

# Recombinant Mouse Interleukin-4 (IL-4)

Publication Number MAN0004195








Rev. 2.00







<b>Catalog Number:</b>	PMC0045	PMC0046	PMC0043
<b>Quantity:</b>	10 µg	25 µg	1 mg
<b>Lot Number:</b>	See product label.		
<b>Molecular Weight:</b>	13.5 kDa (120 amino acid residues)		
<b>Purity:</b>	>95% as determined by SDS-PAGE and RP-HPLC analyses.		
<b>Biological Activity:</b>	ED <sub>50</sub> ≤2 ng/mL (corresponding to a specific activity of ≥5 × 10 <sup>5</sup> units/mg), determined by measuring the dose-dependent proliferation of murine HT-2 cells. The optimal concentration for each specific application should be determined by an initial dose-response assay.		
<b>Formulation:</b>	Lyophilized from a concentrated (1 mg/mL) solution in 10 mM Na-Citrate, pH 3.0.		
<b>Sterility:</b>	Sterile filtered prior to lyophilization.		
<b>Production:</b>	Recombinant mouse IL-4 is produced in <i>E. coli</i> and purified via sequential chromatography.		
<b>Reconstitution Recommendation:</b>	We recommend that this vial be briefly centrifuged prior to opening to bring the contents to the bottom. Lyophilized mIL-4 should be reconstituted in sterile, deionized water to a concentration of 0.1–1.0 mg/mL to regain full activity. For long term storage, it is recommended to add a carrier protein, such as 0.1% HSA or BSA		
<b>Suggested Working Dilutions:</b>	The optimal concentration should be determined for each specific application.		
<b>Storage:</b>	This lyophilized preparation is stable at room temperature for 3 weeks, but should be stored desiccated below -18°C. Upon reconstitution, the preparation is stable at 4°C for up to 1 week, but should be stored below -18°C for long term storage. Avoid repeated freeze/thaw cycles.		
<b>Expiration Date:</b>	See product label.		
<b>References:</b>	<p>Bockenstedt, L.K., I. Kang, C. Chang, D. Persing, A. Hayday, and S.W. Barthold (2001) CD4(+) T helper 1 cells facilitate regression of murine Lyme carditis. <i>Infection and Immunity</i> 69(9):5264–5269.</p> <p>Bryson, J.S., C.D. Jennings, D.M. Lowery, S.L. Carlson, D.L. Pflugh, B.E. Caywood, and A.M. Kaplan (1999) Rejection of an MHC class II negative tumor following induction of murine syngeneic graft-versus-host disease. <i>Bone Marrow Transplant.</i> 23(4):363–372.</p> <p>Burgess, W., K. Jesse, Q.S. Tang, S.R. Broussard, R. Dantzer and K.W. Kelley (2003) Insulin-like growth factor-I and the cytokines IL-3 and IL-4 promote survival of progenitor myeloid cells by different mechanisms. <i>J. Neuroimmunol.</i> 135(1-2):82–90.</p> <p>Callard, R., and A. Gearing (1994). <i>The Cytokines and Their Receptors: IL-4</i>. Academic Press Limited. San Diego, CA. pp. 53–58.</p> <p>Chen, X.P., X.H. Ding, and R.A. Daynes (2000) Ganglioside control over IL-4 priming and cytokine production in activated T cells. <i>Cytokine</i> 12(7):972–985.</p> <p>Gallucci, S., M. Lolkema, and P. Matzinger (1999) Natural adjuvants: Endogenous activators of dendritic cells. <i>Nature Medicine</i> 5(11):1249–1255.</p> <p>Giese, N.A., L. Gabriele, T.M. Doherty, D.M. Klinman, L. Tadesse-Heath, C. Contursi, S.L. Epstein, and H.C. Morse 3<sup>rd</sup> (1997) Interferon (IFN) consensus sequence-binding protein, a transcription factor of the IFN regulatory factor family, regulates immune responses in vivo through control of interleukin 12 expression. <i>J. Exp. Med.</i> 186(9):1535–1546.</p> <p>Hoffman, R.A., R.S. Mahidhara, A.S. Wolf-Johnston, L. Lu, A.W. Thomson, and R.L. Simmons (2002) Differential modulation of CD4 and CD8 T-cell proliferation by induction of nitric oxide synthesis in antigen presenting cells. <i>Transplantation</i> 74(6):836–845.</p> <p>Infante-Duarte, C., H.F. Horton, M.C. Byrne, and T. Kamradt (2000) Microbial lipopeptides induce the production of IL-17 in Th cells. <i>J. Immunol.</i> 165(11):6107–6115.</p> <p>Keane-Myers, A. and S.P. Nickell (1995) Role of IL-4 and IFN-γ in modulation of immunity to <i>Borrelia burgdorferi</i> in mice. <i>J. Immunol.</i> 155(4):2020–2028.</p>		

