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*Reproduction, Fertility and Development*

### Supplementary Material

#### **Genotyping of rams based on melatonin receptor 1A gene polymorphisms: a tool in sire selection?**

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## Supplementary material

**Table S1.** Percentage of progressive, non-capacitated, capacitated, acrosome reacted and with normal morphology spermatozoa in semen samples from animals carrying different *RsaI* genotypes (C/C = 9 rams; C/T = 5 rams; and T/T = 4 rams) during the Reproductive season and the Non-reproductive season. Data are shown as mean  $\pm$  S.E.M. (n = number of rams of each genotype \* 6 semen samples per season).

Parameter	Reproductive season			Non-reproductive season		
	C/C	C/T	T/T	C/C	C/T	T/T
Progressive motility (%)	30.2 $\pm$ 1.44	32.76 $\pm$ 1.77	27.43 $\pm$ 2.31	31.2 $\pm$ 1.62	36.33 $\pm$ 2.22	33.92 $\pm$ 2.06
Non-capacitated sperm (%)	83.51 $\pm$ 1.54	86.43 $\pm$ 1.4	84.57 $\pm$ 2	79.09 $\pm$ 1.88	82.38 $\pm$ 1.26	78.78 $\pm$ 1.94
Capacitated sperm (%)	12.3 $\pm$ 1.21	9.74 $\pm$ 1.13	12.29 $\pm$ 1.75	15.43 $\pm$ 0.92	13.55 $\pm$ 1.19	17.48 $\pm$ 1.79
Acrosome reacted sperm (%)	4.3 $\pm$ 0.59	3.83 $\pm$ 0.76	3.24 $\pm$ 0.63	3.91 $\pm$ 0.46	4.07 $\pm$ 0.46	3.74 $\pm$ 0.76
Normal morphology (%)	91.83 $\pm$ 1.26	93.56 $\pm$ 1.04	92.86 $\pm$ 1.47	90.55 $\pm$ 1.12	91.17 $\pm$ 1.43	93.35 $\pm$ 0.77

**Table S2.** Percentage of progressive, non-capacitated, capacitated, acrosome reacted and with normal morphology spermatozoa in semen samples from animals carrying different *MnlI* genotypes (G/G = 7 rams; G/A = 7 rams; and A/A = 4 rams) during the Reproductive season and the Non-reproductive season. Data are shown as mean  $\pm$  S.E.M. (n = number of rams of each genotype \* 6 semen samples per season).

Parameter	Reproductive season			Non-reproductive season		
	G/G	A/G	A/A	G/G	A/G	A/A
Progressive motility (%)	29.06 $\pm$ 1.73	30.24 $\pm$ 1.54	32.04 $\pm$ 2.23	33.76 $\pm$ 1.55	32.86 $\pm$ 2.11	32.96 $\pm$ 2.3
Non-capacitated sperm (%)	83.29 $\pm$ 1.52	85.53 $\pm$ 1.7	84.22 $\pm$ 2.07	80.41 $\pm$ 1.27	81.98 $\pm$ 1.54	75.71 $\pm$ 3.37
Capacitated sperm (%)	13.32 $\pm$ 1.35	9.78 $\pm$ 1.25	12.61 $\pm$ 1.62	15.63 $\pm$ 1.16	14.28 $\pm$ 1.23	16.71 $\pm$ 1.09
Acrosome reacted sperm (%)	3.44 $\pm$ 0.52	4.85 $\pm$ 0.72	3.17 $\pm$ 0.71	3.95 $\pm$ 0.52	3.73 $\pm$ 0.55	4.17 $\pm$ 0.46
Normal morphology (%)	93.23 $\pm$ 1.08	90.54 $\pm$ 1.53	94.81 $\pm$ 0.8	92.42 $\pm$ 0.94	90.25 $\pm$ 1.41	91.65 $\pm$ 0.99

**Table S3.** Percentage of progressive, non-capacitated, capacitated, acrosome reacted and with normal morphology spermatozoa in semen samples from animals carrying different combinations of *RsaI* and *MnlI* polymorphisms (C/C\*G/G = 1 ram; C/T\*G/G = 2 rams; T/T\*G/G = 4 rams; C/C\*G/A = 4 rams; C/T\*G/A = 3 rams; and C/C\*A/A = 4 rams) during the Reproductive season and the Non-reproductive season. Data are shown as mean  $\pm$  S.E.M. (n = number of rams of each genotype \* 6 semen samples per season).

Parameter	Reproductive season						Non-reproductive season					
	C/C*G/G	C/T*G/G	T/T*G/G	C/C*A/G	C/T*A/G	C/C*A/A	C/C*G/G	C/T*G/G	T/T*G/G	C/C*A/G	C/T*A/G	C/C*A/A
Progressive motility (%)	33 $\pm$ 4.15	30 $\pm$ 3.26	27.43 $\pm$ 2.31	27.43 $\pm$ 2.05	33.83 $\pm$ 2.11	32.04 $\pm$ 2.23	24.83 $\pm$ 3.58	37.92 $\pm$ 2.3	33.92 $\pm$ 2.06	31.04 $\pm$ 2.66	35.28 $\pm$ 3.4	32.96 $\pm$ 2.3
Non-capacitated sperm (%)	78 $\pm$ 2.93	85 $\pm$ 3.16	84.57 $\pm$ 2	84.48 $\pm$ 2.72	86.94 $\pm$ 1.57	84.22 $\pm$ 2.07	84 $\pm$ 2.07	81.75 $\pm$ 1.81	78.78 $\pm$ 1.94	81.35 $\pm$ 2.37	82.82 $\pm$ 1.76	75.71 $\pm$ 3.37
Capacitated sperm (%)	17.14 $\pm$ 3.01	12.5 $\pm$ 2.81	12.29 $\pm$ 1.75	10.52 $\pm$ 2.02	8.76 $\pm$ 1.12	12.61 $\pm$ 1.62	13.17 $\pm$ 1.85	13.33 $\pm$ 1.51	17.48 $\pm$ 1.79	14.7 $\pm$ 1.73	13.71 $\pm$ 1.76	16.71 $\pm$ 1.09
Acrosome reacted sperm (%)	4.86 $\pm$ 1.53	2.5 $\pm$ 0.89	3.24 $\pm$ 0.63	5.26 $\pm$ 1.04	4.29 $\pm$ 0.97	3.17 $\pm$ 0.71	2.83 $\pm$ 0.6	4.92 $\pm$ 0.94	3.74 $\pm$ 0.76	3.91 $\pm$ 0.93	3.47 $\pm$ 0.37	4.17 $\pm$ 0.46
Normal morphology (%)	95.5 $\pm$ 2.18	92.25 $\pm$ 2.24	92.86 $\pm$ 1.47	87.94 $\pm$ 2.36	94 $\pm$ 1.19	94.81 $\pm$ 0.8	92.17 $\pm$ 2.68	89.17 $\pm$ 3.90	93.35 $\pm$ 0.77	88.95 $\pm$ 2.28	91.83 $\pm$ 1.44	91.65 $\pm$ 0.99