

# Pawsitive Press

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## Vaccines, a Thorough Explanation

By: *Dr. Aimee Vasse, D.V.M.*

The Animal Hospital of Dunedin will now be offering a line of vaccines completely free from adjuvants and harmful preservatives. The vaccines are manufactured by Merial and include all core vaccines routinely administered to pets: Rabies, FVRCP (feline respiratory viruses and panleukopenia), feline leukemia, DA2PP (canine distemper, adenovirus, parvovirus, and parainfluenza), leptospirosis, and bordetella.

### What is an adjuvant, and why is it harmful?

An adjuvant is a substance that, when injected with a vaccine, increases the level and duration of immunity provided by this vaccine. When vaccines were developed in the 1800s, live bacteria and viruses were used. These induced an excellent immune response, but did manage to infect some of those people and pets who were vaccinated. Later, in the early 1900s, in effort to create safer vaccines, pathogens were killed or chemically modified. Of course, these vaccines were less likely to cause infection, but then again, they did not offer the same level of protection as their live counterparts. Around 1925, however, a French veterinarian named



Ramon Gaston, observed that horses that naturally developed abscesses at the site of vaccination had better protection against disease. Using tapioca, starch, or breadcrumbs, Gaston was able to create sterile abscesses at vaccination sites and thereby augment vaccine response. Since this time, various materials – from mineral oil to aluminum and calcium salts, to non-pathogenic viruses – have been used as adjuvants.

While adjuvants have been successful in improving vaccine-induced immunity, they have also increased vaccine-related side effects such as inflammation at the site of vaccination and anaphylactic reaction. In addition, many have been found to cause toxicity. Specifically, aluminum, one of the most common adjuvants, has been linked to seizures, brain inflammation, Alzheimer’s disease, and ALS in humans. In fact, analysis of the protein plaques in the brains of Alzheimer’s patients has shown that some have an aluminum core. Dogs with

Canine Cognitive Dysfunction, a disorder much like Alzheimer’s disease, have these same plaques, which also have been found to contain aluminum.

More recently, in the early 1990s, a causal relationship was established between the use of adjuvanted vaccines in cats and sarcoma (cancer) at the injection site. These cancers were also seen on rare occasions in vaccinated dogs and ferrets. Although the pathology has not been proven, the hypothesis is that adjuvants cause chronic inflammation, and chronic inflammation can induce genetic mutations, as well as proliferation of cells, which can lead to cancer. Now, we know that these cancers can develop at the site of any injection in cats, but the most frequent culprits remain long-acting medications like some steroids, chemotherapy drugs, and most notably, adjuvanted vaccines.

### Why are preservatives used in vaccines and which preservatives are unsafe?

In 1928, as vaccination for diphtheria began in Australia, 11 of 56 children vaccinated died from contamination of the vaccine with *Staphylococcus* bacteria. Since then, care has been taken to add preservatives, or substances that prevent the growth of bacteria and fungus in vaccine preparations. In 1968, the FDA mandated the

**Vaccinations Continued**

use of preservatives in vials containing multiple doses of vaccine. Many single-dose vaccine vials also were made with preservatives for the safety of patients, both human and veterinary.

At this time, however, the safety of preservatives, especially thimerosal, a mercury-containing organic compound, has come into question. After thimerosal is injected, it breaks down into ethylmercury and thiosalicylate. Ethylmercury is thought to be very similar to another mercury compound called methylmercury, which is found in some aquatic organisms, most notably the tuna and swordfish on our dinner plates. Methylmercury is known to be toxic to the nervous system, and particularly so to fetuses, babies, puppies, and kittens. In fact, it is the culprit behind the connection of autism to childhood vaccination. Although data is lacking, and ethylmercury is different from methylmercury, the FDA currently considers them to have the same toxicity rating and has been working to eliminate the former from vaccines.

