

# Immunological Approach to Treatment of Atopic Dermatitis in Dogs: Preliminary Clinical Evaluation of Immunization with T-Cell Receptor Peptides (TCR Vax™)

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## **Abstract:**

The underlying immunopathology of canine atopic dermatitis (AD) may include T helper (Th) lymphocyte imbalance, specifically Th2 dominance which amplifies Th2 cytokines and IgE mediated responses. In later stages of AD, Th1 cytokines may also be increased, perhaps from trauma and/or skin infections. This pilot clinical study was conducted to determine whether immunization with T-cell receptor peptides corresponding to the human V $\beta$  complimentary determining region 1 (TCR V $\beta$ 1), shown in animal models to restore Th1/Th2 balance, shows therapeutic promise in dogs with AD refractory to conventional treatments. Two TCR V $\beta$ 1 immunizations (TCR Vax™) administered to 10 canine atopic patients with severe, stable, non-seasonal AD and considered poor responders to conventional therapy resulted in improved veterinarian-assigned subjective disease severity scores over the 90 day period. Owner-assigned scores also improved measurably and were correlated with veterinarian-assigned scores. Measurements of detectable peripheral serum cytokines (GM-CSF, KC, IL-2, IL-6, IL-7, IL-8, IL-15, IL-18, and MCP-1) revealed all to decrease except GM-CSF, which remained unchanged. These results indicate that TCR Vax™ may clinically effect AD by Th2 lymphocyte modulation. In addition, TCR Vax™ appears to modify cytokine profiles, some of which may increase in advanced stages of AD. These data are provocative and encourage further immunopharmacologic investigation of TCR Vax™ as an immunotherapeutic approach to canine AD.

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