

Supplementary Information

**Co-expression analysis and identification of fecundity-related long non-coding
RNAs in sheep ovaries**

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Table S1 The identified genes and long non-coding RNAs in 16 modules

Table S2 The enriched biological process for differentially expressed genes from
HanBBvsDorset

Table S3 The enriched biological process for differentially expressed genes from
HanBBvsHan++

Table S4 The enriched biological process for differentially expressed genes from
Han++vsDorset

Table S5 The enriched cellular component for differentially expressed genes from
HanBBvsDorset

Table S6 The enriched cellular component for differentially expressed genes from
HanBBvsHan++

Table S7 The enriched cellular component for differentially expressed genes from Han++vsDorset

Table S8 The enriched molecular function for differentially expressed genes from HanBBvsDorset

Table S9 The enriched molecular function for differentially expressed genes from HanBBvsHan++

Table S10 The enriched molecular function for differentially expressed genes from Han++vsDorset

Table S11 Cis-target genes of differentially expressed lncRNAs

Table S12 Trans-target genes of partial differentially expressed lncRNAs

Table S1 The identified genes and long non-coding RNAs in 16 modules

colnames. datExpr0.	net. colors
TMEFF2	yellow
LOC101119121	blue
SLC3A1	tan
LOC101119161	green
TFEC	turquoise
TFF3	lightcyan
HINT1	yellow
ALS2CR12	green
LOC101122204	red
LOC101122205	yellow
SCNN1B	red
SGPL1	cyan
ACAP3	brown
FUK	magenta
ZFHX2	pink
LOC101120029	cyan
FOS	brown
LOC101119221	yellow
HK3	purple
LOC101119256	tan
LOC101119283	greenyellow
ARAP2. 1	green
LOC101122107	pink
SH2B2	blue
CNTD1	turquoise
GEN1	salmon
XLOC_019586	yellow
XLOC_019593	turquoise
PTPN3	turquoise
XLOC_005851	green
GRN	black
MC1R	blue
F5	purple
GK	red
DPP10	cyan
LOC101122411	yellow
OLR1	green
IQUB	turquoise
XK	turquoise
EFHC2	turquoise
PLA2G3	salmon

TRNAW-CCA. 19	green
TRNAW-CCA. 55	blue
ADRB3	tan
LOC101119013	blue
HMGCS2	blue
LOC101122301	turquoise
CPT1B	red
LOC101122330	purple
RAB3IP	magenta
ADRB2	midnightblue
IRX4	black
XLOC_029026	cyan
XLOC_029019	brown
DNASE1L2	pink
PITX2	cyan
LOC101122286	green
LOC101114970	greenyellow
RAB39B	yellow
LOC101114966	blue
GAPT	green
USP36	brown
USP35	brown
USP43	turquoise
LOC101122611	black
CA4	magenta
HS3ST2	cyan
ISL2	blue
XLOC_017093	yellow
XLOC_042324	pink
XLOC_019299	salmon
C7H15orf57	yellow
XLOC_005548	turquoise
LOC100037673	brown
HIRIP3	midnightblue
TAC3	pink
AQP4	turquoise
CLEC4E	midnightblue
AKAP14	turquoise
TMOD2	greenyellow
TMOD1	purple
CKM	brown
MFAP2. 1	yellow
HOXC9	magenta
LRCOL1	brown

HOXD3	tan
GIPC2	yellow
HOXB7	brown
HOXB5	midnightblue
CRH	blue
C17H12orf43	midnightblue
XLOC_007390	yellow
EFS	brown
P2RX5	yellow
EBF3	lightcyan
P2RX2	red
CLDN7	purple
GDF5	yellow
VPS13C	purple
TPD52L1	purple
TRNAE-UUC. 29	greenyellow
ARSE	purple
PPFIA3	yellow
LOC101122803	magenta
CBLN3	red
XLOC_042153	green
KIAA0825	lightcyan
WDR72	green
PCDH20	tan
WDR54	green
WDR52	turquoise
WDR65	turquoise
WDR63	turquoise
WDR69	turquoise
WDR38	turquoise
WDR49	turquoise
WDR46	red
WDR16	turquoise
XLOC_005122	tan
LOC101122774	salmon
WDR96	turquoise
EHF	turquoise
KHDC3L	turquoise
ERF	blue
IGFBPL1	salmon
FBX015	black
TRNAR-UCG. 1	salmon
PIWIL1	greenyellow
PIWIL2	brown

