

2nd International Conference on **Animal & Dairy Sciences**

September 15-17, 2014 Hyderabad International Convention Centre, India

Nucleotide variations in exon 2 of leptin gene (LEP) in sheep breeds of Tamil Nadu

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Tamil Nadu is one of the richest states in sheep genetic resources and shares nine per cent of the total sheep population of India. Leptin secreted by the adipose tissue regulates feed intake, energy metabolism and body composition and plays a critical role in regulating body weight and growth in mammals. Identification and validation of genetic markers of growth traits is the initial and crucial step to establish a Marker Assisted Selection system. Hence a study was undertaken to characterise the LEP gene in sheep breeds of Tamil Nadu. LEP gene consists of three exons separated by two introns. The Exon 2 is 172 bp in length (coding region covers partial Exon 2) and a primer pair was designed which amplified 500 bp region including the entire Exon 2 with Intron 1 and Intron 2 upstream and downstream respectively. After isolation of DNA, the fragment was amplified and sequenced in all the eight breeds of Tamil Nadu viz., Coimbatore, Kilakarsal, Madras Red, Mecheri, Nilagiri, Ramnad White, Tiruchy Black and Vembur. After sequencing, comparison with the available sequence from the GenBank (Gene ID 443534) was made and the following variations were identified. In Intron 1 at 13774 bp a 'GTT' segment which was present in two copies in the reference sequence was found as a single copy in all Tamil Nadu breeds. SNP 13893 T>C in Intron 1 was identified in all eight sheep breeds and 14013 C>T SNP, a non-synonymous mutation (Threonine to Methionine) was identified in Exon 2 specific to Tiruchy Black sheep.

Biography

D Cauveri is working as Assistant Professor in the Department of Animal Genetics and Breeding, Madras Veterinary College, TANUVAS for the past eight years. She has submitted her PhD thesis on genetic variability of growth hormone (GH) and Leptin (LEP) genes in sheep breeds of Tamil Nadu. The abstract is part of the thesis of the first author and she has 10 research publications and 20 research abstracts to her credit. She has served in various Committees in organising Seminar/Symposium/Workshops conducted in TANUVAS.

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