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Genotyping of BLAD locus in the Indian HF crossbred cattle using PCR-RFLP

Khade A.S, A.Y. Doiphode, U.D. Umrikar, M.P. Sawane, V.D. Pawar, S.D. Kad and P.R. Ware
Bombay Veterinary College, India

Recent developments in molecular biology have opened the possibility of identifying and using genomic variation and major genes for genomic improvement in livestock. The present study was undertaken in HF crossbred cattle with the objective to find out genotype of HF crossbred cattle for Bovine Leucocyte Adhesion Deficiency by using PCR-RFLP. BLAD in Holstein cattle is an autosomal recessive congenital disease characterized by recurrent bacterial infections, delayed wound healing and stunted growth, and is also associated with persistent marked neutrophilia. Neutrophils from BLAD cattle have impaired expression of the $ß_2$ integrin (CD11a, b, c/CD18) of the leukocyte adhesion molecule. The molecular basis of BLAD is a single point mutation (adenine to guanine) at nucleotide position 383 of the CD18 gene, which caused an aspartic acid to glycine substitution at amino acid 128 (D128G) in the adhesion molecule CD18. 50 blood samples were collected from HF crossbred cattle maintained with the farmers of Shingawe village of Manchar in Pune district of Maharashtra. The blood samples were then processed for the isolation of DNA in the laboratory. PCR amplification of fragment of CD18 gene was carried out using F 5'-AGGTCAGGCAGTTGCCTTCAA-3' and R 5' GGGGAGCACCGTCTTGTCCAC-3' primers. The PCR amplified 367-bp product upon digestion by *Taq I*, yielded two bands of 313 and 54 bp respectively, for normal animals. None of the animals showed 3 bands of 367, 313, and 54 bp, as reported in BLAD carriers, indicating all the HF crossbred cattle were homozygous dominant for CD18 gene.

Biography

Khade Amol Sudhakar has completed his masters in Animal Genetics and Breeding at the age of 25 years from Bombay Veterinary College of Maharashtra Animal and Fishery Sciences University, Nagpur and is presently perusing doctoral studies at the same institute. He has won second prize for the poster presentation in the National Symposium on "Improvement of Livestock Productivity through Conventional Breeding and Technologies in changing global scenario - Challenges, Prospects and Retrospects "at the XII Annual Conference of the Indian Society of Animal Genetics and Breeding held at College of Veterinary Science, Hyderabad, India.

dramolkhade@gmail.com