FHAD1	turquoise
FAM65C	blue
FAM69C	red
XLOC_044102	black
ARHGAP15	black
XLOC_005052	salmon
GNG3	greenyellow
RHPN2	green
GNB3	magenta
ZBP1	green
METTL21D	blue
PAH	blue
LOC101102772	purple
ZBBX	turquoise
CREG1.1	black
KRT7	green
CENPI	turquoise
SSTR2	turquoise
ACSBG1	brown
LOC101109940	green
OSBPL10	brown
C3H2orf73	turquoise
FAM8A1	turquoise
ECT2L	turquoise
GPX2	turquoise
DTHD1	turquoise
RAB11FIP3	brown
KIF21B	midnightblue
KIAA0430	red
FAM83C	greenyellow
TIGD4	black
TIGD5	lightcyan
SYBU	lightcyan
KRT222	midnightblue
REL	turquoise
LOC101102509	magenta
ASIC4	salmon
RAD51C	pink
SYT2	greenyellow
BAI2	midnightblue
BAI3	magenta
LOC101102443	turquoise
MLF1	turquoise
XLOC_017148	blue

MTSS1L	brown
KIAA0319	cyan
BAIAP3	turquoise
RNASEH2C	green
IGDCC3	black
tRNA-Gln	blue
GJB1	purple
RASGEF1A	turquoise
RALGAPA2	green
LOC101107122	salmon
OTOR	brown
FBXL19	magenta
CSN1S1	lightcyan
MREG	tan
SLC34A1	red
PTGDR2	greenyellow
KATNBL1	purple
FAM92B	turquoise
ASPHD1	blue
XLOC_029260	green
LHB	turquoise
GILT	turquoise
LOC101107227	purple
DPY19L2	green
KATNAL2	purple
RAB9B	midnightblue
UBXN10	turquoise
PTGER4	red
ANKFN1	turquoise
CNTN4	brown
RAB25	turquoise
TMEM27	blue
ATP2C2	turquoise
RAB15	green
XLOC_012276	brown
SEPN1	blue
PLA2G4B	magenta
MKX	red
MIA	blue
LOC101122022	lightcyan
LOC101122021	pink
MX2	tan
ERP29	lightcyan
TMEM82	turquoise

TMEM8B	yellow
GM2A	pink
TMEM33	blue
MPZ	blue
TMEM44	green
FSTL5	black
SORCS1	greenyellow
LOC101102982	pink
DGKB	blue
DGKQ	lightcyan
TSPAN1	turquoise
TNFSF18	black
NGB	purple
EID2	greenyellow
ENKUR	turquoise
5HT2A	turquoise
LOC101102907	green
XLOC_019859	brown
XLOC_027327	yellow
AGBL4	purple
XLOC_019813	red
BEST1	red
ORC6	pink
LOC101107030	salmon
SV2A	pink
ARHGEF38	purple
PIBF1	red
ARHGEF19	black
ERICH2	turquoise
ADRA1B	red
TRNAY-GUA. 25	brown
CPEB2	green
DNALI1	turquoise
SLC25A25	red
SLC25A28	purple
IRGQ. 1	brown
SLC25A37	brown
LOC101106326	cyan
TUBGCP6	magenta
SLC25A40	tan
ACRC	green
ADAMTS9	pink
MUSK	green
CER1	yellow

KIF9	turquoise
NUDT13	salmon
HS3ST3B1	greenyellow
IL1RAPL1	salmon
XLOC_015137	pink
LOC101110755	yellow
LOC101110773	salmon
SPAG17	turquoise
LOC101112900	tan
TTC8	turquoise
PPIL6	tan
MUC1	lightcyan
TRNAK-UUU.5	tan
RINL	midnightblue
BST-2B	lightcyan
BST-2A	magenta
CHL1	magenta
RAP1GAP	magenta
KLC2	brown
PNMAL1	midnightblue
PPP2R4	turquoise
LOC101112920	brown
C5H5orf46	red
FAIM2	greenyellow
LOC101112974	green
LOC101110715	black
LOC101110889	greenyellow
KCNJ3	yellow
KCNH1	blue
MSR1	magenta
Z03	green
TTC26	red
TTC29	turquoise
GM2A.1	yellow
LOC101106059	red
KCNC4	blue
CHD5	midnightblue
AMDHD2	red
MYL10	purple
TSPAN17.1	brown
DIRAS2	magenta
ROS1	yellow
LOC101110150	green
FAM154B	tan

