

Customer: Dr. Josette Debrincat, 20, Animal Doctors, Guze Bajada, HMR 2131 Hamrun, Malta**Sample:**

Sample: 24-22121

Date received: 29.08.2024

Sample type: blood

Information provided by the customer

Name: Meg**Breed: Border Collie**

Tattoo number: N/A

Microchip: 380 260 102 381 321

Reg. number: MKC BOR/06/2024

Date of birth: 21/11/2022

Sex: female

Result: Mutation was not detected (N/N)**Explanation**

It has been studied the presence and absence of mutation c.228_231del in ABCB1 gene leading to defect of P-glycoprotein. P-glycoprotein is a membrane drug transporter and a very important component of the blood brain barrier that prevents entry of many potentially toxic compounds into the central nervous system. The dysfunction of P-glycoprotein in dogs can result in potentially fatal neurotoxic reaction, especially following the administration of ivermectin, acepromazin, butorphanol, doramectin, doxorubicin, loperamid, milbemyacin, moxidectin, selamectin, vinblastin and vincristin.

The sensitivity to drugs develops in dogs with mutation in both copies of MDR1 gene (P/P). Some dogs that are heterozygotes (N/P) have shown adverse reaction after administration of some drugs. The specific cause of this variation is not known so far – other gene mutations, general health conditions and dosage.

It is not possible to exclude existence of other mutations of ABCB1 gene in various breeds (in Bordier collies, another two mutations have been found). Compound heterozygotes that carry two distinct mutations of ABCB1 gene may occur, where each mutation was inherited from one of the parents. The compound heterozygotes also have defective P-glycoprotein function.

The defect occurs in Collies, Longhaired Whippets, Australian Shepherds, Miniature Australian Shepherds, McNab Shepherd dogs, Silken windhounds, English sheepdogs, Shelties, German shepherd dogs, Bobtails, Border Collies and herding breed cross.

Method: SOPAgriseq_canine, ngs, accredited method

Date of issue: 11.09.2024

Date of testing: 29.08.2024 - 11.09.2024

Approved by: Mgr. Martina Šafrová, Laboratory Manager



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