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Abstract

Source and Description of Probe. A 2.7-kb human cDNA clone for TAP2 was excised from the XbaI site of the plasmid pRSV.5neo (Bahram et al., 1991). Method of Detection. DNA was isolated from whole blood and digested with TuqI. Fragments were separated by agarose gel electrophoresis and transferred to charged nylon membranes. Hybridizations were for 16 to 20 h at 65°C (10% dextran sulfate, 7% SDS, .263 M Na₂HP0₄, 1% BSA, 1 mM EDTA, 100 pglmL sonicated denatured salmon sperm DNA). Final washes were at 65°C in .7x SSC, 5% SDS for 15 to 20 min.

Keywords

Words: Porcine, MHC, TAP2, RFLP

Disciplines

Agriculture | Animal Sciences | Genetics and Genomics

Comments

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Rapid Communication: *TaqI* Restriction Fragment Length Polymorphism at the Porcine *Transporter Associated with Antigen Processing 2 (TAP2)* Locus^{1,2}

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Description of Polymorphism. Hybridization of porcine *TaqI* digests with the human *TAP2* probe revealed two fragments, 3.0 kb and 2.9 kb in size. Polymorphisms were also detected in 16 unrelated animals with *NcoI*, *PvuII*, *RsaI*, and *XbaI*. No polymorphisms were detected using *MspI* or *SstI*.

Inheritance Pattern. Autosomal Mendelian segregation of the 3.0-kb and the 2.9-kb *TaqI* fragments was observed in 59 animals in two, three-generation Meishan-Hampshire reference families. Segregation from one of these families is presented (Figure 1).

Frequency. Analysis of 57 unrelated animals from seven breeds indicated the overall allelic frequencies of .90 for the 3.0-kb *TaqI* fragment and .10 for the 2.9-kb *TaqI* fragment (Table 1).

Comments. The *Transporter Associated with Antigen Processing 2 (TAP2)* gene is a MHC class II gene associated with the class I antigen presentation pathway. The *TAP2* protein product is homologous to mammalian and bacterial ATP-dependent transport proteins and is also a member of a gene superfamily of transport proteins. *TAP2* is the standard nomenclature for all species, but it has also been called *HAM2*, *mtp2*, *Y1*, *PSF2*, and *RING11*.

Literature Cited

Bahram, S., D. Arnold, M. Bresnahan, J. Strominger, and T. Spies. 1991. Two putative subunits of a peptide pump encoded in the human major histocompatibility complex class II region. *Proc. Natl. Acad. Sci. USA* 88:10094.

Key Words: Porcine, MHC, *TAP2*, RFLP

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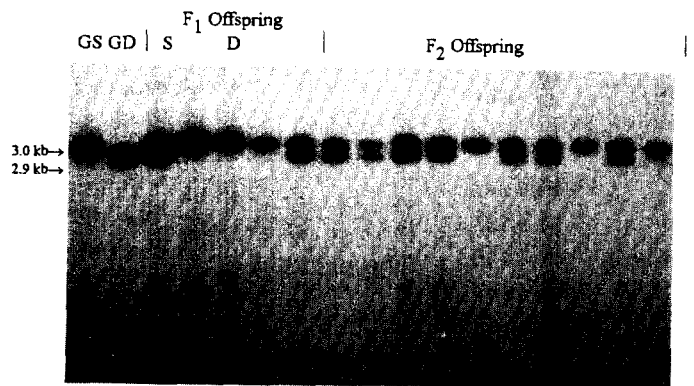


Figure 1. A Meishan × Hampshire three-generation pedigree with grandsire (GS), grandam (GD), sire (S), dam (D), and F₂ offspring.

Table 1. Frequency of *TaqI TAP2* genotypes^a in several breeds

Breed	n	3.0/3.0	3.0/2.9	2.9/2.9
Meishan	5	40	60	0
Minzhu	3	33	33	33
Duroc	10	90	10	0
Hampshire	11	64	36	0
Landrace	12	92	8	0
Yorkshire	8	100	0	0
Chester White	8	100	0	0

^a3.0 allele = 3.0-kb *TaqI* fragment; 2.9 allele = 2.9-kb *TaqI* fragment.

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