

Table S1. Gene names, SNP ID and context sequences of the 45 SNPs genotyped in the sampled population of Sarda sheep (n = 1,112)

Gene symbol	SNP ID	Chr position	Context sequence
Protein Kinase AMP-Activated Catalytic Subunit Alpha2 - <i>PRKAA2</i>	rs119102735	1:30924815	GGCTCTTTCAGCAGATTCTGTCTGC[C/T]GTGGATTACTGTCATAGGCATATGG
	rs159701443	1:30927608	TCCAGATATCCACTTCAGGACCTGC[A/G]TACAGCCTAGGGGAAGATGACAGCA
	rs159701441	1:30927701	CACCCCCTCGGATCTTCTTAAACAG[C/T]GTAGGCACATGCTCATCATCAAATG
	rs159701440	1:30927764	CCTGCAGCATATGCATCAGGAGAGT[A/G]GCAACAGAACGATTGAGATATTCTG
Protein Kinase AMP-Activated Non-Catalytic Subunit Gamma3 - <i>PRKAG3</i>	rs159573140	2:219779811	GATGCCCAGATCTTGGATGGTGCGG[G/T]AGAGGAAGGAGGGCCGGGGCAGCAG
	rs159573109	2:219781592	TCCCTCCAGACACAGCGTCCTCCGC[C/T]TCAGTGCTTCTCCCACACTTATATC
	rs159573167	2:219782111	AGCCTGAGCACCGGCACCTGCGGGG[A/G]CGGGCACTGGGCCGGCCTCTCTTCC
Beta-1,4-Galactosyltransferase 1 - <i>B4GALT1</i>	rs160176029	2:37813170	GTTCTGCAAAGGCGGCGGCGGTGCG[A/G]CCCCTCGCAGCCGGAGCTCCCCGGA
	rs160176020	2:37813323	GAGCAGCGGGGACTCCTCAGGGCAT[A/C]CGGTCAGCGAGCGTGTTGTGGTGGA
	rs160175821	2:37862428	ATTAGTTTCATTTTTCTTGTCTCTC[A/G]AGTGGCGGATCATCCGACACTTCCC
	rs160175809	2:37863227	CAAGTTGGGGGCAATATATCCCCT[C/T]GTCCTGGTCGTCCGGAAAGGCGTCT
Toll Like Receptor 4 - <i>TLR4</i>	rs160202330	2:5881259	CAGGTGGAGCTCTATCGCCTTCTGA[A/G]CAGGAACACCTACCTGGAGTGGGAG
	rs160202321	2:5881892	ACTTGCTAAATCTTACTCAGAATG[A/C]ATTTGCTTGTGTTTGTGAACATCAG
	rs160202315	2:5882073	AGCCCAGACAGCATTTCCTCCCTC[C/T]CTAGCCTTCAGGTGCTGAATATGAG
Tyrosinase Related Protein 1 - <i>TYRP1</i> Insulin Like Growth Factor 1 - <i>IGF1</i>	rs416417209	2:80645322	CCTGGGCTCAGTTCCTCCGAGAGAGTG[C/T]GCTACCATTGAGGCTTTGAGGAATG
	rs159876390	3:171055347	GGGGCGCCCTCCGACTGCTCGAGCC[A/G]TACCCCGTGGGCTTGTCTGTTCAGA
	rs159876394	3:171108350	CTCGGGTCCCCCGCGTGGCAGAGCTG[C/G]TGAAGGCGAGCAAGCACAGGGCCAG
	rs401028781	3:171113596	GCAACCAGGACGAGGGGTCATCCCA[G/C]CGCCGTCTTCCAGTCTAGTTTACCC
Growth Hormone Releasing Hormone Receptor - <i>GHRHR</i>	rs409504706	4:65329776	AATCTGGGAGGACTTTCTGGAAGAG[G/T]TGTCCTTGAATTAGACTTTGAAAGA
	rs161797246	4:65363733	CATGGGGCAGCCCTGAGACCCCTTA[C/T]CCAGTGGTCCTGGAAATTGTGCGTA
Cluster of Differentiation 14 Molecule - <i>CD14</i>	rs160087365	5:49076357	ACCACGCCGGAGATCATCGGGTCAT[C/T]TTGGTGCTGGAGGGCTCCAGGGTCC
	rs160087371	5:49076541	GCCCAGCGAACGACAAATTGAGAGA[C/G]CTTAGTGCACTGGGCCAGACACATC
	rs160087378	5:49076911	TCGCCGAGCCAGGCACCTCCTGTTG[C/T]CCACGATACGTTACGGAGACTGAGG
	rs160087383	5:49077142	ATTGTGTCAGCATACTGCTTCGGGT[C/T]GTGTGCGCTCCCTTGAGAACTGTT
ATP Binding Cassette Subfamily G Member 2 - <i>ABCG2</i>	rs159956845	6:36443358	TTCCCTCCACAGGAAGGCGGAAATG[C/T]TCAAAATGTCTTCCAATAGTTACGA
	rs159956885	6:36467030	TGTCATCAGCTCAAATGGATTTC[A/G]GCGTTCATTCAAAAATTTACTGGGT
	rs159956974	6:36472926	TTTCTATGATCTAAAAAATGATCCT[G/T]CAGGAATCCAGAACAGGTGAGTAAA