LOC101102259	yellow
XLOC_026611	pink
ICOS	pink
MY016	blue
PRR22	blue
GRIA2	greenyellow
GRIA1	greenyellow
KERA	black
LOC101106730	yellow
FAM159A	brown
LOC101116002	brown
LOC101110057	red
POU2F3	greenyellow
SYK	black
APOL6	turquoise
FAM167B	red
XLOC_022217	pink
ADAM33	magenta
ADAM22	black
MTNR1A	yellow
DNER	turquoise
PRRT2	midnightblue
LOC101106658	blue
LOC101116132	green
ONECUT2	purple
LOC101116109	turquoise
SPDYA	turquoise
MED21	yellow
FAM131A	midnightblue
C18H15orf26	tan
ZMYND10	turquoise
MYF5	blue
TFAP2B	green
TPBG	cyan
LOC101102022	blue
MED31	black
LOC101106541	turquoise
LOC101106588	cyan
ITGAM	magenta
IFI6	magenta
LOC101110481	turquoise
LOC101102165	red
CLGN	turquoise
SPG21	pink

KANK3	blue
NLRP14	blue
GFRA4	turquoise
GFRA3	blue
LOC101106477	salmon
LOC101106471	purple
CHAC1	blue
PODXL2	black
VGF	blue
DPF1	blue
XLOC_028961	brown
XLOC_028954	red
LOC101106418	green
LOC101106434	blue
B3GNT6	brown
EFCAB1	turquoise
PPP1R14D	black
PPP1R15A	black
FAM19A4	salmon
IRF1. 1	turquoise
MPZL2	tan
SH2D3A	turquoise
LOC101118745	green
LOC101118734	salmon
RBP2	tan
FAM190A	turquoise
ZFP36	black
FAM196A	green
MCOLN3	pink
MCOLN2	black
DNAI2	purple
KRTAP1-1	blue
DNAH7	turquoise
DNAH5	turquoise
DNAH6	turquoise
LOC101114265	brown
LOC101118607	green
TRNAK-UUU. 12	purple
TNP2	greenyellow
LOC101118660	black
ALG1	pink
LOC101114349	turquoise
LOC101121777	red
LOC101104869	blue

LOC101104851	magenta
PPP2R5B	tan
LOC101116228	brown
LOC101116211	yellow
PPP2R2B	turquoise
SERPINA6	yellow
RPH3A	pink
LOC101121820	magenta
LOC101118562	lightcyan
C3H12orf5	salmon
DSC2	turquoise
CNIH2	black
GATA1	brown
LOC101116291	blue
LOC101104731	tan
CLIP2	yellow
LOC101114011	blue
LOC101116286	turquoise
LOC101116281	blue
LOC101104787	black
AOAH	pink
SIRT4	yellow
LOC101104797	salmon
LSM11	yellow
COX3	midnightblue
TLL2	midnightblue
BATF2	lightcyan
TLE2	brown
LOC101106844	black
LOC101106847	blue
CPA6	blue
LOC101106881	midnightblue
SIGLEC1	brown
LOC101116302	yellow
RARB	yellow
TRNAG-CCC. 64	tan
SUV420H2	cyan
FAM183A	turquoise
FAM184B	red
ANKRD24	brown
ANKRD35	magenta
ANKRD37	yellow
ANKRD45	turquoise
LOC101114134	blue

