SANTA CRUZ BIOTECHNOLOGY, INC.

IgD (H6/31): sc-53081

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

Immunoglobulins are four-chain, Y-shaped, monomeric structures comprised of two identical heavy chains and two identical light chains held together through interchain disulfide bonds. The chains form two domains, the Fab (antigen binding) fragment and the Fc (constant) fragment. Immunoglobulin D (IgD) exists as a monomer with δ heavy chains and either κ or λ light chains. It plays a biological role as a transmembrane receptor molecule, co-expressed with IgM on the surface of mature/naive B cells. In particular, it is found on spleen B cell surfaces. Compared to IgM, IgD exists in much lower numbers and is not expressed on immature B cells. IgD surface expression on B cells is regulated in part by IL-27. In mice, the inhibition of this immunoglobulin isotype does not cause a significant change to the immune system.

REFERENCES

1. Takayasu, T., Takahashi, N. and Shinoda, T. 1980. Amino acid sequence and location of the three glycopeptides in the Fc region of human immunoglobulin D. Biochem. Biophys. Res. Commun. 97: 635-641.
2. Lin, L.C. and Putnam, F.W. 1981. Primary structure of the Fc region of human immunoglobulin D: implications for evolutionary origin and biological function. Proc. Natl. Acad. Sci. USA 78: 504-508.
3. Shinoda, T., Takahashi, N., Takayasu, T., Okuyama, T. and Shimizu, A. 1981. Complete amino acid sequence of the Fc region of a human δ chain. Proc. Natl. Acad. Sci. USA 78: 785-789.
4. Putnam, F.W., Takahashi, N., Tetaert, D., Debuire, B. and Lin, L.C. 1981. Amino acid sequence of the first constant region domain and the hinge region of the δ heavy chain of human IgD. Proc. Natl. Acad. Sci. USA 78: 6168-6172.
5. Takayasu, T., Suzuki, S., Kametani, F., Takahashi, N., Shinoda, T., Okuyama, T. and Munekata, E. 1982. Amino acid sequence of galactosamine-containing glycopeptides in the hinge region of a human immunoglobulin D. Biochem. Biophys. Res. Commun. 105: 1066-1071.
6. Naiem, M., Gerdes, J., Abdulaziz, Z., Sunderland, C., Allington, M., Stein, H. and Mason, D. 1982. The value of immunohistological screening in the production of monoclonal antibodies. J. Immunol. Methods 50: 145-160.
7. Ohta, Y. and Flajnik, M. 2006. IgD, like IgM, is a primordial immunoglobulin class perpetuated in most jawed vertebrates. Proc. Natl. Acad. Sci. USA 103: 10723-10728.
8. Zhao, Y., Pan-Hammarström, Q., Yu, S., Wertz, N., Zhang, X., Li, N., Butler, J.E. and Hammarström, L. 2006. Identification of IgF, a hinge-region-containing Ig class, and IgD in *Xenopus tropicalis*. Proc. Natl. Acad. Sci. USA 103: 12087-12092.
9. Boumendjel, A., Tawk, L., Malefijt Rde, W., Boulay, V., Yssel, H. and Pène, J. 2006. IL-27 induces the production of IgG_1 by human B cells. Eur. Cytokine Netw. 17: 281-289.

STORAGE

Store at 4° C, **DO NOT FREEZE**. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

CHROMOSOMAL LOCATION

Genetic locus: Ighd (mouse) mapping to 12 F1.

SOURCE

IgD (H6/31) is a mouse monoclonal antibody raised against IgD of mouse origin.

PRODUCT

Each vial contains 200 µg IgM kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

IgD (H6/31) is available conjugated to either phycoerythrin (sc-53081 PE) or fluorescein (sc-53081 FITC), 200 µg/ml, for IF, IHC(P) and FCM.

APPLICATIONS

IgD (H6/31) is recommended for detection of IgD-like molecules in mice with IgB haplotype and high proportion of mature lymphoid cells, particularly on cells from Peyer's patches of mouse and rat origin by immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and flow cytometry (1 µg per 1 x 10^6 cells).

Molecular Weight of IgD heavy (δ) chain: 44-80 kDa.

Molecular Weight of IgD light (κ/λ) chain: 21-25 kDa.

RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Immunofluorescence: use m-IgGκ BP-FITC: sc-516140 or m-IgGκ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

RESEARCH USE

For research use only, not for use in diagnostic procedures.

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.