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**D e r m a t o l o g y  
D i s c o u r s e**

## The Allergy Testing Debate-Serology vs. Intradermal

### Case Study:

BJ is a 5 year old neutered male golden retriever with a history of severe nonseasonal pruritus/itching and recurrent skin and ear infections since 1 year of age. A blood allergy test was performed which revealed reactions to several foods, grasses, and trees. BJ's diet was changed to an over-the-counter chicken and rice formula recommended by the allergy test company, however his pruritus was unchanged after two months. Allergy hyposensitization, based on the blood test, was begun, however after nine months of therapy BJ's symptoms were unchanged and he was referred.

On our physical examination, BJ was moderately pruritic

with erythematous outer ear canals and interdigital skin. No fleas or secondary infection were noted. Due the nonseasonal symptoms and the fact that an exclusion diet had not been performed, we first prescribed a novel protein diet containing rabbit and potato for eight weeks. Trial treatment for parasites with ivermectin was also prescribed. After eight weeks, BJ's pruritus was unchanged, therefore intradermal allergy testing was performed, revealing multiple reactions to grasses, trees, housedust mite, and molds. The allergy hyposensitization vaccine was reformulated to contain the new allergens. After three months

of therapy, the owner reported that BJ's pruritus was 50% improved. After six months of allergy immunotherapy based on skin testing, BJ was minimally pruritic in the winter and would flare mildly in the spring and fall, with symptoms which were now manageable with intermittent antihistamines.



### Discussion:

The diagnosis of canine atopy is a clinical diagnosis, established by eliminating all other causes of pruritus, such as parasites, bacterial or yeast infections, and food allergy. At this time, an exclusion diet is the method of choice for diagnosis of food allergy; studies of food-allergen specific IgE assays in dogs have shown them to be unreliable.<sup>1</sup>

Once the clinical diagnosis of atopy has been made, treatment options include medical management of the pruritus, or allergy testing to identify specific allergens for avoidance and hyposensitization. Allergy testing options include serum-based in-vitro tests for allergen specific IgE (ELISA or RAST), or intradermal allergy testing. Measurement of total serum IgE is not helpful, as IgE levels are not significantly different between atopic and normal dogs.<sup>1</sup> Methodology for serum allergy tests

varies between laboratories, and there are few studies which objectively evaluate their performance. Additionally, inter-laboratory standardization and quality control measures are inconsistent, and there is only partial correlation between serum test results and intradermal testing.<sup>1,2</sup> Variable test methodologies and the lack of standardization of reagents, tests, and reporting procedures create difficulty in comparison of test results or efficacy of hyposensitization based on serology.<sup>1</sup> Although serologic allergy testing is easier and not as affected by steroid and antihistamine therapy as is intradermal allergy testing, false positive reactions are common.<sup>2</sup> Intradermal allergy testing is more accurate, with fewer false positive reactions. This type of allergy testing is also more physiologic, in that the organ (the skin) involved with the allergy is being tested, not just circulating antibodies. Therefore intradermal allergy

testing is regarded as the test of choice to yield the most diagnostic results in atopic dogs.<sup>2</sup>

Between 50% and 80% of dogs receiving allergy immunotherapy will exhibit at least 50% improvement in clinical signs<sup>2</sup>; complete response to therapy may take 2-12 months. Efficacy of immunotherapy may anecdotally be increased by combining results of both intradermal allergy testing and allergy serology to formulate a vaccine<sup>1</sup>, although cost may be a prohibitive factor. Owners must understand that atopy is a life long problem which can be controlled but not cured. Therapy for the atopic dog must be individualized, and may include a combination of oral and topical antipruritic medications, control of secondary infections and parasites, allergen avoidance when possible, and allergy hyposensitization. With careful attention to these details, over ninety percent of atopic dogs can be satisfactorily controlled.<sup>2</sup>

<sup>1</sup>The American College of Veterinary Dermatology Taskforce on Canine Atopic Dermatitis. Olivry, T ed. Elsevier, Oxford. 2001.  
<sup>2</sup>Scott D, Miller W, Griffin C. Muller & Kirk's Small Animal Dermatology, 6th Ed. WB Saunders, Philadelphia. 2001.