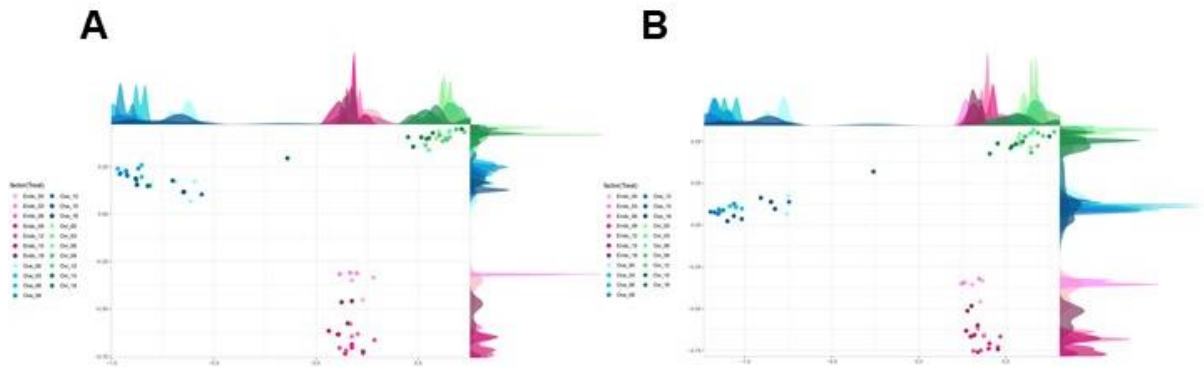1 **SUPPLEMENTARY FILE LEGENDS**

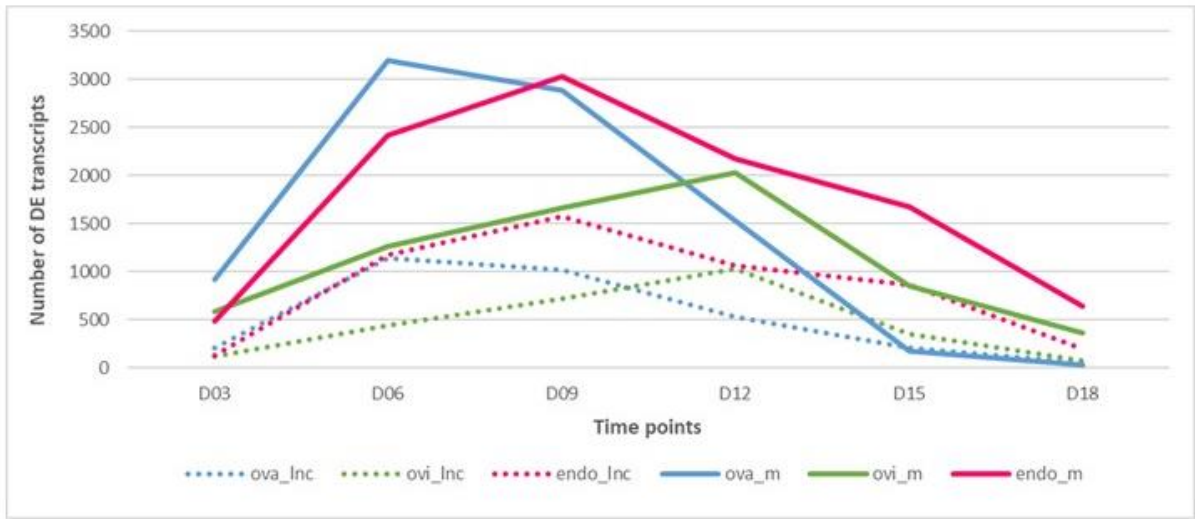
2

3 **Supplementary Figure S1. Separation of RNA-seq data by tissue and date.** (A) Multidimensional scaling

4 (MDS) plot of lncRNA (novel lncRNA and known lncRNA) data in three reproductive tissue, (B) of mRNA data

5 in three reproductive tissue.