TLR6	red
TLR8	pink
ANKRD65	turquoise
LAPTM5	midnightblue
XLOC_036693	salmon
FAM186B	greenyellow
LOC101114191	brown
LOC101116846	green
LOC101112305	blue
LOC101104536	black
CRIP3	green
LOC101112251	pink
LOC101116922	black
LOC101118374	pink
EPCAM	turquoise
LOC101116991	green
C5H19orf21	salmon
VGLL1	green
CDC42EP2	cyan
NPY5R	red
C5H19orf57	blue
PERP	turquoise
LOC101112434	yellow
RHOF	midnightblue
RARRES1	purple
LOC101104431	green
MUC13	blue
C13H20orf96	purple
RHCG	magenta
NUP62	midnightblue
AGR2	turquoise
LOC101104407	black
AGMO	red
PECR	yellow
LOC101118267	blue
LOC101118245	green
AKD1	turquoise
LOC101116650	midnightblue
OXSRI.1	greenyellow
C14H19orf18	black
LOC101116694	turquoise
XLOC_036962	green
PHACTR3	brown
MYH7B	brown

LOC101112487	pink
LOC101118186	red
LOC101112474	pink
C20H6orf141	salmon
XLOC_041882	yellow
LOC101104348	red
C-JUN. 1	brown
XLOC_004853	green
LOC101116781	black
MYH15	yellow
PDE6B	brown
GDPD5	cyan
GDPD3	magenta
HOOK1	turquoise
LOC101118060	green
LOC101112593	greenyellow
LOC101118086	blue
S100A16	blue
NYAP1	brown
HECTD2	turquoise
LOC101116801	brown
NRXN2	magenta
LOC101104286	black
XLOC_041729	brown
LOC101116828	cyan
LOC101104264	cyan
SKOR1	blue
XLOC_043421	brown
TRNAV-AAC. 9	purple
XLOC_041248	purple
LOC101105609. 1	tan
TTC21A	green
LOC101121589	green
PLEKHB1	purple
TTC23L	purple
PLEKHD1	green
LOC101123656	pink
LOC101123657	greenyellow
RPL39	black
JUND	midnightblue
XLOC_018073	blue
FCER1A	turquoise
IL5RA	turquoise
DOCK10	red

LOC101121431	green
VDAC1	turquoise
BST1	pink
LOC101123501	yellow
ABCA9	blue
XLOC_008930	blue
NR4A1	brown
CYB561	green
LACE1	tan
NEK10	red
NEK11	turquoise
CDCP2	brown
XLOC_018337	turquoise
PLXNB3	tan
MRGPRF	magenta
PLXNC1	magenta
COMMD6	yellow
LY6G5B	cyan
SCN10A	brown
LOC101123401	tan
LOC101123437	purple
SLC6A20	greenyellow
XLOC_041628	blue
PLEKHS1	turquoise
LOC101109655.1	yellow
OSBPL7	cyan
SLC46A3	tan
RBM47	purple
XLOC_004583	green
MGST1	pink
LOC101113094	blue
LOC101115899	green
EGFL8	turquoise
NECAB3	cyan
LOC101115876	brown
PKIB	purple
C2H9orf135	lightcyan
C2H9orf174	turquoise
FBXL4	pink
CAMKV	tan
PLB1	pink
FOXJ1	turquoise
ZGLP1	green
DAGLA	red

IL23R	yellow
MAST1	lightcyan
LOC101115749	blue
SFTPA1	blue
LOC101115768	lightcyan
C3H12orf63	turquoise
RNF32	purple
CAMSAP3	midnightblue
LOC101110014.1	green
C21H11orf84	cyan
XLOC_004234	blue
C3H2orf50.1	turquoise
AXDND1	tan
PDZK1IP1	green
SCG2	brown
HTR1B	brown
HTR1F	green
NME9	turquoise
NME5	turquoise
XLOC_006360	red
PNMT	brown
XLOC_004065	cyan
MORN5	turquoise
MORN2	tan
PON2	greenyellow
IL20RB	green
TRNAK-CUU.24	salmon
NROB1	yellow
HDGF	brown
TACR1	turquoise
SPOCK1	black
ZNF784	turquoise
MEGF6	brown
PDZD7	yellow
TMEM229B	yellow
LENG1	brown
RIIAD1	turquoise
LOC101103863	green
CHRND	blue
NOD1	salmon
STRA8	salmon
HSF5	green
TMPRSS5	brown
BCORL1	brown

