

INTRODUCTION

Immunoglobulin D (IgD) is an antibody isotype that is found primarily on mature B-cells as part of the B-cell receptor (BCR) complex. Clustering of the BCR due to antigen binding leads to activation of B-cells that can result in a number of outcomes including proliferation, differentiation, and tolerance.

The ability to activate B-lymphocytes using polyclonal antisera recognizing IgD is useful for the study of B-cell function (Finkelman, et al., 1985; Nguyen, et al., 2014). Anti-IgD is particularly suited for this application because soluble IgD is present in extremely low levels in serum (<0.25% of total immunoglobulin) and will not interfere with B-cell activation in a whole blood-based or in vivo setting. (In contrast, high levels of circulating IgM will typically block B-cell activation by anti-IgM in whole blood.) Such a methodology can be used to rapidly test the efficacy of B-cell inhibitory agents in a cellular, ex vivo, or in vivo context (Coffey, et al., 2012).

FORMAT

Soluble anti-mouse IgD, 1 ml per vial

HOST

Goat

REACTIVITY

Mouse immunoglobulin C δ chain

BUFFER

None

PRESERVATIVE

Preservative-free for in vivo application, 0.2 μ m sterile-filtered

STORAGE

Short term at 2- 8°C. For long term storage, -80°C is recommended. Avoid multiple freeze-thaw cycles. Should be kept sterile. Can be re-filtered if necessary.

EXPIRATION

See vial label

International

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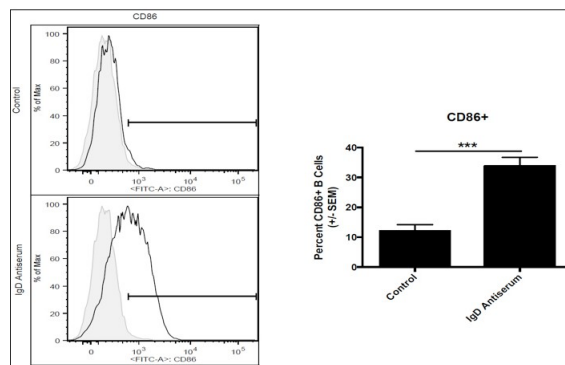
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SUGGESTED USAGE

IgD cross-linking on B cells is an ideal method for the assessment of acute polyclonal B cell activation across multiple strains of mice. Following anti-mouse IgD injection (100µl/mouse, i.v.), peripheral B cells are rapidly activated as evidenced by up-regulation of CD86 and CD69. Activated B cells will secrete effector cytokines (IL-4) and acquire effector function (secretion of IgE antibodies) within 5-7 days. Anti-mouse IgD can also be used to induce functional B cells in vitro. This model system is ideal for specific examination of key pathways and players in the functional activation of peripheral B cells in vivo.

RESULT

B cells in the blood of BALB/c mice were gated on CD19 and B220 dual expression using flow cytometry. B cell activation was determined by up-regulation of activation marker CD86. A greater than 3-fold increase in the percent of CD86+ cells was observed within 3 hours of anti-IgD antiserum injection.



REFERENCES

Finkelman, F., Smith, J., Villacreses, N., & Metcalf, E. (1985). Polyclonal activation of the murine immune system by an antibody to IgD. VI. Influence of doses of goat anti-mouse delta chain and normal goat IgG on B lymphocyte proliferation and differentiation. *Eur J Immunol.*, 15(4), 315-320.

Nguyen, T., & Morris J. (2014). Signals from activation of B-cell receptor with anti-IgD can override the stimulatory effects of excess BAFF on mature B cells in vivo. *Immunology Lett.*, 161(1), 157-164.

Coffey, G., DeGuzman, F., Inagaki, M., Pak, Y., Delaney, S., Ives, D., Betz, A., Jia, Z., Pandey, A., Baker, D., Hollenbach, S., Phillips, D., & Sinha, U. (2012). Specific Inhibition of Spleen Tyrosine Kinase Suppresses Leukocyte Immune Function and Inflammation in Animal Models of Rheumatoid Arthritis. *J. Pharm. and Exp. Therapeutics.*, 340(2), 350-359.

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