6

7

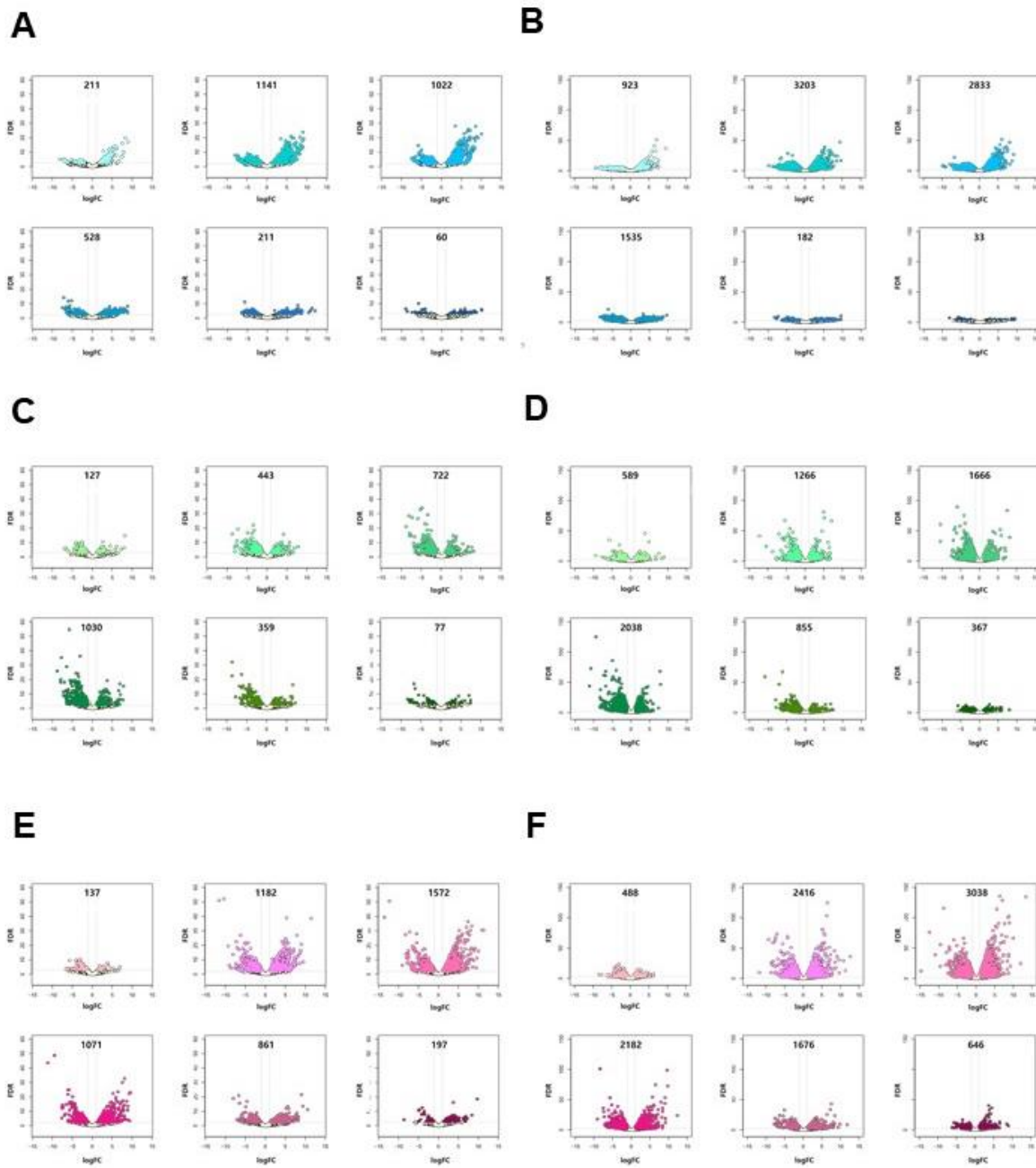8

Supplementary Figure S2. Dynamic changes of DEGs & DELs of three tissues (ovary, oviduct, endometrium). Comparing the start of estrous cycle (D00) with each time points (D03, D06, D09, D12, D15, D18).
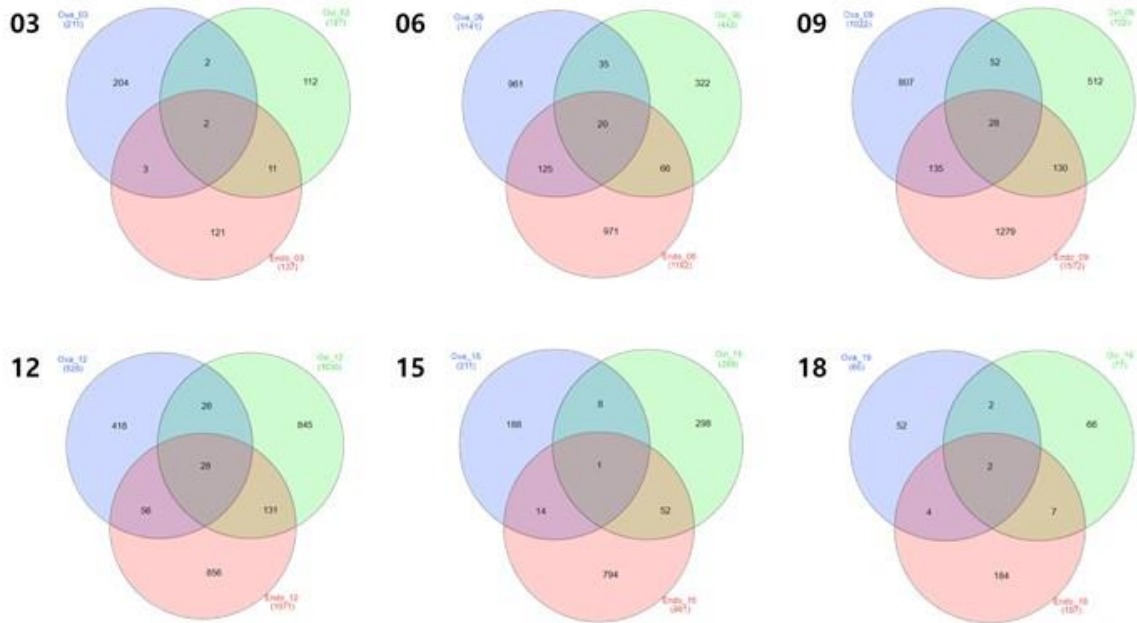
12

