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2 **Supplementary Figure 1**

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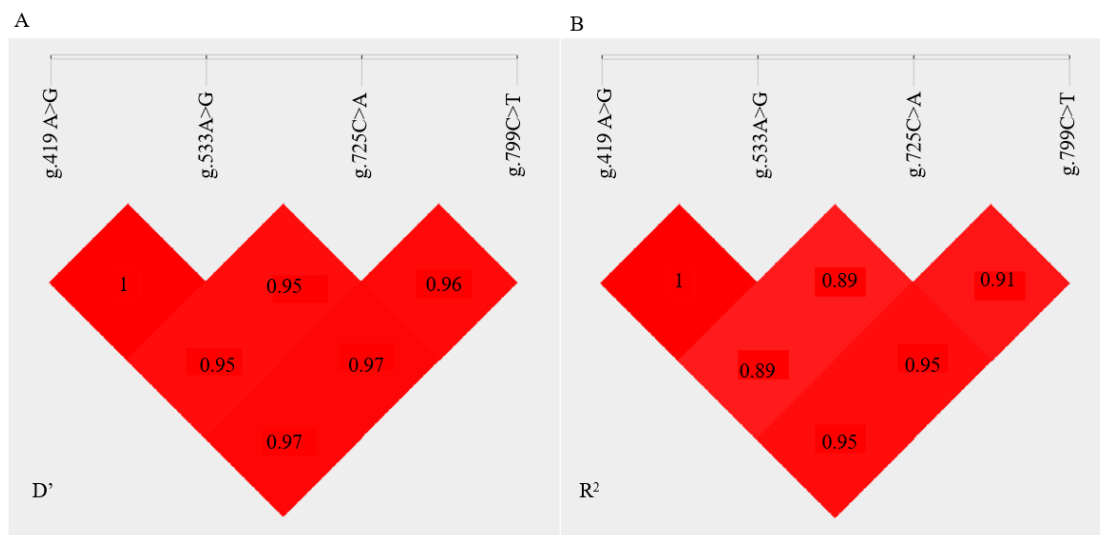
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Supplementary Table 1. Information of primer used for PCR

Primer sequence (5' - 3')	Length (bp)	Annealed temperature (°C)	Genbank (ID)
<i>For coding sequence</i>			
F: CTAAGTGAGGGCATTGGGC	571	61	XM_013194617.1
R: AGCCATCTGACGGGTGAGCCT			
F: CTGACCTCCATTCACAAGCCA	706	59	
R: CTCACCACTCTTCCTGCTCAAC			
<i>For mutation loci</i>			
F: CTAAGTGAGGGCATTGGGC	523	58	
R: CACGGAGTGCGAGCAGTAG			
F: CTGGACAAGCAAGTCGCAC	602	58	
R: CAGCCAAAGCCGAACCTC			

F: GCTTCTCCTTGCCACCTC

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R: CACTCTTCCTGCTCAACTGC

16 F, forward sequence; R, reverse sequence.

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Supplementary Table 2. Genotypic and allelic frequencies and population indexes for three single nucleotide polymorphisms (SNPs) of the

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goose *DIO2* gene

Position	Observed	Genotype	Allelic	χ^2	PIC	Genetic polymorphism		
	Genotypes (N)	frequencies	frequencies	(<i>P</i> -value)		He	Ho	Ne
g.419 A>G	GG (96)	0.32		1.24 (<i>p</i> = 0.27)	0.373	0.495	0.505	1.98
	AA (67)	0.22	0.548 (G)					
	GA (141)	0.46	0.452 (A)					
g.533 A>G	GG (96)	0.32		1.24 (<i>p</i> = 0.27)	0.373	0.495	0.505	1.98
	AA (67)	0.22	0.548 (G)					
	GA (141)	0.46	0.452 (A)					
g.725 C>A	AA (99)	0.33	0.558 (A)	1.22 (<i>p</i> = 0.27)	0.372	0.493	0.507	1.97
	CC (64)	0.21	0.442 (C)					

	AC (140)	0.46						
	TT (96)	0.32						
g.799 C>T			0.551 (T)	0.74				
	CC (65)	0.21			0.372	0.495	0.505	1.98
			0.449 (C)	($p = 0.39$)				
	TC (143)	0.47						

30 Note: Numbers in parentheses indicated the number of individuals. PIC: polymorphism information content. He: heterozygosity. Ho:

31 homozygosity. Ne: effective number of alleles.

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Supplementary Table 3. The frequencies of each haplotypes/diplotypes for four loci of goose *DIO2* gene

Haplotype/Diplotype	Frequency (%)
GGAT	53.3
AACC	43.7
GGAT-GGAT	30.72
GGAT-AACC	39.76
AACC-AACC	23.49

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