



Supplement of

Genome-wide association study for polledness, horn shape, and wool traits in Original Valachian sheep

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Table S1. QTL content in the genomic regions of 1 Mb centered on the most significant SNP from the GWAS study (source: <https://animalgenome.org/QTLdb/>).

Phenotype	Chr	Position (Mb)	SNP name	$-\log_{10}(p)$ from GWAS	QTL	Gene content
Polledness	6	93.37	Chr6:93370144	4.46	Milk protein percentage Milk yield Reactivity to humans	<i>CXCL13</i> , <i>CNOT6L</i> , <i>MRPL1</i> , <i>FRAS1</i>
Polledness	10	29.45	RXFP2_insert_L1	4.15	Horn type Horn circumference Horn length Tail fat deposition	<i>ZAR1L</i> , <i>FRY</i> , <i>RXFP2</i> , <i>B3GLCT</i>
Polledness	10	30.91	OAR10_31042465.1	11.11	Horn type Horn circumference Horn length Tail fat deposition	<i>USPL1</i> , <i>HMGB1</i> , <i>KATNAL1</i> , <i>UBL3</i> , <i>SLC7A1</i> , <i>MTUS2</i>
side-way turned horns vs polled	2	143.33	OAR2_143337545.1	4.98	Intermuscular fat weight	<i>SCN7A</i> , <i>SCN1A</i> , <i>SCN9A</i> , <i>TTC21B</i>
side-way turned horns vs polled	4	83.45	OAR4_88648994.1	4.96	No QTL	<i>YAE1</i> , <i>POU6F2</i> , <i>VPS41</i>
side-way turned horns vs polled	6	88.76	OAR6_88762364.1	6.12	Fecal egg count	<i>ADAMTS3</i> , <i>ANKRD17</i> , <i>ALB</i> , <i>AFM</i>
side-way turned horns vs polled	10	30.91	OAR10_31042465.1	9.89	Horn type	<i>USPL1</i> , <i>HMGB1</i> , <i>KATNAL1</i> , <i>UBL3</i> , <i>SLC7A1</i> , <i>MTUS2</i>
side-way turned horns vs polled	23	14.93	s43526.1	5.11	Body and carcass weight Average daily gain Foot angle	No protein coding genes
Backwards-curved horns vs polled	2	247.47	DU499350_422.1	5.08	Milk fat percentage Carcass and body weight	<i>UBR4</i> , <i>IFFO2</i> , <i>ALDH4A1</i> , <i>TAS1R2</i> , <i>PAX7</i>

					Bone density	
Backwards-curved horns vs polled	4	103.41	s11139.1	5.34	Blood characteristics Pneumonia susceptibility	<i>DGKI</i> , <i>CREB3L2</i> , <i>AKR1D1</i> , <i>TRIM24</i> , <i>SVOPL</i>
Backwards-curved horns vs polled	10	31.29	s03052.1	5.91	Horn type Fecal egg count Carcass traits	<i>UBL3</i> , <i>SLC7A1</i> , <i>MTUS2</i> , <i>SLC46A3</i>
Backwards-curved horns vs polled	26	31.67	OAR26_31673849_X.1	5.32	Stature Carcass weight Udder attachment	<i>KCNU1</i> , <i>ZNF703</i> , <i>ERLIN2</i> , <i>PLPBP</i>
Backwards-curved horns vs polled	26	40.22	OAR26_40222433.1	5.46	Stature Body weight Vocalization traits	<i>RARB</i>
side-way turned vs backwards-curved horns	1	260.79	s52939.1	6.16	No QTL	<i>LCA5L</i> , <i>B3GALT5</i> , <i>IGSF5</i> , <i>PCP4</i> , <i>DSCAM</i>
side-way turned vs the backwards-curved horns	3	42.35	s73851.1	13.86	No QTL	<i>MEIS1</i>
side-way turned vs the backwards-curved horns	3	82.69	s12856.1	7.13	Body weight Average daily gain Milk yield	No protein coding genes
side-way turned vs the backwards-curved horns	10	0.01	OAR10_12531.1	8.51	No QTL	<i>PCDH20</i>
side-way turned vs the backwards-curved horns	10	29.45	RXFP2_insert_L1 29456050	6.85	Horn type Horn length Horn circumference Tail fat deposition	<i>ZAR1L</i> , <i>FRY</i> , <i>RXFP2</i> , <i>B3GLCT</i>
side-way turned vs the backwards-curved horns	17	14.11	Chr17:14112366	5.96	Fecal egg count	<i>FREM3</i> , <i>SMARCA5</i>
side-way turned vs the backwards-curved horns	22	43.75	oar3_OAR22_43747064	6.74	Carcass bone percentage Muscle density	<i>CHST15</i> , <i>OAT</i> , <i>NKX1-2</i> , <i>FAM53B</i> , <i>EEF1AKMT2</i> ,

						<i>ABRAXAS2, ZRANB1, CTBP2</i>
side-way turned vs the backwards- curled horns	26	40.87	oar3_OAR26_40876522	6.16	Vocalisation behavior Vocalisation during isolation box test Vocalisation during corridor test	<i>THRB, NR1D2</i>
side-way turned vs the backwards- curled horns	26	42.44	oar3_OAR26_42437568	8.75	No QTL	<i>UBE2E2, ZNF385D</i>
wool colour (white vs black)	14	14.23	oar3_OAR14_14231948	6.13	Coat colour Fecal egg count Total lambs born	<i>ACSF3, CDH15, SLC22A31, ANKRD11, SPG7, RPL13, CPNE7, DPEP1, CHMP1A, CDK10, SPATA2L, ZNF276, VPS9D1, FANCA, SPIRE2, TCF25, MC1R, DEF8, DBNDD1, GAS8, SHCBP1, VPS35, ORC6, MYLK3</i>
wool colour (white vs black)	20	10.77	oar3_OAR20_10774806	6.30	Milk Yield	<i>BNIP5, KCTD20, PXT1, STK38, SRSF3, CDKN1A, RAB44, CPNE5, PPIL1, PI16, FGD2, MTCH1, PIM1,</i>

						<i>TBC1D22B,</i> <i>TMEM217</i>
wool colour (white vs black)	24	15.37	s05526.1	5.75	No QTL	<i>ABCC1,</i> <i>ABCC6</i>
