

## APC/Cyanine7 Anti-Human CD49d Antibody

|                           |                                                    |
|---------------------------|----------------------------------------------------|
| <b>Catalog Number:</b>    | 114405, 114406                                     |
| <b>Size:</b>              | 25 tests, 100 tests                                |
| <b>Target Name:</b>       | CD49d, VLA-4 $\alpha$ , Integrin $\alpha$ 4, ITGA4 |
| <b>Regulatory Status:</b> | RUO                                                |

### PRODUCT DETAILS

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| <b>Clone:</b>                  | 9F10                                                                                                                                                                                                                                                                                                         |
| <b>Application:</b>            | Flow Cytometry                                                                                                                                                                                                                                                                                               |
| <b>Reactivity:</b>             | Human                                                                                                                                                                                                                                                                                                        |
| <b>Format:</b>                 | APC/Cyanine7                                                                                                                                                                                                                                                                                                 |
| <b>Isotype:</b>                | Mouse IgG1                                                                                                                                                                                                                                                                                                   |
| <b>Antibody Type:</b>          | Monoclonal                                                                                                                                                                                                                                                                                                   |
| <b>Formulation:</b>            | Phosphate-buffered solution, pH 7.2, containing 0.09% sodium azide and 0.2% (w/v) BSA                                                                                                                                                                                                                        |
| <b>Protein Concentration:</b>  | Supplied at a lot-specific concentration.                                                                                                                                                                                                                                                                    |
| <b>Storage &amp; Handling:</b> | The antibody solution should be stored undiluted between 2°C and 8°C, and protected from prolonged exposure to light. Do not freeze.                                                                                                                                                                         |
| <b>Recommended Usage:</b>      | For flow cytometric staining, it is recommended to use 5 $\mu$ L of this reagent per 0.5-1.0 million cells in a 100 $\mu$ L volume. Optimal reagent performance should be determined by titration for each specific application. APC/Cyanine7 has an excitation max at 650 nm and an emission max at 774 nm. |
| <b>Excitation Laser:</b>       | Red Laser (633 nm)                                                                                                                                                                                                                                                                                           |
| <b>Isotype Control:</b>        | 301405                                                                                                                                                                                                                                                                                                       |

### BACKGROUND INFORMATION

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CD49d, also known as integrin  $\alpha$ 4, is a cell surface adhesion molecule expressed on leukocytes including lymphocytes, monocytes, and eosinophils. It plays a central role in immune cell trafficking by mediating adhesion to vascular endothelium and facilitating transmigration into tissues during immune surveillance and inflammation. CD49d pairs with  $\beta$ 1 (CD29) or  $\beta$ 7 integrins to form the heterodimers  $\alpha$ 4 $\beta$ 1 (VLA-4) and  $\alpha$ 4 $\beta$ 7, each with distinct tissue-homing functions.

Structurally, CD49d is a type I transmembrane glycoprotein with a large extracellular domain responsible for ligand binding, a single-pass transmembrane region, and a  $\gamma$  cytoplasmic tail that links to intracellular signaling and cytoskeletal machinery. Its principal ligands include VCAM-1 (vascular cell adhesion molecule-1) and fibronectin for  $\alpha$ 4 $\beta$ 1, and MAdCAM-1 (mucosal addressin cell adhesion molecule-1) for  $\alpha$ 4 $\beta$ 7, enabling tissue-specific adhesion and migration.

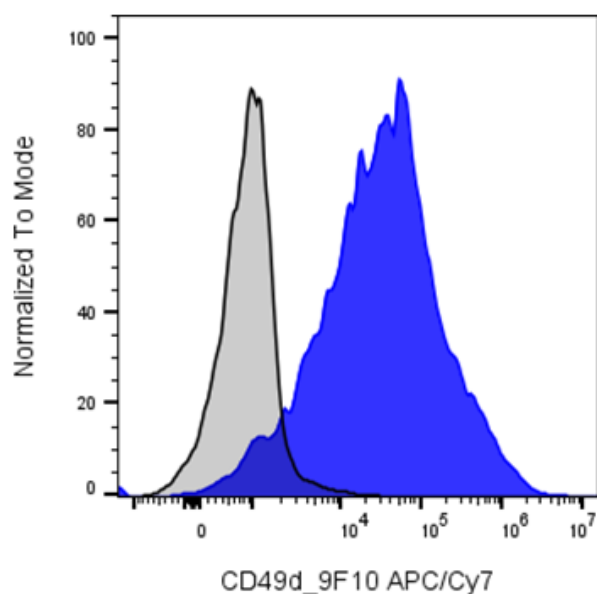
In disease, CD49d contributes to chronic inflammation and autoimmune disorders such as multiple sclerosis and inflammatory bowel disease by promoting leukocyte infiltration into target tissues. It is also implicated in cancer, particularly in leukemias, where

high CD49d expression correlates with enhanced survival and poor prognosis.

Therapeutically, CD49d is a validated target. Monoclonal antibodies such as natalizumab block  $\alpha 4$  integrins to reduce immune cell migration, providing clinical benefit in multiple sclerosis and Crohn's disease. Ongoing strategies aim to refine targeting while minimizing immunosuppression-related risks.

## PRODUCT DATA

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Human peripheral blood lymphocytes were stained with APC/Cyanine7 Anti-Human CD49d clone 9F10 (color-filled histogram) or an isotype control (gray histogram).

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