

## Titers: What do they tell us?

By Christie Keith

Many people who are trying to reduce vaccination are interested in using "titers" as a test to measure whether or not their dog is still immune to a disease. They often speak of titers as showing "high" or "low" immunity, or of "having to" re-vaccinate when a titer is low. While there is not a tremendous amount of research on titers in dogs, I think it's fair to say there *is* quite a bit of misunderstanding on the part of pet owners, and even many veterinarians, as to what a titer test does or does not tell us.

A "titer" is a measurement of how much antibody to a certain virus (or other antigen) is circulating in the blood at that moment. Titers are usually expressed in a ratio, which is how many times they could dilute the blood until they couldn't find antibodies anymore. So let's say they could dilute it two times only and then they didn't find anymore, that would be a titer of 1:2. If they could dilute it a thousand times before they couldn't find any antibody, then that would be a titer of 1:1000.

A titer test does not and cannot measure immunity, because immunity to specific viruses is reliant not on antibodies, but on memory cells, which we have no way to measure. Memory cells are what prompt the immune system to create antibodies and dispatch them to an infection caused by the virus it "remembers." Memory cells don't need "reminders" in the form of re-vaccination to keep producing antibodies. (*Science*, 1999; "Immune system's memory does not need reminders.") If the animal recently encountered the virus, their level of antibody might be quite high, but that doesn't mean they are more immune than an animal with a lower titer.

Dr. Donald Hamilton, a holistic veterinarian and author of [Homeopathic Care for Cats and Dogs: Small Doses for Small Animals](#), compares antibodies to fire engines. Just because the fire engines aren't racing all over town all the time, and the fire fighters are back in the firehouse, sleeping, eating or playing cards, doesn't mean they aren't ready to jump in their trucks and head to the fire when the alarm sounds.

So what does a low or zero titer tell you? Nothing much. A high titer is strongly correlated with either recent infection or good immunity, but the opposite isn't true. You can use a titer test about two weeks after vaccination to determine if the vaccination was effective in stimulating an immune response (in other words, if the animal was successfully immunized from the vaccine), but testing that same animal's titer years down the road doesn't really tell you anything new.

The only other uses for titer tests in my opinion are to check immunization status on dogs with an unknown history, to provide documentation for legal purposes such as travel, or licensing in areas that accept rabies titers in lieu of rabies vaccination, to satisfy curiosity, or to provide peace of mind for pet owners. However, for every person who has his or her mind relieved by finding his or her dog "has a titer" to a disease they were worried about, there is someone else who now thinks his or her dog or cat is "unprotected" against a disease to which they are most likely really immune.