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B7-1/CD80 ELISA Kit, Mouse

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Product Sheet CL0708

Description

BACKGROUND B7-1 and B7-2 are related immunoglobulin supergene family members that are expressed by multiple cell types involved in antigen presentation. Both B7-1 and B7-2 are constitutively expressed on dendritic cells and are upregulated on monocytes, macrophages, B cells, and T cells following activation.¹ The upregulation on cells activated by various stimuli differs in terms of both the kinetics and density of expression of B7-1 and B7-2. B cells and monocytes, for example, upregulate B7-2 expression within 24 hr following activation with LPS, whereas B7-1 can only be detected 48 hr after activation, with the maximal cell surface expression being much less than observed with B7-2.

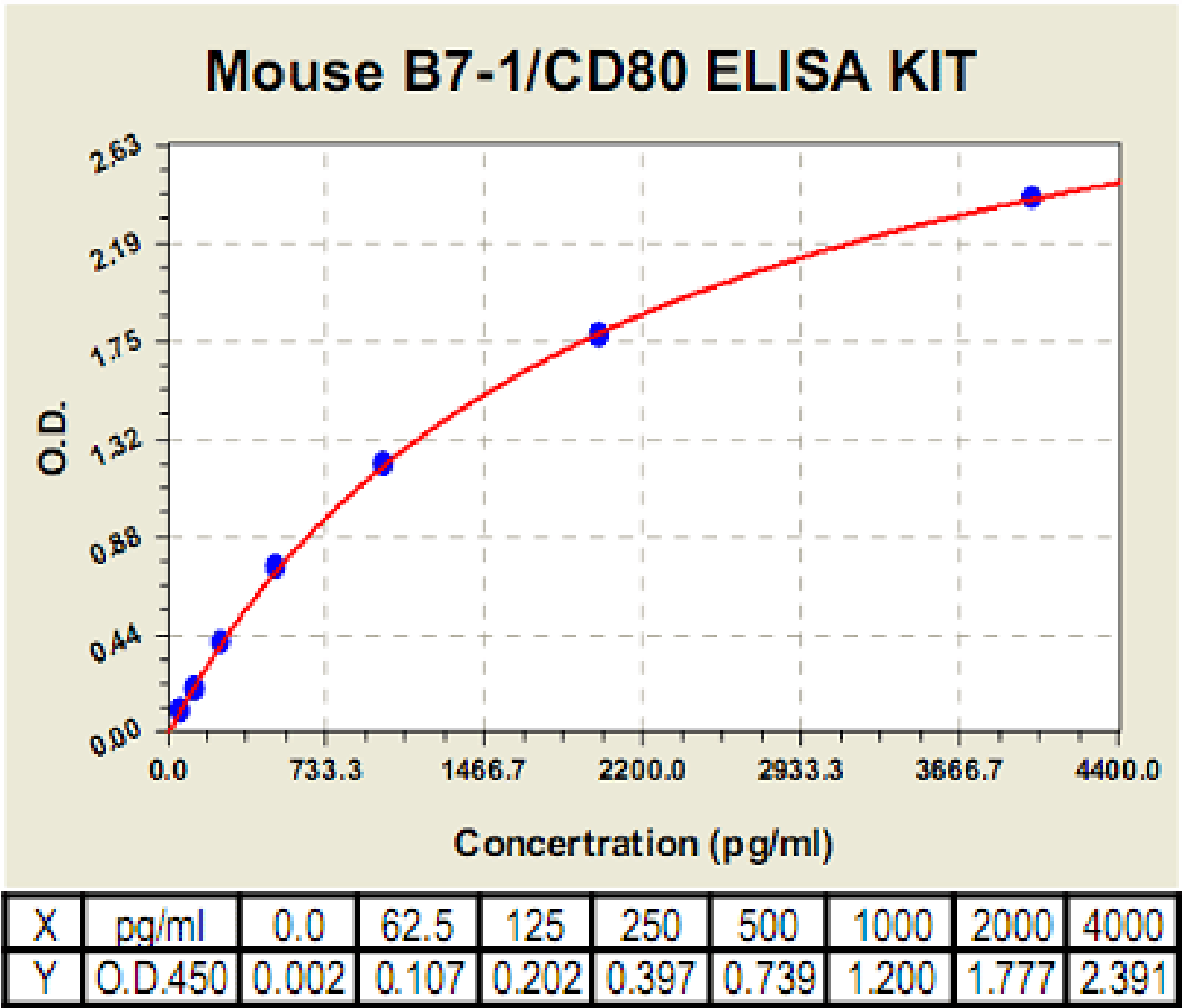
Generation of an effective immune response by T cells requires at least two signals from antigen-presenting cells: one mediated by specific antigen bound to MHC molecules and a second antigen-independent signal mediated by costimulatory ligands. The primary costimulatory receptor expressed on T cells is CD28. Interaction of CD28 with either of its ligands, B7-1 or B7-2, results in enhanced T cell proliferation and cytokine secretion. Interactions of either B7-1 or B7-2 with CTLA-4, a homolog of CD28 expressed on T cells, results in inhibition of T cell responses. A third costimulatory receptor, ICOS, was also identified that is a close structural homolog of CD28 and CTLA-4. ICOS is induced on activated T cells and can costimulate T cell proliferation and a different spectrum of T cell cytokine production, but it does not appear to act through binding to B7-1 or B7-2. Additionally, PD-1 is an inhibitory receptor, with two B7-like ligands.² Furthermore, The distinct functions for B7-1 and B7-2 may be involved in their role in TH0, TH1, or TH2 differentiation. However, other studies suggests that B7-1 and B7-2 determine the magnitude of costimulatory signals rather than the outcome of TH subset differentiation. A third possibility is that, rather than having distinct CD28-dependent costimulatory roles, the key functional differences concern the strength and/or mode of binding of B7-2 and B7-1 to CD28 and CTLA-4. Interestingly, it was reported that Adenovirus serotype 3 utilizes B7-1 and B7-2 as cellular attachment receptors, which suggests a mechanism whereby viral exploitation of these proteins as receptors may achieve both goals of cellular entry and evading the immune system.³

REFERENCES

1. Lenschow, D.J. et al: Ann. Rev. Immunol. 14:233-58, 1996

2. Carreno, B.M. & Collins, M.: Ann. Rev. Immunol. 20:29-53, 2002
3. Short, J.J. et al: Virol. 322:349-59, 2004

Products are for research use only. They are not intended for human, animal, or diagnostic applications.



[1]
(Click to Enlarge) **Mouse B7-1/Cluster of Differentiation 80 (B7-1) Standard Curve:** Using the B7-1 ELISA Kit, O.D. data was graphed against B7-1 protein concentration. The TMB reaction was incubated at 37°C for 30 min.

Details

Cat.No.: CL0708
Target Protein Species: Mouse
Range: 62.5pg/ml-4000pg/ml

Specificity: No detectable cross-reactivity with any other cytokine.

Storage: Store at 4°C. Use within 6 months.

ELISA Kits are based on standard sandwich enzyme-linked immunosorbent assay technology. Freshly prepared standards, samples, and solutions are recommended for best results.

Products

Resources/Documents

[Product Sheet CL0708](#) ^[2]

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