

MDR1: Multi-Drug Resistance Gene

Short Version:

MDR1 is a gene that causes a dangerous sensitivity to some commonly used medications such as Ivermectin. Ivermectin is found in commonly used medications such as Heartgard. About 50% of Australian Shepherds are affected by MDR1.

Longer more detailed version:

MDR1 is a gene responsible for the production of a protein, P-glycoprotein (P-GP). P-GP is a drug efflux pump that aids in controlling drug absorption and distribution specifically in the brain. This causes increased levels of the medications inside the cells.

Imagine a partially clogged drain; when you run water into the sink, the water will build up in the sink similar to the way the medications do in a cells of an MDR1 affected animal.

Minikin Manor

Sensitivity to (not limited to):

- **Acepromazine**- prescription tranquilizer
- Butorphanol - pain control
- Cyclosporin - immunosuppressive agent
- Digoxin - used to treat congestive heart failure
- Doxorubicin – Cancer treatment
- Doramectin - anti-parasitic medication
- Emodepside - anti-parasitic medication
- Erythromycin - antibiotic used to treat diarrhea, skin infections and prostate infections
- **Ivermectin**- Found in many anti-parasitic medications such as wormers.
- **Loperamide**– Found in many anti-diarrhea medications such as Imodium.
- Milbemycin - used for treatment and prevention of heartworm
- Moxidectin - anti-parasitic medication
- Paclitaxel - chemotherapy drug
- Rifampin - used to treat many bacterial infections
- Selamectin - anti-parasitic medication
- Vinblastine – Cancer treatment
- Vincristine – Cancer treatment