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Rapid Communication: Myogenin (MYOG) Physically Maps to Porcine Chromosome 9q2.1-q2.6

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Abstract

Species and Locus. Pig Myogenin (MYOG). Source and Description of Primers. Oligonucleotide primers designed from pig cDNA sequence (GenBank accession no. U14331) were used to amplify a 1,644-bp fragment of the porcine MYOG gene. Primer Sequences. Forward primer: 5¢-TCT ATG ACG GGG AAA ACT AC-3¢; reverse primer: 5¢-TGG AGC CAG AGT GGT GTA TC-3¢.

Keywords

Pigs, Myogenin, Chromosome Maps

Rapid Communication: Myogenin (MYOG) Physically Maps to Porcine Chromosome 9q2.1–q2.6[1]

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Method of Detection. A PCR was performed on a somatic cell hybrid panel using 10 ng of genomic DNA in 30-μL reactions containing 1× PCR buffer (Promega), 1.5 m*M* $MgCl_2$, 200 μM each dNTP, .3 μM each primer, and 1 U *Taq* polymerase (Promega). The PCR profile included an initial denaturation of 3 min at 94°C followed by 35 cycles of 94°C for 1 min, 54°C for 1 min, 72°C for 2 min, and a final extension of 72°C for 10 min. No PCR products were obtained from mouse or Chinese hamster genomic DNA using these reaction conditions. Analysis of 27 porcine-rodent somatic cell hybrids (Yerle et al., 1996) allowed regional assignment of MYOG to porcine chromosome 9q2.1–q2.6 with 100% concordancy (Chevalet et al., 1997) (Figure 1).

Chromosomal Location. 9q2.1–q2.6.

Comments. Myogenin is a member of the basic helix-loop-helix family of skeletal muscle-specific transcription factors. Results of this study confirm the genetic linkage mapping results from our laboratory (Archibald et al., 1995). The localization of MYOG to porcine chromosome 9q2.1–q2.6 is in agreement with the previous assignment of this gene to human chromosome 1q31–q41 (Olson et al., 1990); chromosomal painting analysis has demonstrated correspondence between pig chromosome 9q2.3–qter and human chromosome 1q31–qter (Goureau et al., 1996).

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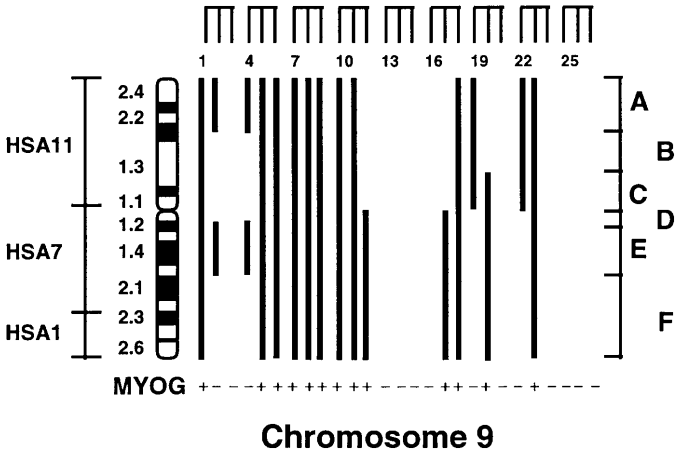

Figure 1. Diagram representing the presence of fragments of porcine chromosome 9 in each hybrid clone. The chromosome fragments are shown as solid bars spanning the length of the fragment. The presence of various chromosome 9 fragments enables the definition of regions named by a capital letter. Syntenic regions on corresponding human chromosomes are shown on the left. Positive hybrids for MYOG are shown at the bottom of the figure and indicate that MYOG maps to either Region D or Region F. Results of chromosomal painting analyses support localization of this gene to Region F because MYOG maps to a homologous segment of human chromosome 1.

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