

Identification of Myostatin Gene of Sheep

Nama	:	Retno Mujiarti	
Pembimbing	:	Achmad Farajallah	Bess Tiesnamurti
Tanggal Lulus	:	25 Agustus 2008	
Judul Thesis	:	Identifikasi Keragaman Gen Myostatin pada Domba Lokal Indonesia Identification of Myostatin (GDF8) Gene Variants within Indonesia Local Sheep	

Abstract:

Myostatin (GDF 8) is a member of transforming growth factor β superfamily, known as growth and differentiation factors is essential for proper regulation of skeletal muscle mass in wide range vertebrata species that they may act as an inhibitor of skeletal muscle growth. To pursue potential agricultural applications of increasing muscle mass by inhibition of myostatin activities, the aim of this study was to identify the variants of myostatin (GDF 8) gene in the Indonesian local sheep. A total of 151 DNA samples belonging to eight different areas that are Ciomas (20), Jonggol (35), Margawati (18), Indramayu (30), Donggala (24), Madura (8), Sumbawa(8) and Rote (8) were analyzed with Polymerase Chain Reaction-Single Strand Conformation Polymorphism. Myostatin (GDF 8) amplified product was 688 bp (base pair). There are eight types of Indonesian local sheep myostatin (GDF 8) gene based on PCR-SSCP method that are P, Q, R, S, T, U, V and W type. The highest frequencies of Indonesian local sheep myostatin gene is R type (36.4%), the lowest is V type (1.7%) and W type (1.7%). The common type of myostatin gene in the Indonesian local sheep are R and S type. Sheep population in Jonggol is the population with highest variance of myostatin gene (seven type). Sheep population in Madura is the population with lowest variance of myostatin gene (one type). V type (1.7%) was found only in Jonggol and Margawati. W type (1.7%) was found only in Ciomas. Finally V and W types were found only in female sheep. Variation of myostatin gen on local female sheep is highest than on local male sheep.

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