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Rapid Communication: StuI Restriction Fragment Length Polymorphism at the Porcine Bone Morphogenetic Protein 5 (BMP5) Locus

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Source and Description of Probe. A 2.2-kb human cDNA clone for bone morphogenetic protein 5 (BMP5) was excised from the clone U2-16 (Celeste et al., 1990).

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Source and Description of Probe. A 2.2-kb human cDNA clone for bone morphogenetic protein 5 (BMP5) was excised from the clone U2-16 (Celeste et al., 1990).

Method of Detection. DNA was isolated from whole blood and digested with *Stu*I. 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, 5× Denhardt's, .5% SDS, 100 μg/mL sonicated denatured salmon sperm DNA). Final washes were at 60°C in .7× SSC, .5% SDS for 15 to 20 min.

Description of Polymorphism. Hybridization of the *Stu*I-digested DNA with labeled human BMP5 DNA revealed polymorphic fragments of 5.1 and 5.4 kb. Monomorphic fragments of 13.5, 10.9, 7.0, and 2.9 kb were also detected.

Inheritance Pattern. Autosomal Mendelian inheritance of the 5.1- and 5.4-kb fragments was observed in 41 pigs from three two- and three-generation reference families (Figure 1).

Frequency. Analysis of 44 unrelated pigs from seven breeds indicated allelic frequencies of .94 and .06 for the 5.1- and 5.4-kb fragments, respectively (Table 1).

Comments. BMP5 is one protein in a three-member family of transforming growth factor β (TGF-β) family of growth and differentiation factors that are most closely related 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 B family members present in bone-inductive protein purified from bovine bone. Proc. Natl. Acad. Sci. USA 87:9843.

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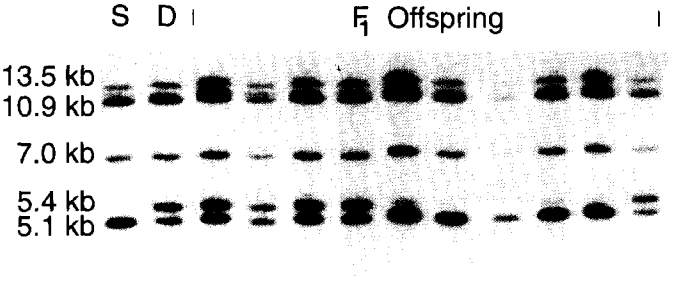

Figure 1. A Minzhu × Hampshire two-generation family with sire (S), dam (D) and F_1 offspring. The monomorphic 2.9-kb fragment is not shown.

Table 1. Percentage of BMP5 genotypes in several breeds

		Genotype[a]		
Breed	No.	5.1/5.1	5.1/5.4	5.4/5.4
Chester White	6	100	0	0
Duroc	6	67	33	0
Hampshire	9	78	22	0
Landrace	12	92	8	0
Meishan	5	100	0	0
Minzhu	2	100	0	0
Yorkshire	4	100	0	0

[a]5.1 = 5.1-kb BMP5 fragment, 5.4 = 5.4-kb BMP5 fragment.

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