

Investigating the Cause of Allergic Reactions after Vaccination in Dogs

Has Your Dog Had an Allergic Reaction Within Minutes or Within a Few Hours After Vaccination?

Allergic reactions are the most common adverse event associated with vaccination in dogs. Most dogs with allergic reactions have one or more of the following signs: swelling around the eyes, facial swelling or edema, small swellings on the surface of the skin (wheals), generalized itching, or vomiting.

Are Some Dogs More Likely to Have Allergic Reactions After Vaccination?

Recent research has demonstrated that small dogs in general, and several specific breeds, are at higher risk for these reactions. In a study involving more than 1 million dogs, our epidemiology section at Purdue University found that small (≤ 10 kg or 22 lb) dogs were at significantly greater risk of vaccine reactions than large dogs. Dogs weighing >10.0 to 45.0 kg (>22.0 to 99.0 lb) had approximately half the risk compared to dogs weighing 10 kg (22.0 lb) or less. This was true whether evaluating all vaccines collectively or if evaluating adverse events occurring with a single vaccine alone.

Reaction rates were observed to be significantly different between breeds, even if the breeds had similar adult weights. Dachshund, Pug, Boston Terrier, Miniature Pinscher, and Chihuahua breeds experienced the highest rates of reactions of the 42 breeds in the analysis.

What's the Cause?

Laboratory studies have shown that normal dogs make antibodies against many vaccine components, even though they may not show an allergic reaction immediately following vaccination. Although the specific cause of allergic reactions in dogs remains unknown, vaccine components that are residual from the manufacturing process have been incriminated.

How Will This Study Help Determine the Cause?

Using serum from dogs of high-risk breeds, this study will compare antibody concentrations in dogs demonstrating allergic reactions versus antibody concentrations in dogs of the same breed that don't have reactions. From this

study, we hope to identify the vaccine components that stimulate allergic reactions.

How Can I Participate in the Study?

If your dog meets the following criteria:

- 1) Breed: Is either a Dachshund, Pug, Chihuahua, Miniature Pinscher, Boston Terrier, Boxer, Australian Terrier, or Kerry Blue Terrier, and ...
 - 2) was vaccinated in the last 3 weeks,
- then it can participate in the study.

We are particularly interested in dogs that have had allergic reactions and their relatives (preferably littermates).

Sample collection:

Two (2) ml of serum are needed per dog for the analyses, necessitating withdrawal of approximately 4-5 ml of blood. Samples may be taken from affected dogs as soon as clinical signs of an allergic reaction develop, or within 3 weeks thereafter. Samples may be taken from non-affected dogs as soon as the day following vaccination, or within 3 weeks thereafter. Please send serum, and not whole blood.

Instructions for Veterinarians:

[Direct your veterinarian to instructions that will explain the specimen collection and submission process.](#)

Forms:

Sample submission:

For samples from dogs that meet the eligibility criteria, veterinarians can [email](#) the investigators their mailing address, and postage-paid mailers will be sent to the veterinarian for return of the serum sample to our laboratory.

Alternatively, you can send the serum sample(s) and forms direct to:

Immunopathology Laboratory
Attn: Vaccine Study (VPTH 203)
Dept. of Comparative Pathobiology
725 Harrison Street
West Lafayette, IN 47907-2027

Sample information: [The specimen submission form must be completed and submitted for each patient's sample.](#)

Client Consent: [Owners should sign the study Client Consent Form](#) and the signed form should be submitted to Purdue University with the serum sample.

Samples will be collected through 2007.

Regrettably, we cannot pay for the mailing of samples from dogs of other breeds than those above, but we will accept the samples into our study if you and your veterinarian wish to send them to us.

Thank you for supporting this study and other research to help improve canine health!

This study is supported by the American Kennel Club Canine Health Foundation.