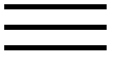


of canine regulatory T cell populations, serum interleukin-10 and allergen-specific IgE concentrations in healthy control dogs and canine atopic dermatitis patients.

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## Veterinary Immunology and Immunopathology

Volume 123, Issues 3&#x2014;4, 15 June 2008, Pages 337-344

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Quantitation of canine regulatory T cell populations, serum interleukin-10 and allergen-specific IgE concentrations in healthy control dogs and canine atopic dermatitis patients receiving allergen-specific immunotherapy

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<https://doi.org/10.1016/j.vetimm.2008.02.008>

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### Abstract

Canine atopic dermatitis (AD) shares many clinical and immunological similarities with human AD. Regulatory T cells (Treg) are a distinct lineage of T lymphocytes with various immunosuppressive properties including the down-regulation of allergic inflammation associated with IgE production. Antigen-induced Treg typically regulate immune homeostasis via productions of cytokines such as interleukin-10. Given the immunological similarities with human AD, it is likely that Tregs and the cytokines they produce play an important role in diseases of dogs as well. A cross-reactive FoxP3

antibody was used to identify a subset of CD4<sup>+</sup> T cells in the blood of both healthy dogs and dogs with atopic dermatitis undergoing immunotherapy over a year period. There was no significant difference in the Treg percentage over time in the healthy dogs. The immunotherapy group showed a significant increase in Treg percentage at 6, 9, and 12 months when compared to the healthy dogs. For the immunotherapy group, the mean Treg percentage at the beginning of the study was  $4.94 \pm 0.71$  and  $10.86 \pm 2.73$  at the completion.

A commercially available ELISA kit was also used to quantitate the concentration of IL-10 in the serum of the same subsets of dogs. There was no significant difference in the IL-10 concentrations over time in the healthy dogs. The immunotherapy group showed a significant increase in serum IL-10 concentrations at 6, 9, and 12 months when compared to the control group. The mean serum IL-10 concentration at the initiation of immunotherapy was  $20.40 \pm 3.52 \text{ ng L}^{-1}$  and  $37.26 \pm 15.26 \text{ ng L}^{-1}$  at the completion of the study. The immunotherapy group also showed a significant decrease in serum IgE levels over the 1-year treatment period for specific allergens identified during ASIT. We conclude from these studies that similar to humans undergoing immunotherapy, increasing Treg populations likely play a significant role in the success of this particular type of therapy for atopic dermatitis and other allergic conditions.



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## Keywords

Atopic dermatitis; Immunotherapy; Lymphocytes; Cytokine

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