LOC443167	salmon
GPR52	red
TMEM212	purple
GPR21	greenyellow
GPR18	yellow
CAPSL	turquoise
CHRM3	black
S100A1	red
S100A2	lightcyan
STRN4	brown
CA5A	lightcyan
LOC101108781	yellow
DGKE. 1	brown
MAPK15	lightcyan
BCL2A1	black
NOL4	salmon
GBGT1	brown
ZNF500	green
ZNF529	greenyellow
VWA3A	turquoise
VWA3B	turquoise
TCTE1	green
MEIG1	turquoise
KIAA1147	yellow
PNPLA4	yellow
MEIS3	purple
C7H14orf166B	greenyellow
BFSP1	magenta
XLOC_013348	turquoise
NSUN7	turquoise
HRH2	midnightblue
LOC101108856	blue
MATN3	cyan
TMEM200C	magenta
LOC101101989	turquoise
EMID1	brown
RPS13	pink
RTP1	tan
CLDND2	salmon
ZNF687	brown
LOC443320	yellow
LOC101108945	turquoise
RPS3A	red
LOC101108140	turquoise

LOC101108131	greenyellow
LAMB3	cyan
LRIG1.1	black
STPG1	lightcyan
CDKL1	lightcyan
LOC101108102	turquoise
DHX58	magenta
LOC101123268	greenyellow
NXPE2	blue
KIAA1751	turquoise
RNF182	turquoise
LOC101123290	brown
RNF175	blue
ZNF366	brown
ZNF300	yellow
BICD1	yellow
RNF166	lightcyan
SPINT1	red
NRGN	brown
RNF112	magenta
METTL24	turquoise
STX1B	greenyellow
NACAD	lightcyan
CDHR4	turquoise
SPAG6	turquoise
LOC101123128	yellow
FMNL1	purple
ZNF467	red
SLC44A3	salmon
SLC44A4	turquoise
CD01	pink
DCDC2C	lightcyan
DCDC2B	turquoise
CDH1	green
CDS1	turquoise
FGF16	midnightblue
C8H6orf165	turquoise
RYR3	brown
TMEM128	pink
EMILIN3	magenta
TMEM116	pink
SLFN12L	green
LOC101123097	yellow
FAM216B	turquoise

HILPDA	yellow
LOC101108423	yellow
LOC101108480	salmon
CRYBA4	yellow
CAPS	turquoise
NLGN3	greenyellow
ZNF182	turquoise
CARS	cyan
ROPN1L	turquoise
CITED4	blue
XLOC_018698	purple
ZNF296	yellow
PDE11A	lightcyan
TRIQQ	red
LOC101108533	brown
OSBP2	brown
XLOC_043354	tan
PKHD1L1	blue
LOC101107441	green
NFAT5.1	green
LOC101105256	yellow
LOC101109191	black
IFFO1	red
LRRN2	brown
FAM221A	turquoise
SMIM8	turquoise
LOC101109142	red
SLC26A10	magenta
FAM46B	magenta
CCDC85A	midnightblue
SLITRK6	brown
NRBP2	purple
REEP4	yellow
KPNA7	green
LOC101103164	turquoise
FOXRED2	green
LOC101102345.1	pink
LOC101103153	blue
LOC101103150	yellow
WNT9B	black
CDC42BPA.2	blue
PTP4A3	black
CLN5.1	blue
DHRS7	yellow

LOC101109492	tan
LOC101105437	greenyellow
RSPH9	turquoise
LOC101107613	yellow
SNTN	turquoise
SP17	turquoise
LOC101117063	blue
LOC101103296	pink
EME2	brown
LOC101109338	blue
ZDHC7	midnightblue
LOC101103216	tan
LOC101105367	black
LOC101107563	cyan
AP1M2	turquoise
SLC26A2.1	red
LOC101111935	greenyellow
LOC101111926	purple
XLOC_015771	brown
ENPP3	turquoise
COL11A2	tan
SCUBE1	blue
ALDH8A1	yellow
LOC101103317	lightcyan
NFKBIA	greenyellow
CDR2L	brown
CCDC28B	magenta
XLOC_025521	turquoise
MMP13	yellow
ELN.1	brown
XLOC_023265	greenyellow
C1H1orf110	green
KRT19	magenta
KRT18	purple
LOC101107832	greenyellow
C1H1orf194	purple
C1H1orf192	brown
C1H1orf168	turquoise
KIFC2	magenta
BCL2L12	lightcyan
LOC101103419	turquoise
LOC101111712	blue
LOC101111710	pink
SYTL5	cyan