**How do we create vaccines that are safe and effective without these compounds?**

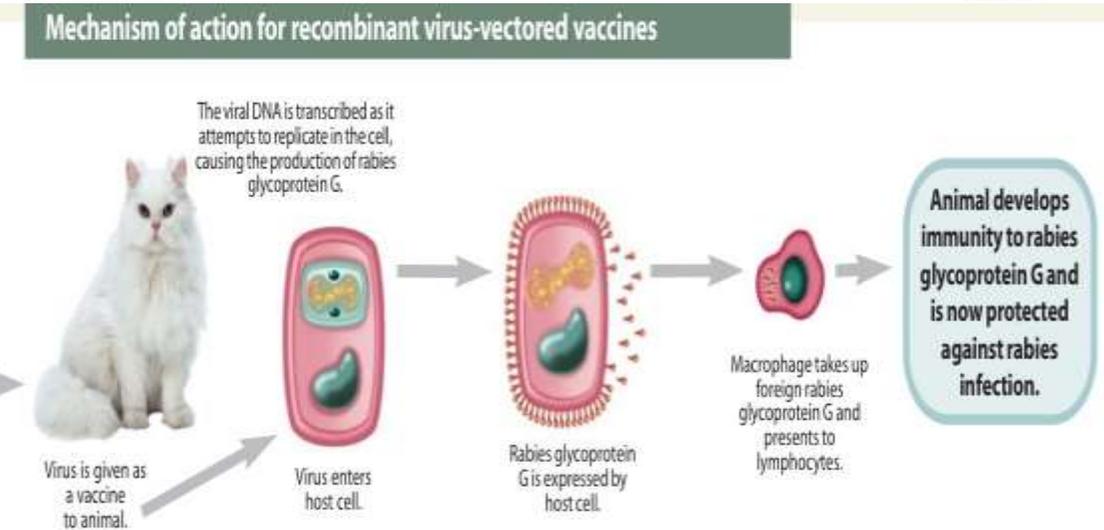
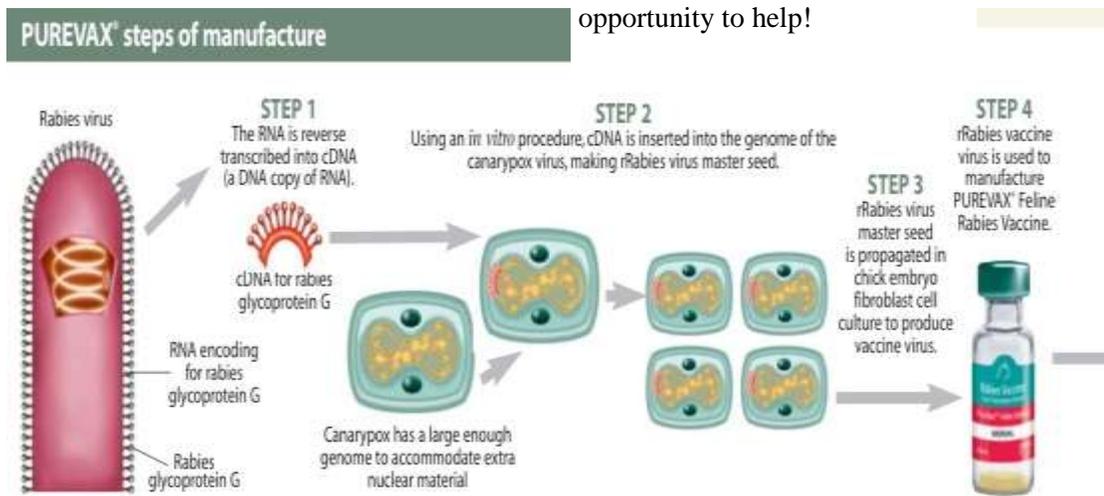
Merial is a manufacturer of veterinary vaccines, which has developed vaccines for dogs and cats that do not require adjuvants or dangerous preservatives to be safe and effective. Instead of using thimerosal as a preservative, Merial uses gentamicin, a safe antibiotic. This prevents vaccine contamination with microbes, yet eliminates the possibility of side effects from thimerosal.

Instead of using adjuvants, Merial's vaccines use the Canarypox virus to stimulate the host's immune system. Specifically, as shown in the diagram below, a small amount of genetic material from the Rabies virus is inserted into the genome (the complete set of genetic material) of the Canarypox virus. The virus is then replicated inside chicken embryo cells to make sufficient copies, which are harvested for vaccine production. When the vaccine is injected into the pet, the virus infects the pet's cells. The virus then tells the cells to make the Rabies virus protein encoded by the small amount of genetic material it has from the virus. The protein is produced, recognized by host cells, and then they make antibodies to it. And just like that, the pet is immune!

