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研究报告

云南乌骨绵羊乌质性状与*TYR*基因多态性的相关分析

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摘要
乌骨乌肉是乌骨绵羊的主要乌质性状。本文测定了乌骨绵羊、兰坪本地羊和罗姆尼羊血液TYR活性并分析了乌骨绵羊与乌骨鸡组织器官黑色素结构，结果表明：乌骨绵羊TYR活性显著高于兰坪本地绵羊和罗姆尼羊（$P<0.05$）；乌骨绵羊黑色素与乌骨鸡黑色素的IR光谱基本一致，黑色物质主要是真黑色素。首次克隆了绵羊*TYR*基因第一外显子长667 bp序列，并检测了乌骨绵羊和非乌骨绵羊*TYR*基因多态性。结果发现，检测的乌骨绵羊*TYR*基因第一外显子有两个变异位点，分别位于第64和154号编码氨基酸上，但都属于同义突变。通过对64号位置设计酶切位点检测*TYR*基因多态性，结果发现，该突变与乌质性状有关基因紧密连锁，*TYR*基因上可能存在乌质性状相关功能突变位点。另外，*TYR*基因多态性与毛色的表型相关极显著（$P<0.01$），该基因可能也是毛色功能基因。

关键词 黑色素 TYR活性 *TYR*基因 毛色
分类号 S826

Melanin Traits of Yunnan Black Bone Sheep and *TYR* Gene Polymorphism

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Abstract
The “black bone and muscle” is cardinal melanin trait of black bone sheep. The black bone sheep and the native sheep in Lanping and Luomuni sheep were chosen as materials for the measurement of TYR activity of blood and melanin content of tissues and organs. Moreover, we compared characteristic structure of melanin of black bone sheep with silky fowls. The results showed as follows: TYR activity was significantly different between black and non-black bone sheep （<I>P</I><0.05）; the total character of infrared spectrum (IR) of melanin of black bone sheep resembled silky fowls; and melanin was eumelanin. We firstly cloned exon1 667bp sequence of <I>TYR</I> gene and determined <I>TYR</I> gene polymorphism of black and non-black bone sheep by PCR-RFLP. Compared with sequence of <I>TYR</I> gene of non-black bone sheep, there were two nucleotide mutation sites in exon1 of black bone sheep, located in No.64 and No.154 amino acid codons, respectively; but they were synonymics mutation. We designed restriction site in codon 64 and check up <I>TYR</I> gene polymorphism. The result showed the mutation site together with the close linked gene influenced melanin trait deposition. It suggests there should be functional mutation related with melanin trait. Furthermore, there was significant correlation between <I>TYR</I> gene polymorphism and coat color of sheep (<I>P</I><0.01), indicating <I>TYR</I> could influence synthesis of coat color of sheep.

Key words melanin TYR activity *TYR* coat color

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