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Abstract

Source and Description of Probe. A 1.1-kb human cDNA clone for bone morphogenetic protein 6 (BMP6) was excised from the clone U2-7 (Celeste et al., 1990). Method of Detection. Genomic DNA was isolated from whole blood and digested with TaqI. Fragments were separated by agarose gel electrophoresis and alkaline vacuum-transferred to charged nylon membranes. Hybridizations were at 65°C for 16 to 20 h (10% dextran sulfate, .5 M NaCl, .05 M sodium phosphate, pH 6.5, 5x Denhardt's, .5% SDS, 100 pg/ mL sonicated, denatured salmon sperm DNA). Final washes were at 60°C in .7x SSC, 3% SDS for 15 to 20 min

Keywords

Pigs, Bone Morphogenetic Protein, RFLP

Disciplines

Agriculture | Animal Sciences | Genetics and Genomics

Comments

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Rapid Communication: *TaqI* Restriction Fragment Length Polymorphism at the Porcine *Bone Morphogenetic Protein 6 (BMP6)* Locus^{1,2}

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Description of Polymorphism. Hybridization of porcine DNA *TaqI* digests with labeled human BMP6 DNA revealed polymorphisms at 5.0 and 4.6 kb. Polymorphisms were also detected in 17 unrelated pigs with *PvuII*, *BamHI*, and *XbaI*. No polymorphisms were detected using *MspI*, *RsaI*, and *PstI*.

Inheritance Pattern. Autosomal Mendelian inheritance of the 5.0- and 4.6-kb *TaqI* fragments of porcine *BMP6* was observed in 30 pigs in two, three-generation reference families. Segregation from one of these families is presented (Figure 1).

Frequency. Analysis of 69 unrelated animals from eight breeds indicated allelic frequencies of .92 and .08 for the 5.0-kb and 4.6-kb fragments, respectively (Table 1).

Comments. BMP6 is one protein of three members in a transforming growth factor β (TGF-β) family of growth and differentiation factors that show extensive sequence similarity to the bone-inductive molecule BMP-2.

Literature Cited

Celeste, A. J., J. A. Iannazzi, R. C. Taylor, R. M. Hewich, V. Rosen, E. A. Wang, and J. M. Wazney. 1990. Identification of transforming growth factor β family members present in bone-inductive protein purified from bovine bone. Proc. Natl. Acad. Sci. USA 87:9843.

Key Words: Pigs, Bone Morphogenetic Protein, RFLP

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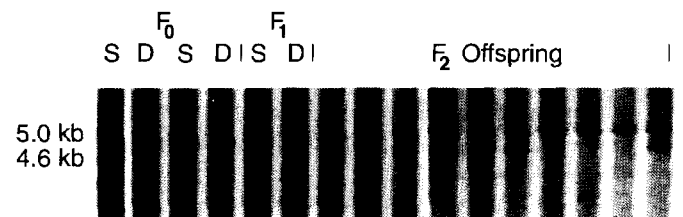


Figure 1. A Meishan × Large White three-generation family with F₀ and F₁ sire (S) and dam (D) and F₂ offspring.

Table 1. Percentage of BMP6 genotypes in several breeds

Breed	No.	Percentage of pigs with indicated genotype ^a		
		5.0/5.0	5.0/4.6	4.6/4.6
Chester White	8	50	50	0
Duroc	10	100	0	0
Hampshire	11	100	0	0
Landrace	11	100	0	0
Large White	7	86	14	0
Meishan	10	70	30	0
Minzhu	4	50	50	0
Yorkshire	8	88	12	0

^a5.0 = 5.0-kb BMP6 fragment; 4.6 = 4.6-kb BMP6 fragment.

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