

## Laboratory Report

<b>Laboratory #:</b>	132104	<b>Call Name:</b>	Blue Merle Fe 2 <i>Treasure</i>
<b>Order #:</b>	58125	<b>Registered Name:</b>	Dark patch on ear
<b>Ordered By:</b>	Cathy Charters	<b>Breed:</b>	Australian Shepherd
<b>Ordered:</b>	April 9, 2019	<b>Sex:</b>	Female
<b>Received:</b>	April 24, 2019	<b>DOB:</b>	April 2019
<b>Reported:</b>	May 2, 2019	<b>Registration #:</b>	-

### Results:

Disease	Gene	Genotype	Interpretation
Multidrug Resistance 1	<i>ABCB1</i>	WT/M	Carrier (At-Risk)

WT, wild type (normal); M, mutant; Y, Y chromosome (male)

### Interpretation:

Molecular genetic analysis was performed for a specific mutation reported to be associated with Multidrug Resistance 1 in dogs. We identified one normal copy and one mutant copy of the DNA sequences for *ABCB1*. Thus, this dog is a carrier of (and may be at risk for) Multidrug Resistance 1.

### Recommendations:

Multidrug Resistance 1 is inherited in an autosomal incomplete dominant manner in dogs. Based on this, and the fact that this dog showed a mutation in one copy of the *ABCB1* gene, this dog is a carrier of Multidrug Resistance 1 and at a low risk of developing neurological disease when given certain medications. Dogs affected with this disease lack the ability to remove certain drugs and toxins from the central nervous system putting them at risk for developing neurologic symptoms that could range from tremors, excess salivation, anorexia, and blindness to coma and even death. Though adverse reactions to certain drugs are most commonly seen in dogs having two copies of the mutated gene, carrier dogs can also experience drug sensitivities and dosages need to be adjusted accordingly. Thus, dogs that have one or two mutant copies of the gene are considered at risk for adverse drug reactions. Your veterinarian should be notified that this dog is a carrier for Multidrug Resistance 1 prior to administration of any medications. When carriers of this mutation are bred with another dog that also is a carrier of the same mutation, there is risk of having affected pups. For each pup that is born to this pairing, there is a 25% chance that the puppy will inherit two copies of the mutation and a 50% chance that the puppy will inherit one copy of the mutation and, in either case, may be susceptible to having adverse drug reactions. Dogs related to this dog have an increased risk to be affected by or carry the mutated gene. Additional testing for this mutation is indicated for related dogs.

Paw Print Genetics® has genetic counseling available to you at no additional charge to answer any questions about these test results, their implications and potential outcomes in breeding this dog.