Neuropeptide FF Receptor 2 - <i>NPFFR2</i>	rs159980590	6:86895625	AACTGGCATTACATTTGGAATAATG[A/C]CACAACACATGATCTGTACTCAGAT
	rs159980593	6:86895777	CACAGTGGTTTGTCTTCATTGTAATG[A/T]GGAACAAACATATGCACACAGTCAC
Casein Kinase 1 Gamma 1 - <i>CSNK1G1</i>	rs160322386	7:42831179	AATACATTGACCCTGAAACCAAAAA[A/G]CATATACCTTATAGGGAACACAAAA
Growth Hormone Receptor – <i>GHR</i>	rs408890407	16:31833017	CTTTGTCAGGCAAGGGCAGGGCAGT[C/T]GCATTGAGTACGAGGCCCTGTGGAG
	rs161146164	16:31833100	ACAGGTATCTCAGAACTTGGAACAT[T/G]TTCTGCTGTCCCTGACCTCCCGGCT
	rs55631463	16:31833271	AAGTAAGCGCTGTCCACGATGAAGT[C/T]TGCTTGGCTGGGTGTGACCACTTCT
	rs413776054	16:31833547	CTAGCAGGGGCAGCATCATTAGAAG[G/A]TGAGTTATTTTGATTCTTCTGATCA
	rs404237321	16:31859509	AGAGAAACACTTATGATCCACAATA[C/T]CACCATTGCTAGTTAGCTTGATGCA
	rs428862267	16:32001143	CACTGATACTTTTCCAGGGCTATAG[G/A]AATTACTATCTAACTATCATAGTTG
	rs425834583	16:32003365	GGACAGGCACTATAGTATTTCCAGT[A/C]CCGAGGGCCTGTCAAGGACGGTGAT
Toll Like Receptor 2 - <i>TLR2</i>	rs162073318	17:3842561	ATCCACGGGCCACTCCAGGTAGGTC[C/T]TTGTCAATGGGCTCCAGCAGAATCA
Serpin Peptidase Inhibitor – <i>PI</i>	rs397514170	18:57828567	CTGCAGCAGCTGGAAGACAAGCTCA[A/G]CAACGAACCTCCTCGCCAAGTTCCTG
	rs397514169	18:57828697	GAAGGTGCCCATGATGAACCGCCTG[A/G]GCATGTTTGACCTCCACTACTGTGA
	rs397514168	18:57828741	CACACCACGGAGAGGGACTTCCACG[C/T]GAATGAGCAAACCACCGTGAAGGTG
	rs397514150	18:57829882	CTGCAACTGACCACCGCAATGGTC[C/T]GTTCAATCAATGAGAGTGCAAAGCTA
Phospholipase C Epsilon - <i>1PLCE1</i>	rs161473124	22:14967835	CAGTGACGAGAACAGTAATGAAAAG[C/T]GCTGGGAGAAAAGCATGCCAGATTC
	rs161473126	22:14967919	ATTGAAAAACCATCAGCACGGCCCT[C/T]CTCAGAGCCAGTTTTATGAAACGTG
	rs161473140	22:14968714	GAGAGTCATGGAACGGCTGTCAACA[A/G]TGGTGGTTAGGCAAGATGGTTCCCA

SNP ID: dbSNP reference records; Chr pos.: chromosome position on Oar_v3.1.

Table S2. *p*-value and significance for milk yield and composition, milk coagulation properties (MCP) and curd firmness over time traits (CF_t) according to the effect the 12 polymorphic SNPs out of 45 investigated in Sarda sheep (n = 1,112).

