

MDR1 GENE - AUSSIE DRUG TOXICITY

It is well known that certain breeds have reactions to certain drugs. It was previously unknown why some dogs were sensitive and some not. Advances in molecular biology has found the problem to be due to a mutation in the multi-drug resistant gene (MDR1). This gene encodes a protein, P-glycoprotein, that is responsible for pumping many drugs and other toxins out of the brain.

Dogs with the mutant gene cannot pump some drugs out of the brain as a normal dog would. The result may be illness possibly requiring an extended hospital stay, or even death. You simply need to use alternative drugs recommended by your vet that are safe for these breeds.

How common is the MDR1 mutation in Aussies?

32% of the Standard Aussies and 49% of Mini-Aussies have at least one copy of the gene.

How do I know if my dog has the MDR1 mutation?

If your dog has already reacted to one of these drugs, it has the mutation. However, reactions can be so dangerous to your dog it is advisable to have the dog tested so you know whether it is sensitive before it receives any of the listed drugs.

What do the MDR1 test results mean?

This is a DNA mutation test. It will determine whether or not a dog has the MDR1 mutation and, if it does, whether it has one copy or two. The test report will provide you with the genotype for your dog, generally listed as Normal/Normal, Normal/Mutant or Mutant/Mutant.

Dogs with even one copy of the mutation should be considered sensitive to listed drugs. If your dog carries the mutation, provide a copy of the test results and a copy of the listed drugs to every veterinarian who treats your dog and let them know your dog cannot have those drugs.

What dogs should be tested and how often?

Since this is a DNA test, a dog only needs to be tested once. Due to the high frequency of the mutation in the breed and the variety of drugs to which dogs with the mutation can react, Aussies should be tested or treated as sensitive. Their lives could depend on it.

The only exception is if both parents of a dog have tested Normal/Normal, they cannot pass on the gene and their offspring will not need to be tested. However, if a Normal/Normal dog is bred to one of unknown status or one that has even a single copy of the mutation, the offspring must be tested or treated as sensitive.

How do I get the test done?

For those in North America, testing is available through Paw Print Genetics, at a discount through ASDR. More details can be found at the ASDR website.

Below is a list of drugs that have been documented, or are strongly suspected to cause problems in dogs with MDR1 Gene Mutation. **SICKNESS OR EVEN DEATH CAN EASILY BE AVOIDED. STAY AWAY FROM THE FOLLOWING DRUGS OR HAVE YOUR DOG TESTED BEFORE USING THEM!**

*IVERMECTIN	(antiparasitic agent)
LOPERAMIDE	(Imodium, anti-diarrhea agent)
DOXORUBICIN	(anti-cancer agent)
VINCRIStINE	(anti-cancer agent)
VINBLASTINE	(anti-cancer agent)
CYCLOSPORIN	(immunosuppressive agent)
DIGOXIN	(heart drug)
ACEPROMAZINE	(tranquilizer)
BUTAPHONAL	(pain control)

OTHERS:

**ONDANSETRON
DOMPERIDONE
PACLITAXEL
MITOXANTRONE
ETOPOSIDE
RIFAMPICIN
QUINIDINE
MORPHINE**

**** Please feel free to share this information with other owners of MDR1 affected breeds! ****