Detection of c.107G>C mutation of ITGB2 gene causing CLAD disease in Irish Setters

Result: Mutation was not detected (N/N)

Legend: N/N = wild-type genotype. N/P = carrier of the mutation. P/P = mutated genotype (individual will be most probably affected with the disease). (N = negative, P = positive)

Explanation

Presence or absence of mutation c.107G>C in exon 3 of ITGB2 gene (beta-2-integrin gene) causes CLAD (canine leukocyte adhesion deficiency) in Irish Setters was tested. The mutation causes Cys36Ser substitution in beta-2-integrin protein molecule; that leads to wrong protein conformation and function disruption. Integrins are located on the surface of white blood cells. Integrins intermediate cell-cell and cell-substratum adhesion reactions in the body. Integrins help leukocytes to incorporating into inflammatory tissues. If a part of integrin molecule is destroyed, there is a lack of immune response to the presence of infection in the body.

Mutation that causes CLAD in Irish Setters is inherited as an autosomal recessive trait. That means the disease affects dogs with P/P genotype only. The dogs with N/P genotype are considered carriers of the disease (heterozygotes). In offspring of two heterozygous animals following genotype distribution can be expected: 25 % N/N, 25 % P/P and 50 % N/P.

Method: SOP172-CLAD, direct DNA sequencing

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