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Supplementary Material: *Reproduction, Fertility and Development*

## Supplementary Material

### **Comparative analysis of granulosa cell gene expression in association with oocyte competence in FSH-stimulated Holstein cows**

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**Table S1. Animal selection for the microarray analysis with the information on follicle sizes, total number of aspirated follicles, number of oocytes in maturation and number of viable embryos (blastocyst)**

The percentage of embryos refers to the ratio between the number of oocytes in maturation and the number of viable embryos

OPU Date	Cow I.D	Age at OPU	SPO Program	Coasting Duration	Follicles 1-4 mm	Follicles 5-6 mm	Follicles 7-10 mm	Follicles 11-15 mm	Follicles > 15 mm	Total Aspirated Follicles	Oocytes in Maturation	Number of Viable Embryos	Embryos (0%)
<b>Pool #1</b>													
2014-02-18	Good1	14 months	P150F	30	0	1	6	3	0	10	5	4	80
2014-02-18	Good2	14 months	P150F	19	0	1	13	2	0	16	11	8	73
2014-02-04	Good3	14 months	P150F	30	0	1	2	6	0	9	9	7	78
2013-12-03	Good4	3 years	P240F	43	0	0	5	5	2	12	5	4	80
<b>Average</b>		<b>19.5</b>	-	-	<b>0</b>	<b>0.75</b>	<b>6.5</b>	<b>4</b>	<b>0.5</b>	<b>11.75</b>	<b>7.5</b>	<b>5.75</b>	<b>78</b>
<b>Pool #2</b>													
2014-10-27	Good1	21 months	P180F	43	1	3	8	5	0	17	12	9	75
2014-10-27	Good2	3 years	P240F	43	0	5	15	0	0	20	11	9	82
2014-11-10	Good3	21 months	P180F	43	0	2	18	2	0	22	23	20	87
2014-12-01	Good4	23 months	P180F	43	0	7	12	1	0	20	17	13	76
<b>Average</b>		<b>25.25</b>	-	-	<b>0.25</b>	<b>4.25</b>	<b>13.25</b>	<b>2</b>	<b>0</b>	<b>19.75</b>	<b>15.75</b>	<b>12.75</b>	<b>80</b>
<b>Pool #3</b>													
2014-02-11	Good1	16 months	P150F	30	0	6	14	0	0	20	12	10	83
2014-12-08	Good2	15 months	P180F	30	0	0	8	2	0	16	11	8	73
2014-12-15	Good3	8 years	P240F	30	0	4	10	0	0	14	7	6	86
2014-12-15	Good4	18 months	P180F	43	0	1	3	2	0	6	4	3	75
<b>Average</b>		<b>36.25</b>	-	-	<b>0</b>	<b>4.25</b>	<b>8.75</b>	<b>1</b>	<b>0</b>	<b>14</b>	<b>8.5</b>	<b>6.75</b>	<b>79</b>
<b>Pool #4</b>													
2014-10-20	Good1	8 years	P240F	30	0	0	8	2	0	10	5	5	100
2014-11-24	Good2	16 months	P180F	43	0	5	11	0	0	16	10	7	70
2014-11-24	Good3	8 years	P240F	30	0	4	9	1	0	14	9	7	78
2014-02-04	Good4	13 months	P150F	30	0	3	19	0	0	22	18	13	72
<b>Average</b>		<b>55.25</b>	-	-	<b>0</b>	<b>3</b>	<b>11.75</b>	<b>0.75</b>	<b>0</b>	<b>15.5</b>	<b>10.5</b>	<b>8</b>	<b>80</b>
<b>Pool #5</b>													
2013-12-10	Poor1	12 months	P150F	30	0	0	9	2	0	11	11	3	27
2014-12-08	Poor2	22 months	P180F	43	0	1	8	1	0	10	7	2	29
2014-10-20	Poor3	13 months	P180F	30	0	1	9	2	0	12	10	1	10
2014-10-27	Poor4	6 years	P240F	43	0	13	39	0	0	52	41	9	22
<b>Average</b>		<b>29.75</b>	-	-	<b>0</b>	<b>3.75</b>	<b>16.25</b>	<b>1.25</b>	<b>0</b>	<b>21.25</b>	<b>17.25</b>	<b>3.75</b>	<b>22</b>
<b>Pool #6</b>													
2014-11-24	Poor1	22 months	P180F	43	0	5	15	5	0	25	21	6	29
2014-12-01	Poor2	5 years	P240F	43	1	1	5	1	0	8	6	0	0
2013-12-10	Poor3	13 months	P150F	30	0	4	19	8	0	31	23	7	30
2014-12-15	Poor4	18 months	P180F	43	0	2	7	4	0	13	12	3	25
<b>Average</b>		<b>28.25</b>	-	-	<b>0.25</b>	<b>3</b>	<b>11.5</b>	<b>4.5</b>	<b>0</b>	<b>19.25</b>	<b>15.5</b>	<b>4</b>	<b>21</b>
<b>Pool #7</b>													
2014-11-10	Poor1	21 months	P180F	43	2	2	1	0	0	5	7	2	29
2014-12-08	Poor2	3 years	P240F	43	0	6	12	4	0	22	14	3	21
2014-11-10	Poor3	6 years	P240F	43	0	15	38	8	0	61	43	15	35
2014-11-10	Poor4	15 months	P180F	30	0	1	4	3	0	8	5	0	0
<b>Average</b>		<b>36</b>	-	-	<b>0.5</b>	<b>6</b>	<b>13.75</b>	<b>3.75</b>	<b>0</b>	<b>24</b>	<b>17.25</b>	<b>5</b>	<b>21</b>
<b>Pool #8</b>													
2014-10-20	Poor1	3 years	P240F	43	0	0	12	6	0	18	12	3	25
2013-12-10	Poor2	13 months	P150F	30	0	3	11	3	0	17	16	5	31
2013-12-10	Poor3	16 months	P150F	30	0	0	6	3	0	9	5	0	0
2014-11-24	Poor4	3 years	P240F	43	0	7	11	1	0	19	15	4	27
<b>Average</b>		<b>25.25</b>	-	-	<b>0</b>	<b>2.5</b>	<b>10</b>	<b>3.25</b>	<b>0</b>	<b>15.75</b>	<b>12</b>	<b>3</b>	<b>21</b>
ANOVA	-	-	-	-	N.S	N.S	N.S	N.S	N.S	N.S	N.S	(P<0.05)	(P<0.05)

