CD209 (DC-SIGN) Purified
PN A07406 – 0.2 mg – Liquid - 1mL – Clone AZND1

For Research Use Only. Not For Use in Diagnostic Procedures

SPECIFICITY

1. ANTIGEN DESCRIPTION

CD209, alias Dendritic Cell-Specific ICAM-3-Grabbing Non-integrin (DC-SIGN) (1), is a 44 kDa type II transmembrane, C-type lectin with 1 single carbohydrate recognition domain (CRD). The sequencing of CD209 revealed that DC-SIGN is identical to the HIV-1 envelope glycoprotein (gp120) binding protein, described in 1992 (3). Highly specific of dendritic cells (DCs), CD209 plays a key role in the biology of DCs, as a receptor for the following ligands, associated to key functions regulating the immune response (see below, mAb AZND1 properties, and also Ref. 2 for a review):

- ICAM-3: initiation of DC-T immunological synapse;
- ICAM-2: transendothelial DC migration;
- Gp120: capture of HIV-1; trans-presentation of HIV-1 to CD4+ T-cells;
- ICAM-3-Grabbing Non-integrin (DC-SIGN) (1) is a 44 kDa type II transmembrane, C-type lectin with 1 single carbohydrate recognition domain (CRD). The sequencing of CD209 revealed that DC-SIGN is identical to the HIV-1 envelope glycoprotein (gp120) binding protein, described in 1992 (3). Highly specific of dendritic cells (DCs), CD209 plays a key role in the biology of DCs, as a receptor for the following ligands, associated to key functions regulating the immune response (see below, mAb AZND1 properties, and also Ref. 2 for a review):

2. CELLULAR DISTRIBUTION OF CD209:

IN VIVO:

Immature DCs in peripheral tissues (1), except Langerhans cells and their Langerhans Cell Histiocytosis (LCH) counterpart (5) DCS in lymphoid tissues (1), decidual macrophages, Hofbauer cells in placenta (6), alveolar macrophages (7). DC2 or plasmacytoid DCs (BDCA-2+/CD123+) in allergic nasal polyps (8).

EX Vivo, On Peripheral Blood DCs:

In one study using a polyclonal antibody to CD209, CD209 could not be detected on lineage (CD3, CD20, CD56)-negative and HLA-DR-positive cells. However, in the same study, CD209 was detected on a small fraction (4 –14%) of BDCA-2-positive cells, whereas BDCA-3-positive cells were uniformly CD209-negative (8). In other studies (9, 10) CD209 was found positive on a fraction of cells obtained from PBMCs depleted with CD3, CD20 and CD56, prior to positive sorting with a monoclonal antibody (mAb) to CD209. This CD209-positive fraction consisted into 2 subsets, one CD14-positive, and the other, CD14-negative, the total CD209-positive fraction representing 0.02 – 0.04% PBMCs. These findings are consistent with those reported in Ref. 10, where RT-PCR experiments revealed that CD209 mRNA was detected in fresh or cultured lineage-negative / HLA-DR-positive / CD11c-positive (myeloid) DCs, but not in lineage-negative / HLA-DR-positive / CD11c-negative (plasmacytoid) DCs.

IN VITRO:

- Monocyte-derived DCs (MDDCs) (1):
  - CD209 is totally absent from monocytes (1, 8);
  - CD209 expression increases on developing DCs from day 1 of culture in the presence of GM-CSF+IL-4, up to day 7 (1);
  - CD209 expression can be induced by two single cytokines: IL-4 (11), and IL-13 independently, but not by GM-CSF, IL-2, IL-6, IL-12 independently.

- Monocyte-derived macrophages (MDMs) :
  - CD209 is strictly expressed by MDMs cultured in the presence of IL-13 (8)

III - ANTIBODY DESCRIPTION:

The mAb AZND1 has been assigned to the CD209 cluster of differentiation during the 7th International Workshop on Human Leucocyte Differentiation Antigens in Harrogate, England, in 2000 (WS Code: 70875) (13). The generation of mAb AZND1 permitted the identification and characterization of CD209 from many standpoints:

- FLOW CYTOMETRIC:
  - Analysis of CD209-expressing cells (1, 9, 14 – 17);

- IMMUNOHISTOCHEMICAL:
  - Analysis of CD209-positive cells on frozen tissue sections (1, 9, 15);

- IMMUNOPRECIPITATION:
  - Of CD209 antigen (1);

- CELL-SORTING:
  - Of CD209-positive cells using Coulter® EPICS® Elite™ (14).

INVESTIGATION:

Of the functions of CD209, due to the functional properties of AZND1:

- Blocks CD209-ICAM-3 interaction (1, 9):
  - Inhibits DC-T clustering (1);
  - Blocks CD209-gp120 interaction:
    - Inhibits HIV-1 gp120 binding to DCs and CD209-transfectants (15);
    - Inhibits HIV transmission to respond T-cells (14).

- Blocks CD209-ICAM-2 interaction:
  - Inhibits the adhesion of CD209-positive cells to ICAM-2-positive surfaces, such as endothelium (9).

- Ligand (including AZND1) binding on DCs induces
  - At 37°C, the rapid internalization of CD209-ligand complexes routed to endosomal / lysosomal compart-ments, prior to processing and subsequent presentation to T cells (18).

CROSS-REACTIVITY:

Of AZND1 on Macaque and Chimpanzee DCs (19)

- Detects a CD209 homologue in non-human primates;
- Demonstrates the functions of simian CD209

Similar to those of human CD209, confirmed by other studies (20 – 22).

REAGENT

Unconjugated antibody CD209 (DC-SIGN) PNA07406 – 0.2mg – Liquid - 1mL

Clone
AZND1

Isotype
IgG1, mouse

Immunogen
Human monocyte-derived DCs

Hybridoma
SP2/0 x Balb/c

Ig Chain
IgG1

Species
Mouse

Source
Ascites fluid

Purification
Ion exchange or affinity chromatography

APPLICATION

Indirect Flow Cytometry; Immunohistochemistry; Immunochemistry; Cell isolation.

Beckman Coulter
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**SELECTED RESEARCH REFERENCES**


18. Engering, A., Geijtenbeek, T.B.H., van Vliet S.J., Wijers, M., van...


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MANUFACTURED BY:
Immunotech SAS,
A Beckman Coulter Company
130, avenue de Lattre de Tassigny
B.P. 177 - 13276 Marseille Cedex 9
France

For additional information in the USA, call 800-526-7694.
Outside the USA, contact your local Beckman Coulter representative.

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Printed in France.
Made in France

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