<b>References,</b> Continued:	<p>Kelly, E., A. Won, Y. Refaeli, and L. Van Parijs (2002) IL-2 and related cytokines can promote T cell survival by activating AKT. <i>J. Immunol.</i> 168(2):597–603.</p> <p>Löhning, M., A. Stroehmann, A. Coyle, J. Grogan, S. Lin, J.-C. Gutierrez-Ramos, D. Levinson, A. Radbruch, and T. Kamradt (1998) T1/ST2 is preferentially expressed on murine Th2 cells, independent of interleukin 4, interleukin 5, and interleukin 10, and important for Th2 effector function. <i>Proc. Nat'l. Acad. Sci.</i> 95(12):6930–6935.</p> <p>Meisel, C., K. Bonhagen, M. Löhning, A.J. Coyle, J.C. Gutierrez-Ramos, A. Radbruch, and T. Kamradt (2001) Regulation and function of T1/ST2 expression on CD4(+) T cells: Induction of type 2 cytokine production by T1/ST2 cross-linking. <i>J. Immunol.</i> 166(5):3143–3150.</p> <p>Mirmonsef, P., C.P. Shelburne, C.F. Yeatman, H.J. Chong, and J.J. Ryan (1999) Inhibition of Kit expression by IL-4 and IL-10 in murine mast cells: Role of STAT6 and phosphatidylinositol 3'-kinase. <i>J. Immunol.</i> 163(5):2530–2539.</p> <p>Serreze, D.V., M.A. Pierce, C.M. Post, H.D. Chapman, H. Savage, R.T. Bronson, P.B. Rothman and G.A. Cox (2003) Paralytic autoimmune myositis develops in nonobese diabetic mice made Th1 cytokine-deficient by expression of an IFN-gamma receptor beta-chain transgene. <i>J. Immunol.</i> 170(5):2742–2749.</p> <p>Shelburne, C.P., and J.J. Ryan (2000) Combined stimulation with the T helper cell type 2 cytokines interleukin (IL)-4 and IL-10 induces mouse mast cell apoptosis. <i>J. Exp. Med.</i> 192(8):1093–1103.</p> <p>Venkataraman, C., G. Schaefer, and U. Schindler (2000) Cutting edge: Chandra, a novel four-transmembrane domain protein differentially expressed in helper type 1 lymphocytes. <i>J. Immunol.</i> 165(2):632–636.</p> <p>Wang, D., J. Zamorano, A.D. Keegan, and M. Boothby (1997) HMG-I(Y) phosphorylation status as a nuclear target regulated through insulin receptor substrate-1 and the I4R motif of the interleukin-4 receptor. <i>J. Biol. Chem.</i> 272(40):25083–25090.</p> <p>Willis, M.S, L.W. Klassen, D.J. Tuma, M.F. Sorrell, and G.M. Thiele (2002) In vitro exposure to malondialdehyde-acetaldehyde adducted protein inhibits cell proliferation and viability. <i>Alcoholism-Clinical and Experimental Research</i> 26 (2):158–164.</p> <p>Yeatman, C.F., S.M. Jacobs-Helber, P. Mirmonsef, S.R. Gillespie, L.A. Bouton, H.A. Collins, S.T. Sawyer, C.P. Shelburne, and J.J. Ryan (2000) Combined stimulation with the T helper cell type 2 cytokines interleukin (IL)-4 and IL-10 induces mouse mast cell apoptosis. <i>J. Exp. Med.</i> 192(8):1093–1103.</p>
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### Explanation of Symbols

The symbols present on the product label are explained below:

Symbol	Description
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	Use by
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	Without, does not contain
	Protect from light
	Directs the user to consult instructions for use (IFU), accompanying the product.

Symbol	Description
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