

## Nucleotide diversity in promoter of bone morphogenetic protein receptor type IB (BMPRI1B) gene in Indian goats

Sonika Ahlawat, Rekha Sharma and A Maitra  
National Bureau of Animal Genetic Resources, India

In recent years, many studies on the genetics of prolificacy in small ruminants have highlighted the importance of BMPRI1B gene in affecting ovulation rate and litter size through different mechanisms. Most of the research on BMPRI1B gene has revolved around screening sheep and goats for the presence of FecB mutation (A746G) that is associated with hyperprolific phenotype in many breeds around the world. In the present study, in addition to screening Indian goats for the FecB (Booroola) mutation, an attempt was also made to detect polymorphism in the promoter of BMPRI1B gene. Eight indigenous goat breeds (Barbari, Beetal, Black Bengal, Malabari, Jhakrana, Osmanabadi, Sirohi and Ganjam) differing in prolificacy and geographic distribution were employed for polymorphism scanning. Representative samples were collected from the breeding tract of respective breeds and DNA was isolated using Phenol-Chloroform method. Primers for detecting FecB mutation were taken from the literature whereas heterologous primers for promoter region were designed from the sequence of *Bos taurus* (ENSBTAT00000002690) available in Ensemble database. BMPRI1B promoter was amplified in two fragments and a 1032 bp length contig was generated using SeqMan program of Lasergene software. Sequence alignments and comparisons were carried out using MegAlign program (DNASTAR Inc.) which revealed that FecB mutation was not present in all the breeds investigated. Hundred variations were observed between cattle and goat promoter sequence which include 32 transitions, 13 transversions, 50 deletions and 5 insertions. Two novel SNPs T (-242) C and G (-623) A were identified in the promoter of indigenous goat breeds. The variations and polymorphisms did not change or affect any transcription binding sites as revealed by MATCH software.

### Biography

Sonika Ahlawat is working as scientist at National Bureau of Animal Genetic Resources, Karnal, India.

sonika.ahlawat@gmail.com