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Rapid Communication: *MspI* Restriction Fragment Length Polymorphism at the Swine Myogenin Locus^{1,2}

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Source and Description of Probe. A 1,486-bp rat cDNA clone for myogenin (MYOG) was excised from the *EcoRI* site of the plasmid, pBluescribe M13⁻ (Wright et al., 1989).

Method of Detection. DNA was isolated from whole blood and digested with *MspI*. Fragments were then separated by agarose gel electrophoresis and transferred to charged nylon membranes. Hybridizations were at 65°C for 16 to 20 h (.5 M NaCl, .05 M Naphosphate buffer, pH 6.5, 5× Denhardt's reagent, 10% dextran sulfate, .5% SDS, 100 µg/mL sonicated, denatured salmon sperm DNA). Final washes were at 55 to 60°C in .7× SSC, .5% SDS for 15 to 20 min.

Description of Polymorphism. Hybridization with the rat MYOG probe revealed three swine fragments (Figure 1). The 4.9- and 4.2-kb fragments were polymorphic, and the 2.3-kb fragment was monomorphic. No polymorphisms were detected for swine MYOG in unrelated pigs using *TaqI* (34 pigs), *SacI* (34 pigs), *PstI* (31 pigs), *BamHI* (16 pigs), or *PvuII* (15 pigs).

Inheritance Pattern. Autosomal Mendelian segregation of the 4.9- and 4.2-kb swine MYOG fragments was observed in 29 pigs from four, two- and three-generation families.

Frequency. Analysis of 83 unrelated pigs from nine breeds indicated overall allelic frequencies of .58 for the 4.2-kb fragment and .42 for the 4.9-kb fragment (Table 1).

Chromosomal Location. Unknown.

Comments. Myogenin is a member of a family of transcription factors that are specific to skeletal muscle (Wright et al., 1989). Myogenin is involved in regulating the expression of genes associated with the determination and differentiation of myoblasts.

Literature Cited

Wright, W. E., D. A. Sassoon, and V. K. Lin. 1989. Myogenin, a factor regulating myogenesis, has a domain homologous to MyoD. *Cell* 56:607.

Key Words: Porcine, Muscle, Myogenin, RFLP

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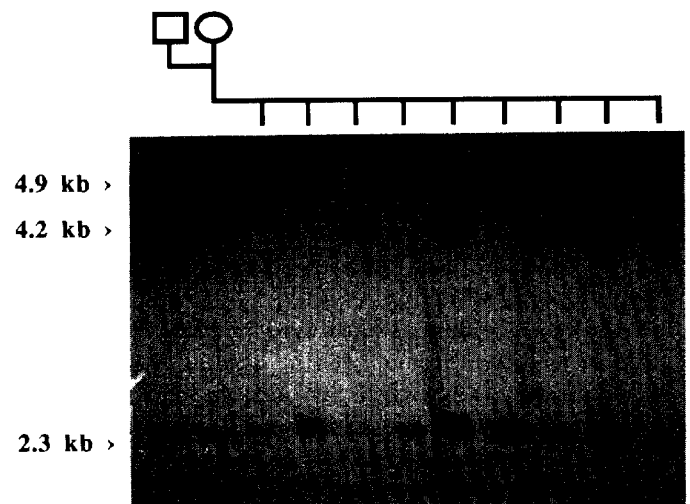


Figure 1. Mendelian segregation of porcine myogenin *MspI* fragments in a two-generation crossbred family of Meishan × Hampshire pigs. Square denotes sire; circle denotes dam.

Table 1. Frequency of Myogenin genotypes in several breeds

Breed	no.	Frequency of pigs with indicated genotype ^a		
		4.9/4.9	4.9/4.2	4.2/4.2
Fengjing	6	100	0	0
Meishan	8	75	25	0
Minzhu	4	50	25	25
Chester White	9	56	33	11
Landrace	13	8	46	46
Yorkshire	9	0	33	67
Duroc	14	7	29	64
Hampshire	12	0	8	92
Poland China	8	25	50	25
Total	83			

^a4.9 = 4.9-kb *MspI* fragment; 4.2 = 4.2-kb *MspI* fragment.

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