**Table S2. List of the 72 genes differentially expressed ( $fc \geq 1.5$ ,  $P < 0.05$ ) in the comparison of poor versus good donors with the raw symmetrical fold-change and statistical significance ( $P$ -value)**

Gene symbol	Fold change	$P$ -value	Gene symbol	Fold change	$P$ -value
LUM	3.627317	0.002474616	JUN	-1.567378	0.01911778
GPX6	2.556556	0.02261067	TRPM6	-1.593232	0.0300385
RAB38	1.931243	0.000230169	TMEM79	-1.593997	0.03413238
CARTPT	1.925002	0.01329396	ABCA3	-1.604337	0.000738508
IGSF11	1.900717	0.000136452	MMP7	-1.608459	0.000641934
SLC38A2	1.83982	0.000765694	SETX	-1.630486	0.005143528
USP50	1.833847	0.01008011	CHST4	-1.646124	0.02726936
CLU	1.710803	0.03357212	KIAA1737	-1.650971	0.003634006
MAL2	1.660993	0.000405846	WWC1	-1.659587	0.003127952
HMCN1	1.648876	0.007514724	SERPINB4	-1.660379	0.01873367
CDH2	1.641244	0.02838836	RUNX1T1	-1.676873	0.02851859
CCNB1IP1	1.620082	0.000244699	GIMAP6	-1.67727	0.03265761
TMEFF2	1.575506	0.0164174	PLA2G6	-1.688972	0.000105436
ZNF391	1.557867	0.01001603	INHA	-1.689603	0.01086921
FEZ1	1.531702	0.004950878	CLEC2L	-1.707389	0.002858025
RGS7	1.510848	0.001700443	PIGR	-1.712788	0.00338853
FSD1	1.505096	0.03899792	NUDT4	-1.752517	0.009658898
SLC37A1	-1.503263	0.004494458	C28H10orf5 7	-1.75681	0.001520848
TMUB1	-1.50387	0.004922629	ZNF295	-1.794232	0.007276165
UPLP	-1.507879	0.01948026	FGFR2	-1.798736	0.01002178
RARA	-1.508098	0.01500485	PLAC8	-1.815297	0.008775145
IFI27L2	-1.509744	0.001927701	KRAS	-1.82904	4.08E-05
SLC30A7	-1.519336	0.005060526	VNN2	-1.867502	0.02137052
CHADL	-1.519963	0.000379435	ABHD8	-1.873638	0.001373457
MECP2	-1.525504	0.000928258	MGST2	-1.887881	0.01275033
IMPACT	-1.526818	0.01920168	PACSIN1	-1.928247	9.60E-05
NT5M	-1.529137	0.000434609	IGLL1	-1.969435	0.01641942
PDE6G	-1.540464	0.009066276	SERPINA1	-2.100363	0.03108778
EML2	-1.540464	0.04889933	BOLA	-2.104153	0.008118577
TNRC6A	-1.54114	0.01155914	BoLA	-2.244453	0.01292849
PLAC9	-1.542396	0.002436764	DMBT1	-2.344823	0.01072773
OGDH	-1.543249	0.00050238	PEA15	-2.48329	0.007978792
POFUT2	-1.545419	0.0284294	JSP.1	-2.575469	0.006995262
TRAPPC9	-1.54944	0.005462395	BOLA-N	-2.732387	0.006076131
CEACAM19	-1.553534	0.01446992	LY6G6C	-2.815814	0.001143032
TGFB3	-1.553553	0.03002349	PTP4A3	-2.850533	0.002682053

