Miltenyi Biotec

# CD4 antibodies

## Analyte specific reagents (ASR)

Analytical and performance characteristics were not established

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## 1. General information

**Intended use**
REA623 reacts with human CD4. The fluorescently labeled CD4 antigen can be detected by flow cytometry.

**Reagents and contents**
Monoclonal CD4 antibody conjugates

| Product | Volume | REF |
|---|---|---|
| CD4-VioGreen | 1 mL | 170-081-084 |

## 2. Technical data and background information

| | |
|---|---|
| **Antigen** | CD4 |
| **Clone** | REA623 |
| **Isotype** | Recombinant human IgG1, κ light chain |
| **Alternative names of antigen** | L3T4, Leu-3, T4 |
| **Purification** | Affinity chromatography |
| **Product formulation** | Antibodies are supplied in buffer containing stabilizer and 0.05% sodium azide. |
| +2°C +8°C | 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**
REA623 recognizes the human CD4 antigen, a 55 kDa single-pass type I membrane protein, also known as T4/Leu-3. CD4 is highly expressed on T helper cells and at a lower level on monocytes and dendritic cells. It is involved in the recognition of MHC class II/peptide complexes by the TCR heterodimers and is the receptor for the human immunodeficiency virus (HIV). Additional information: Clone REA623 displays negligible binding to Fc receptors.

## 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 REA623 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 REA623 with the reference clone. Measurements were performed using different donor samples. All measurements were within the acceptance criterion.

33498/02 | Issued: 2020-03

## 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

Combinations of recombinant human IgG, κ light chain antibodies with anti-human IgG1 or anti-human Ig κ light chain reagents can generate misleading results.

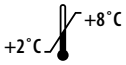
Use of monoclonal antibodies in patient treatment can interfere with recognition of target antigens by this reagent. This should be considered when analyzing samples from patients treated in this fashion. Miltenyi Biotec has not characterized the effect of the presence of therapeutic antibodies on the 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. Tebas, P. (2014) Gene editing of CCR5 in autologous CD4 T cells of persons infected with HIV. N. Engl. J. Med. 370 (10): 901 -910
2. Maddon, P. J. (1985) The isolation and nucleotide sequence of a cDNA encoding the T cell surface protein T4: a new member of the immunoglobulin gene family. Cell 42 (1): 93 -104
3. Barclay, A. N. (1993) CD4 and the immunoglobulin superfamily. Philos. Trans. R. Soc. Lond., B, Biol. Sci. 342 (1299): 7 -12

## 10. Glossary of symbols

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

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