TRMT61B	brown
LRRIQ3	tan
LRRIQ1	turquoise
CDRT4	green
SLC01C1	greenyellow
WHSC2	magenta
LOC101109564	pink
LOC101117224	turquoise
RSPH10B	turquoise
LOC101107743	yellow
RPGRIP1L	turquoise
LOC101107776	black
MARVELD1	brown
FRMPD2	green
LOC101105008	salmon
LOC101103597	turquoise
LOC101103570	cyan
TRNAG-GCC. 2	blue
XLOC_025391	blue
LOC101117365	salmon
LOC101109865	blue
LOC101111391	blue
LOC101105090	midnightblue
LOC101105099	lightcyan
C24H16orf54	turquoise
LOC101103624	yellow
CCDC13	turquoise
GRB7	purple
CCDC37	turquoise
CCDC39	turquoise
CCDC136	brown
ST14	turquoise
TPPP3	turquoise
CCDC160	turquoise
SLC28A3	turquoise
CCDC153	turquoise
CCDC159	cyan
CCDC78	turquoise
RCAN2	yellow
AKR1E2	lightcyan
LOC101117455	blue
INHBA. 1	yellow
ZFAND4	tan
LOC101103749	salmon

LOC101107996	pink
PCBD1	tan
LOC101119835	brown
DUSP27	tan
C23H18orf54	turquoise
URO1	green
ICAM-1.1	lightcyan
LOC101119869	yellow
LOC101111150	blue
SSBP4	cyan
LOC101117587	pink
HOXC13	midnightblue
XLOC_032521	blue
MYBPC2	yellow
MYBPC1	salmon
NET01	turquoise
XLOC_035213	yellow
XLOC_020993	tan
K2.12	blue
CXHXorf22	turquoise
LGI1	salmon
PELP1	brown
CXHXorf30	turquoise
CXHXorf61	black
DCDC2	green
LOC101119773	cyan
CCL11	yellow
LOC101119765	blue
DOCK2	red
LOC101113545	turquoise
CRISP3	greenyellow
LOC101111310	midnightblue
GSDMD	black
LOC101115488	blue
LOC101111343	blue
SHROOM1	red
XLOC_045018	turquoise
LOC101122944	purple
LOC101122910	blue
KIF1A	tan
XLOC_039472	magenta
BBOX1	blue
XLOC_039480	cyan
LOC101113126	greenyellow

GRXCR2	blue
LOC101113134	greenyellow
TRNAD-GUC. 7	cyan
XLOC_001041	yellow
TRNAD-GUC. 3	black
PLIN1	cyan
PHGDH	yellow
EMC1. 1	brown
LOC101122977	blue
LRGUK	turquoise
PPP1R26	magenta
L1CAM	brown
PPP1R32	green
LOC101117804	midnightblue
C15H11orf88	green
C15H11orf71	pink
LCN2	pink
C15H11orf65	purple
AFMID	yellow
DCAKD	brown
GYLTL1B	midnightblue
LOC101115687	blue
LOC101113282	red
LRRC23	turquoise
LRRC36	turquoise
LOC101113881	brown
LRRC48	turquoise
LRRC4B	black
LOC101117954	greenyellow
TEL02	brown
ZADH2. 1	salmon
WDFY4	red
LOC101119456	black
DNAJB13	turquoise
LOC101119431	blue
AGL	turquoise
LOC101105609	brown
BLOC1S3	brown
PACRG	turquoise
GABRA3	magenta
AK5	turquoise
AK8	cyan
SHC3	turquoise
SLC9A5	magenta

LOC101120622	blue
SLC17A5.1	yellow
POLR3G	magenta
LAT2	black
LOC101105919	blue
LOC101113617	green
XLOC_030735	turquoise
LPAR3	turquoise
LOC101109035	salmon
LRRC10B	turquoise
NOVA2	yellow
LOC101115106	green
HOXD11	salmon
LOC101113726	cyan
TEKT3	yellow
XLOC_001539	tan
LOC101120476	brown
LOC101119585	blue
GCNT4	lightcyan
LOC101115275	midnightblue
KCTD17	blue
KRIT1	blue
