

## Immunomodulation by Immuropeptides and Autoantibodies in Aging, Autoimmunity, and Infection

1. J J MARCHALONIS<sup>1,\*</sup>,
2. S F SCHLUTER<sup>1</sup>,
3. R T SEPULVEDA<sup>1</sup>,
4. R R WATSON<sup>2</sup>,
5. D F LARSON<sup>3</sup>

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### Author Information

Department of Microbiology and Immunology, College of Medicine, University of Arizona, Tucson, Arizona 85724, USA

<sup>2</sup> Department of Health Promotion Sciences, Mel and Enid Zuckerman College of Public Health, Tucson, Arizona 85724, USA

Carver Heart Center and Department of Surgery, College of Medicine, University of Arizona, Tucson, Arizona 85724, USA

The operation of the immune system is a complex orchestration of specific self and non-self-recognition capacities mediated by cells of the innate system acting in coordination with T and B lymphocytes in a series of processes modulated by cytokines. We provide evidence for a natural immunomodulatory system involving autoantibodies directed against a controlling segment of T cell receptor V $\beta$  chains that downregulate production of stimulatory cytokines

balanced by the peptides which in turn upregulate inflammatory activities mediated by TH1-type helper cells. TCR V $\beta$ -derived peptides effective in retrovirally induced immunosuppression could also reverse the effects of immunosenescence in aged mice by restoring the balance of TH1- and TH2-type immunity and the resistance of the animals to cardiac pathology caused by infection with coxsackievirus. An unexpected finding was an adaptive role of the T cells from peptide-treated mice in remodeling damaged hearts by increasing net collagen synthesis by cardiac fibroblasts.