Gene	SNP ID	Milk yield and composition								MCP					CF _t				
		dMY	Fat	Protein	Casein	Lactose	pH	SCS	LBC	RCT	k ₂₀	a ₃₀	a ₄₅	a ₆₀	CF _P	k _{CF}	k _{SR}	CF _{max}	t _{max}
<i>PRKAA2</i>	rs119102735	0.773	0.202	0.706	0.611	0.045*	0.714	0.735	0.808	0.971	0.866	0.255	0.194	0.588	0.477	0.842	0.406	0.180	0.928
<i>PRKAA2</i>	rs159701441	0.934	0.455	0.729	0.713	0.420	0.614	0.775	0.450	0.747	0.684	0.960	0.684	0.517	0.923	0.406	0.470	0.319	0.557
<i>PRKAG3</i>	rs159573167	0.001***	0.194	0.015*	0.023*	0.065	0.898	0.004**	0.001***	0.019*	0.676	0.608	0.998	0.665	0.563	0.159	0.248	0.763	0.857
<i>B4GALT1</i>	rs160175809	0.936	0.334	0.339	0.470	0.753	0.673	0.417	0.631	0.769	0.528	0.798	0.723	0.332	0.424	0.765	0.418	0.408	0.999
<i>TLR4</i>	rs160202315	0.102	0.216	0.016*	0.022*	0.240	0.387	0.023*	0.001***	0.328	0.865	0.940	0.672	0.642	0.837	0.061	0.122	0.131	0.962
<i>TYRP1</i>	rs416417209	0.617	0.432	0.383	0.557	0.980	0.666	0.800	0.161	0.346	0.316	0.674	0.807	0.473	0.760	0.424	0.671	0.825	0.492
<i>IGF1</i>	rs159876390	0.457	0.379	0.223	0.182	0.800	0.551	0.090	0.060	0.834	0.830	0.401	0.275	0.326	0.106	0.436	0.504	0.916	0.824
<i>GHRHR</i>	rs409504706	0.814	0.576	0.692	0.655	0.817	0.286	0.128	0.442	0.415	0.205	0.713	0.246	0.202	0.837	0.088	0.030*	0.693	0.618
<i>CD14</i>	rs160087383	0.001***	0.848	0.523	0.530	0.603	0.862	0.235	0.215	0.039*	0.279	0.019*	0.112	0.275	0.531	0.775	0.879	0.130	0.895
<i>GHR</i>	rs408890407	0.544	0.835	0.849	0.902	0.065	0.389	0.372	0.729	0.498	0.241	0.773	0.999	0.962	0.161	0.289	0.337	0.944	0.436
<i>GHR</i>	rs55631463	0.140	0.653	0.930	0.988	0.780	0.296	0.596	0.853	0.443	0.308	0.214	0.130	0.349	0.387	0.109	0.001***	0.767	0.764
<i>GHR</i>	rs428862267	0.094	0.600	0.822	0.808	0.373	0.666	0.658	0.214	0.131	0.763	0.039*	0.065	0.207	0.705	0.330	0.159	0.395	0.454

dMY: daily milk yield; SCS: somatic cell score = $\log_2(\text{SCC} \times 10^{-5}) + 3$; LBC: logarithmic bacterial count = \log_{10} total bacterial count (total bacterial count/1,000); RCT: rennet coagulation time; k₂₀: curd firming time; a₃₀, a₄₅, and a₆₀: curd firmness 30, 45 and 60 minutes after rennet addition; CF_P: the maximum potential curd firmness after an infinite time; k_{CF}: curd-firming rate constant; k_{SR}: syneresis rate constant; CF_{max}: maximum curd firmness; and t_{max}: time to attain CF_{max}.

*** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$; no asterisk: non significant.

Table S3. *p*-value and significance for milk yield and composition, milk coagulation properties (MCP) and curd firmness over time traits (CF_t) according to the effect of the block evidenced among the 45 SNPs investigated in Sarda sheep (n = 1,112).

Evidenced among the 45 SNPs investigated in Sarda sheep (n = 1,112).																		
Block	Milk yield and composition								MCP					CF _t				
ID	dMY	Fat	Protein	Casein	Lactose	pH	SCS	LBC	RCT	k ₂₀	a ₃₀	a ₄₅	a ₆₀	CF _P	k _{CF}	k _{SR}	CF _{max}	t _{max}
Block 1	0.870	0.429	0.989	0.803	0.320	0.689	0.954	0.326	0.695	0.894	0.579	0.536	0.838	0.325	0.507	0.572	0.967	0.889

Block 1: chromosome 16, GHR gene SNPs rs408890407 and rs55631463. dMY: daily milk yield; SCS: somatic cell score = $\log_2 (\text{SCC} \times 10^{-5}) + 3$; LBC: logarithmic bacterial count = \log_{10} total bacterial count (total bacterial count/1,000); RCT: rennet coagulation time; k₂₀: curd firming time; a₃₀, a₄₅, and a₆₀: curd firmness 30, 45 and 60 minutes after rennet addition; CF_P: the maximum potential curd firmness after an infinite time; k_{CF}: curd-firming rate constant; k_{SR}: syneresis rate constant; CF_{max}: maximum curd firmness; and t_{max}: time to attain CF_{max}.

No asterisk: non significant.