**Is there any risk to these new vaccines?**

Any vaccine can cause a localized reaction (swelling and redness) or a systemic reaction (anaphylaxis). However, these side effects are far less likely in the newer, safer vaccines. Clinical studies on thousands of pets have been performed, and Merial's new vaccines have been found to be safe in puppies as young as 9 weeks old and kittens as young as 8 weeks old. Vaccination is a key element of your pet's health care, but every time a vaccine is given, the risks and benefits must be weighed. Most of the time, the benefits far outweigh the risks, but only a veterinarian can determine this.

For more information or to discuss your pet specifically please call the Animal Hospital of Dunedin. We would love the opportunity to help!



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## We would like to welcome Dr. Aimee Vasse to our practice!



### **ABOUT YOUR BABY'S DOCTOR**

I have always loved animals and wanted to become a veterinarian. Following college, I spent 10 years pursuing my other love, professional cycling, racing nationally and internationally. After retiring from this endeavor, I resumed my initial goal, first working as a veterinary technician, and then as a veterinarian.

### **EXPANDING THE TOOLKIT**

After graduating from Tufts Cummings School of Veterinary Medicine, I completed an additional one-year internship in small animal emergency medicine at the Veterinary Specialty Center of Tucson. I currently am pursuing further training in Traditional Chinese Veterinary Medicine via the Chi Institute, which involves acupuncture, herbal medicine, food therapy, and tui-na massage. In addition, I have attended numerous continuing education seminars in feline medicine, nephrology, pain control, and end-of-life care.

### **CATS ARE NOT SMALL DOGS**

Whatever the species, I want your baby to have the very best care! I therefore spent a year working in feline medicine, because I felt that my education and experience provided a much richer experience in canine vs. feline medicine, and that cats are often treated like small dogs. Cats often react adversely to medications used in dogs, they have unique dietary needs, and they tend to be a lot more sensitive to the stress of being in a veterinary clinic. I sought, therefore, to learn the very best modalities of feline handling and medical care, so I worked for a year in an all-feline clinic. I continue to stay abreast of new developments in feline care through memberships with the American Association of Feline Practitioners and the International Society of Feline Medicine.

### **COMFORT CARE**

I believe that keeping pets comfortable and free from pain, anxiety, nausea, and other sources of discomfort, is a critical component of my job as a veterinarian, and in fact, to the human-animal bond. Pets live in the present, so their comfort at a given moment is crucial to their quality of life. I have expanded my toolkit for providing comfort care with my education in alternative medicine and my experience working in hospice veterinary medicine.

### **A TEAM ENVIRONMENT**

Teamwork and peer review are essential in maintaining the highest quality of care. At Animal Hospital of Dunedin, there is a constant exchange of knowledge between the doctors, all of whom have pursued various and unique avenues of continuing education. I am thrilled to be a part of this team, both to learn from its members and contribute to its growth.





**Animal Hospital**  
**OF DUNEDIN**

*Caring for Pets with Love and Kindness*

**\$1**

## \$1 First Exam - New Patient

(\$49-\$80 Savings)

Includes comprehensive physical exam and one vaccine. Does not include 3yr Rabies vaccine. Must be presented at the time of purchase. Coupon may not be combined with any other offer. NL



**Animal Hospital**  
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**-\$5**

## \$5 Off Any Vaccine

Please call to schedule an appointment with one of our veterinarians. An exam will be performed when a vaccination is administered. Coupon must be presented at the time of purchase. Coupon may not be combined with any other offer. Expires 8/31/16 NL



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**-10%**

## 10% Off Dental Cleaning

( Call for an appointment today 727-733-9351)

Discount applies to anesthesia, prophylaxis, and any other dental radiographs or extractions that might be needed. Offer excludes required predental labwork. May not be combined with any other coupons or discounts. Must be presented at the time of purchase.

Expires 8/31/16 NL

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