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1: [J Viral Hepat.](#) 2001 May;8(3):194-201.



In vitro effect of thymosin-alpha1 and interferon-alpha on Th1 and Th2 cytokine synthesis in patients with chronic hepatitis C.

[Andreone P](#), [Cursaro C](#), [Gramenzi A](#), [Margotti M](#), [Ferri E](#), [Talarico S](#), [Biselli M](#), [Felline F](#), [Tuthill C](#), [Martins E](#), [Gasbarrini G](#), [Bernardi M](#).

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Current evidence suggests that increased expression of Th1-associated cytokines is important for immune-mediated eradication of hepatitis C infection, while an increase in Th2-associated cytokines is associated with persistence of infection. In this study we evaluated the effects of thymosin-alpha1 (TA1), a naturally occurring thymic peptide, and interferon-alpha (IFN-alpha) on cytokine production in peripheral blood mononuclear cells from untreated patients with chronic hepatitis C. We examined the effect of incubation with TA1, IFN-alpha, or both, on production of Th1-associated cytokines (IL-2, IFN-gamma), Th2-associated cytokines (IL-4, IL-10), and synthesis of the antiviral protein 2',5'-oligoadenylate synthetase. TA1 treatment induced a significant increase in production of IL-2 and 2',5'-oligoadenylate synthetase. Smaller increases were also seen after treatment with IFN-alpha, while incubation with TA1 and IFN-alpha together led to an additive or synergistic effect. Incubation with TA1 resulted in a decrease in IL-4 and IL-10, whereas IFN-alpha increased these cytokines. The addition of TA1 to IFN-alpha significantly reversed this IFN-alpha-induced increase. Hence, TA1 treatment could benefit patients with hepatitis C infection by increasing the Th1-type response, fundamental for sustained clearance of hepatitis C; and by decreasing the Th2-type response, associated with persistence of viraemia.

PMID: 11380797 [PubMed - indexed for MEDLINE]

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