

## Allergy testing for All Creatures Great and Small

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Allergic disease is a common cause of pruritus in small and large animal patients; however, accurate diagnosis requires a structured, methodical approach. Allergy testing—particularly serum allergy testing (SAT)—is a wonderful tool for allergic management, but may be misused in practice. Clinicians must recognize its appropriate role and limitations to avoid misdiagnosis and ineffective treatment.

Before considering allergy testing, it is essential to confirm that clinical signs are consistent with allergic disease. A thorough history, dermatologic examination, and appropriate diagnostics must be performed to rule out other causes of pruritus, recurrent OE, and recurrent infections, including ectoparasites, persistent bacterial or *Malassezia* infections, drug reactions, and endocrinopathies. Allergy testing should *never* be used as a screening tool or sole diagnostic method.

In horses, differentiating atopic dermatitis from *Culicoides* hypersensitivity (CH) is particularly important, as testing utility and treatment response differ. While both conditions may present with similar clinical signs, they vary in seasonality, lesion distribution, and response to insect avoidance. Current evidence suggests that commercially available allergy testing is unreliable for diagnosing CH and should not guide immunotherapy in these cases.

In companion animals with year-round pruritus and secondary dermatitis, food allergies should be eliminated before proceeding with environmental allergy testing.

Allergy testing is most appropriately used to guide allergen-specific immunotherapy (ASIT) in animals with a confirmed diagnosis of atopic dermatitis. It is not a diagnostic test for allergy itself. Both false positives and false negatives are common, and results must always be interpreted in the context of the patient's clinical history.

Serum allergy testing (SAT) offers several practical advantages, including ease of use, lack of sedation requirements, and no need for drug withdrawal or clipping. However, significant limitations exist. Variability in laboratory methodologies—including ELISA techniques, allergen selection, and threshold determination—affects reliability. Cross-reactive carbohydrate determinants (CCDs) can result in clinically irrelevant positive results, leading to apparent polysensitization. Many companies are now employing anti-CCD blockers to improve specificity, and this should be prioritized in any serum allergy test chosen. Not all labs are created equal. Of note, saliva and hair allergy testing is 100% inaccurate and should NEVER be recommended.

Intradermal testing (IDT), most commonly performed by Dermatologists, directly assesses cutaneous hypersensitivity reactions. It has been utilized across species for decades but requires sedation, drug withdrawal, and technical expertise. Comparative studies between SAT and IDT in all species show inconsistent agreement, with both modalities demonstrating limitations in sensitivity, specificity, and reproducibility.

Despite variability in test results, allergen-specific immunotherapy remains a valuable treatment modality for atopic dermatitis in all species, with approximately 75% demonstrating clinical improvement. The success of ASIT appears to depend more on appropriate patient selection than on the specific testing modality used to select allergens.

Clinicians should also recognize that allergy testing is not appropriate for diagnosing food allergies in ANY animal, as IgE-based assays have demonstrated poor reliability and lack correlation with clinical disease.

Effective client communication is essential when discussing allergy testing. Owners should understand that testing is used to guide therapy rather than establish diagnosis, that results are imperfect, and that treatment response may take months to achieve.

In summary, serum allergy testing is a useful tool when applied appropriately, primarily to guide immunotherapy in confirmed atopic patients. It should not replace a thorough diagnostic workup or be used to diagnose allergic disease. Understanding the strengths and limitations of available testing modalities allows clinicians to make informed decisions and improve patient outcomes.