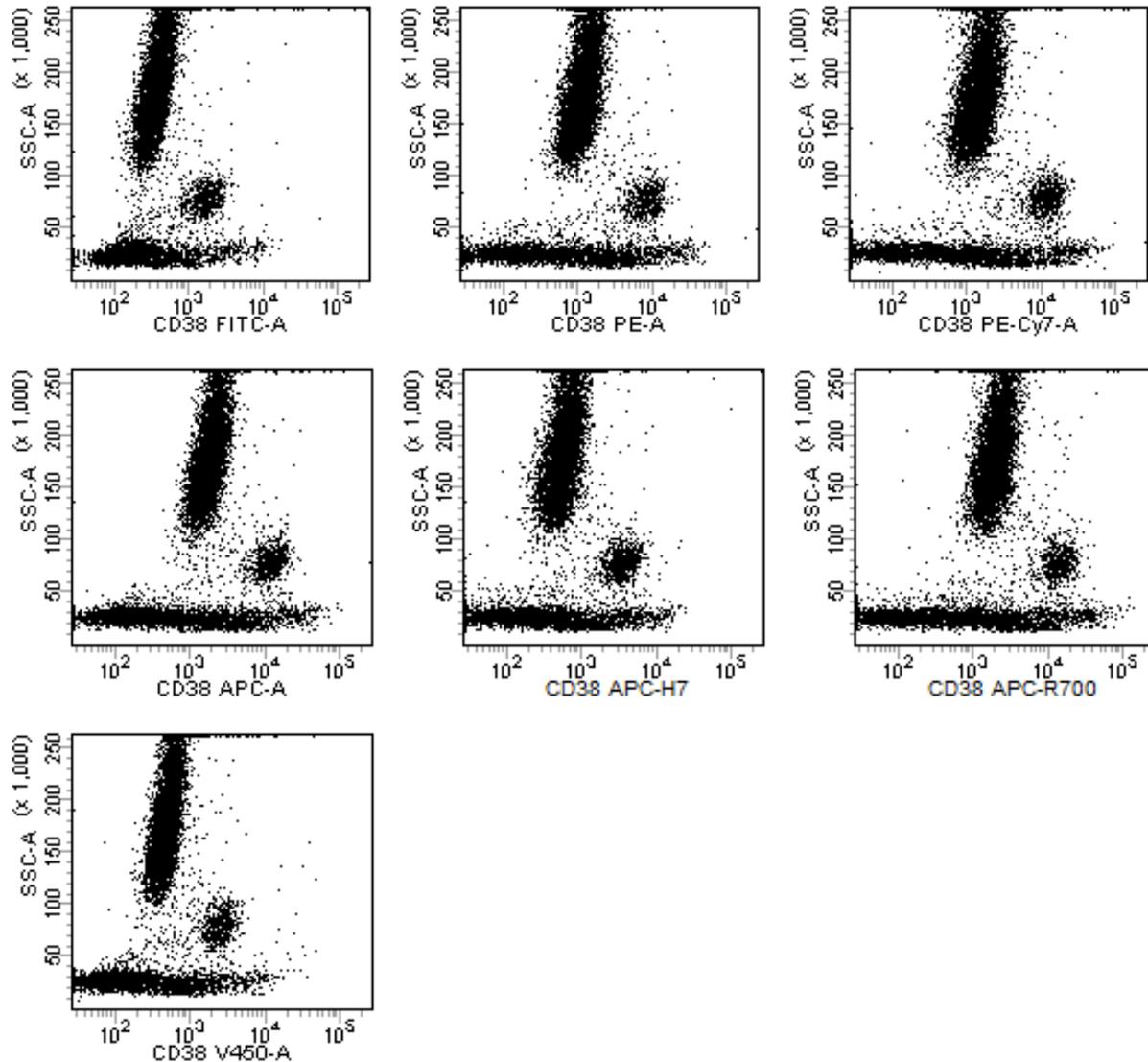
## Procedure

Go to our website ([bdbiosciences.com](http://bdbiosciences.com)) or contact your local BD representative for the lyse/wash protocol for direct immunofluorescence.

## 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 flow cytometer is shown in the following plots.



## Handling and Storage

Store vials at 2–8 °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<sup>20,21</sup> 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-H7 conjugate contains 0.00265% of a mixture of 5-chloro-2-methyl-4-isothiazolin-3-one and 2-methyl-2H -isothiazol-3-one [CMIT/MIT (3:1)], CAS number 55965-84-9). The APC-R700 conjugate contains of a mixture of 0.0028% 5-chloro-2-methyl-4-isothiazolin-3-one and 2-methyl-2H -isothiazol-3-one [CMIT/MIT (3:1)], CAS number 55965-84-9. These reagents are classified as hazardous according to the Globally Harmonized System of Classification and Labelling of Chemicals (GHS).

	Warning
	H317: May cause an allergic skin reaction. H412: Harmful to aquatic life with long lasting effects.
Prevention	P261: Avoid breathing dust/fume/gas/mist/vapors/spray. P272: Contaminated work clothing should not be allowed out of the workplace. P280: Wear protective gloves/protective clothing/eye protection/face protection. P273: Avoid release to the environment.
Response	P302+P352: IF ON SKIN: Wash with plenty of water. P333+P313: If skin irritation or rash occurs: Get medical advice/attention. P362+P364: Take off contaminated clothing and wash it before reuse.
Disposal	P501: Dispose of contents/container to an approved facility in accordance with local, regional, national and international regulations.

Go to [regdocs.bd.com](http://regdocs.bd.com) to download the Safety Data Sheet.

## 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.

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## References

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## Patents and Trademarks

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