Two single nucleotide polymorphisms (SNP TXNIP and SNP ARNT), both on chromosome 4, have been reported to be associated with roundworm (Ascaris suum) burden in pigs. In the present study, we selected pigs with two SNP TXNIP genotypes (AA; n=24 and AB; n=24) which, from eight weeks of age were trickle-infected with A. suum until necropsy at week 8 post first infection (PI), to test the hypothesis that pigs with the AA genotype would have higher levels of resistance than pigs of the AB genotype. We used different indicators of resistance (worm burden, faecal egg counts, number of liver white spots and A. suum-specific serum IgG antibody levels). Pigs of the AA genotype had lower mean macroscopic worm burden (2.4 vs. 19.3; P=0.06), lower mean total worm burden (26.5 vs. 70.1; P=0.06) and excreted fewer A. suum eggs at week 8 PI (mean number of eggs/g faeces: 238 vs. 1259; P=0.14) than pigs of the AB genotype. The pigs were also genotyped at another locus (SNP ARNT) which showed a similar trend. This study provides suggestive evidence that resistant pigs may be selected using a genetic marker, TXNIP, and provides further support to the QTL on porcine chromosome 4.

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