Miltenyi Biotec

CD34 antibodies

Analyte specific reagents (ASR)

Analytical and performance characteristics were not established

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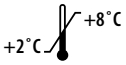
1. General information

Intended use
AC136 reacts with human CD34. The fluorescently labeled CD34 antigen can be detected by flow cytometry.

Reagents and contents
Monoclonal CD34 antibody conjugates

Product	Volume	REF
CD34-VioBlue	1 mL	170-081-079

2. Technical data and background information

Antigen	CD34
Clone	AC136
Isotype	Murine IgG2a, κ light chain
Alternative names of antigen	gp105-120, Mucosialin, My10
Purification	Affinity chromatography
Product formulation	Antibodies are supplied in buffer containing stabilizer and 0.05% sodium azide.
	Store at +2 °C to +8 °C (+36 °F to +46 °F).
	Store protected from light.
	The use-by date is indicated on the vial label.
	For in-use stability at +2 °C to +8 °C (+36 °F to +46 °F) storage temperature refer to the use-by date indicated on the vial label. Do not use the reagent after the use-by date.

Expression pattern
AC136 recognizes the human CD34, a class III epitope of the CD34 antigen. This epitope is different than the one recognized by the clone used in the CD34 MicroBead Kits. The CD34 antigen is a single chain transmembrane glycoprotein, expressed on human hematopoietic stem and progenitor cells, endothelial progenitor cells, vascular endothelial cells, embryonic fibroblasts, and some cells in fetal and adult nervous tissue. The antigen is absent on fully differentiated hematopoietic cells such as normal peripheral blood lymphocytes, monocytes, granulocytes, erythrocytes, and platelets. Clone AC136 has a similar specificity as the CD34 monoclonal antibody clone 8G12 (HPCA-2). CD34 antibodies can be used for studies of hematopoiesis and nonhematopoietic stem cells, phenotyping of hematopoietic stem cells, and studies on phenotyping of hematologic malignancies, endothelial cells, and endothelial progenitor cells (EPCs).

3. Warnings and precautions

- Interpretation of results is under the full responsibility of the user.
- For all handling, consideration of good laboratory practice (GLP) regulations is recommended.
- Use of the reagents is restricted to trained and qualified personnel only.
- All biological specimens and all materials that come into contact with blood and blood products must be treated as infectious material. Regulations for the treatment and disposal of infectious material must be followed.
- Reagents contain sodium azide (NaN_3), a chemical highly toxic in pure form. However, at product concentrations, it is not classified as hazardous. Sodium azide may react with lead and copper plumbing to form highly explosive buildups of metal azides. Upon disposal, flush with large volumes of water to prevent metal azide build-up in plumbing. Safety guidelines must be observed.
- For material required but not provided the manufacturers recommendations and safety regulations must be followed.
- Reagents should not be used if signs of leakage are observed. Use undamaged and sealed vials only.

4. Application

Reagents can be used for immunophenotyping by flow cytometry and other research applications.

5. General Use considerations

Principle of method:
The antibody reagent provided enables the identification of a specific target cell type by flow cytometry. This technique is based on fluorochrome conjugated antibodies binding to specific antigens expressed by the target cells. Incubating a sample of interest, e.g., peripheral blood mononuclear cells (PBMC), with the provided antibody reagent leads to fluorescent staining of the cell type expressing the specific target antigen. Analysis of the sample is performed in a flow cytometer at a single-cell level. The analysis is based on the detection of characteristic light emission patterns emitted by the fluorescently labeled antibody upon excitation with laser light. The collected data can be processed and analyzed using flow cytometry software.

Important notes:
Exposure of reagents to temperatures below +2 °C (+36 °F) and above +8 °C (+46 °F) and to light should be minimized during handling.

Sample requirements
- Reagents can be used for determination of antigen-positive cells in whole blood samples by flow cytometry.
- Each cell source can have different storage conditions and limitations that should be considered prior to collection and analysis. For collection of patient samples national legislation must be followed.
- Whole blood samples should be stained within 24 hours.
- Viability of the cells should be assessed and use of samples with at least 80% viable cells is suggested in order to minimize risk of erroneous results.

Quality control:
It is recommended to run regularly a control sample from a normal adult specimen or commercially available whole blood control as a quality control of the system.

6. Analytical specificity

Analytical specificity was evaluated by comparing clone AC136 to a relevant reference clone of the same specificity. Reactivity towards the same antigen was inferred from the antibody blocking capacity or the staining diagonal observed during co-incubation of AC136 with the reference clone. Measurements were performed using different donor samples. All measurements were within the acceptance criterion.

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7. Excitation and emission data of fluorochrome conjugates

Fluorochrome	Excitation laser (nm)	Excitation maximum (nm)	Emission maximum (nm)
VioBlue®	405	400	452
VioGreen™	405	388	520
VioBright™ FITC	488	496	522
FITC	488	495	520
PE	488 or 561	565	578
PE-Vio®615	488 or 561	565	619
PerCP	488	482	675
PerCP-Vio®700	488	482	676
PE-Vio®770	488 or 561	565	775
APC	561 or 635	652	660
APC-Vio®770	561 or 635	652	775

8. Limitations

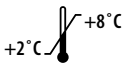
Use of monoclonal antibodies in patient treatment can interfere with recognition of target antigens by this reagent. This should be considered when analyzing samples from patients treated in this fashion. Miltenyi Biotec has not characterized the effect of the presence of therapeutic antibodies on the performance of this reagent.

Reagent data was collected typically with EDTA-treated blood. Reagent performance can be affected by the use of other anticoagulants.

9. References

1. De Paepe, M. E. *et al.* (2011) Alveolar epithelial cell therapy with human cord blood-derived hematopoietic progenitor cells. Am. J. Pathol. 178(3): 1329-1339.
2. Stull, R. A. *et al.* (2000) Simultaneous flow cytometric analyses of enhanced green and yellow fluorescent Cytometry 40: 126-134.
3. Vets, S. *et al.* (2012) Lens epithelium-derived growth factor/p75 qualifies as a target for HIV gene therapy in the NSG mouse model. Mol. Ther. 20(5): 908-917.
4. Bility, M. T. *et al.* (2012) Generation of a humanized mouse model with both human immune System and liver cells to model hepatitis C virus infection and liver immunopathogenesis. Nat. Protoc. 7(9): 1608-1617.
5. Metsuyanim, S. *et al.* (2009) Expression of stem cell markers in the human fetal kidney. PLoS One 4(68): e6709.
6. Lian, W. *et al.* (2014) Varying levels of 6-keto-prostaglandin F1a and thromboxane B2 in serum and endothelialization and hyperplasia in small-diameter grafts seeded with CD34+ bone marrow cells in canines. Exp Ther Med. 7(5): 1123-1129.
7. Liu, H. *et al.* (2013) Single-cell clones of liver cancer stem cells have the potential of differentiating into different types of tumor cells. Cell Death Dis 4: e857.

10. Glossary of symbols

	Manufacturer		Use-by date
	Order number		In-use stability
	Batch code		Temperature limit
	Consult instruction for use		Protect from sunlight
	Phone		Website