

On the Absence of BLAD, CVM, DUMPS and BC Autosomal Recessive Mutations in Stud Bulls of the Local Alatau Cattle Breed of the Republic of Kazakhstan

Authors : Yessengali Ussenbekov, Valery Terletskiy, Orik Zhanserkenova, Shynar Kasymbekova, Indira Beyshova, Aitkali Imanbayev, Almas Serikov

Abstract : Currently, there are 46 hereditary diseases afflicting cattle with known molecular genetic diagnostic methods developed for them. Genetic anomalies frequently occur in the Holstein cattle breeds from American and Canadian bloodlines. The data on the incidence of BLAD, CVM, DUMPS and BC autosomal recessive lethal mutations in pedigree animals are discordant, the detrimental allele incidence rates are high for the Holstein cattle breed, whereas the incidence rates of these mutations are low in some breeds or they are completely absent. Data were obtained on the basis of frozen semen of stud bulls. DNA was extracted from the semen with the DNA-Sorb-B extraction kit. The lethal mutation in the genes CD18, SLC35A3, UMP and ASS of Alatau stud bulls (N=124) was detected by polymerase chain reaction and RFLP analysis. It was established that stud bulls of the local Alatau breed were not carriers of the BLAD, CVM, DUMPS, and BC detrimental mutations. However, with a view to preventing the dissemination of hereditary diseases it is recommended to monitor the pedigree stock using molecular genetic methods.

Keywords : PCR, autosomal recessive point mutation, BLAD, CVM, DUMPS, BC, stud bulls

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