Drug Sensitivity Information

IMPORTANT INFORMATION FOR HERDING GROUP OWNERS

Drug sensitivity: Collies, shelties and dogs in some other breeds may possess a mutation at the MDR1 locus (mdr1-1Δ) that causes a defect in the blood-brain barrier, mediated by P-glycoprotein, an ATP-dependent drug transporter that moves a broad spectrum of substrates across several tissue borders throughout the body.

Drug sensitivity status, explanation:

- MUTANT/MUTANT: Herding group breeds that are homozygous for the mdr1-1Δ mutation are highly sensitive to the drugs listed below and may suffer severe or even fatal neurotoxicoses when the drugs are administered at normal therapeutic doses doses (except for the monthly treatments for heartworm and fleas, which are safe). Reactions include the rapid onset of respiratory failure; respirator support may be necessary as a life saving measure.
- NORMAL/MUTANT: Herding group breeds that are heterozygous at the MDR1 locus may still show sensitivity to the drugs listed below, suffering neurological symptoms even at normal therapeutic doses. Therefore these drugs should be administered with caution and the dog's reaction closely monitored. Use of the drug should be terminated immediately if neurological signs are suspected or present.
- NORMAL/NORMAL: Herding group breeds that are homozygous normal are no more sensitive to these drugs than any other dog and normal therapeutic doses can be administered.
- UNKNOWN: Only 20% of Herding group breeds are NORMAL/NORMAL. One in three collies is MUTANT/MUTANT on average; the rate of homozygous mutants may be higher in families of related dogs. Therefore, dogs of unknown status must be treated as if they are sensitive to these drugs

Known to affect sensitive Breeds	Should affect sensitive Breeds*
• Antiparasitic agents: ivermectin, milbemycin oxime, selecamectin, moxidectin, abamectin • Gastrointestinal agents: loperamide (over-the-counter antidiarrheal agents, e.g., imodium AD, some formulas of Kaopectate and PeptoBismol) • Anticancer agents: oxorubicin, vincristine, vinblastine • Immunosuppressive agents: Cyclosporin, cyclosporin A, tacrolimus • Cardiac agents: digoxin, quinidine • Antibiotics: erythromycin, grepafloxacin • Steroids: dexamethasone, hydrocortisone • Tranquilizers: acepromazine • Pain control: butorphanol	ondansetron domperidone paclitaxel mitoxantrone etoposide rifampicin morphine *Drugs that are P-glycoprotein substrates can build up dangerous levels in the brains of genetically sensitive Collies

*Drugs that are P-glycoprotein substrates can build up dangerous levels in the brains of genetically sensitive Collies To test your dog for drug sensitivity, visit http://www.vetmed.wsu.edu/depts-VCPL/ For a full summary of information on drug sensitivity in collies, visit: http://www.awca.net/drug.htm