Supplementary Figure S3. **Number and pattern of DElncRNA and DEmRNA by tissue and date.** (A) Volcano plot of DElncRNA in ovary, (B) of DEmRNA in ovary, (C) of DElncRNA in oviduct, (D) of DEmRNA in oviduct, (E) of DElncRNA in endometrium, (F) of DEmRNA in endometrium.
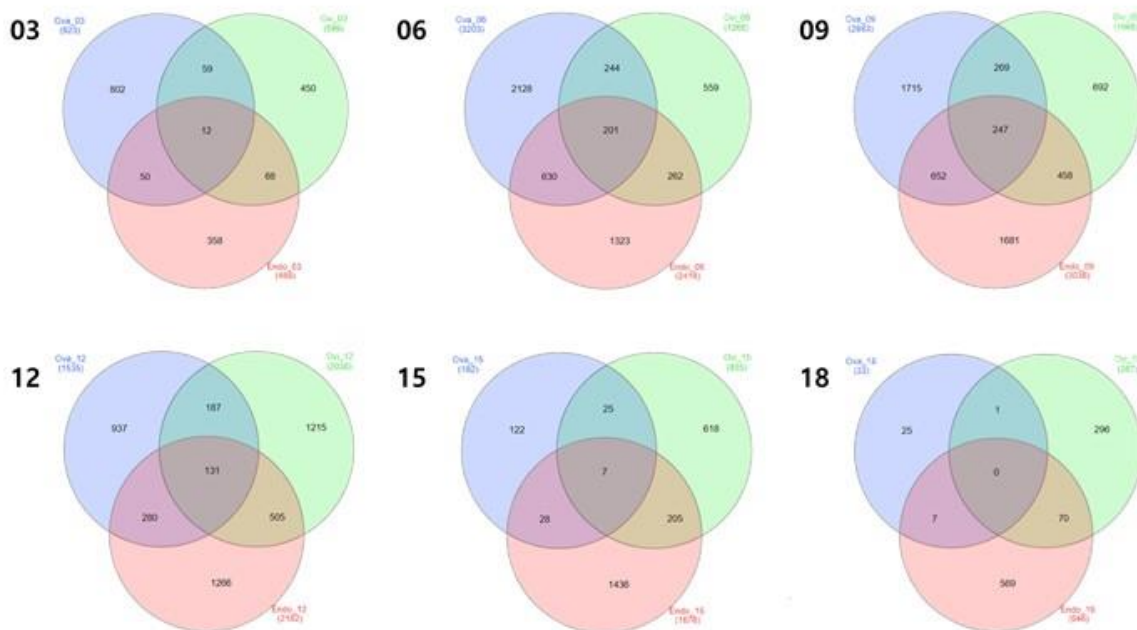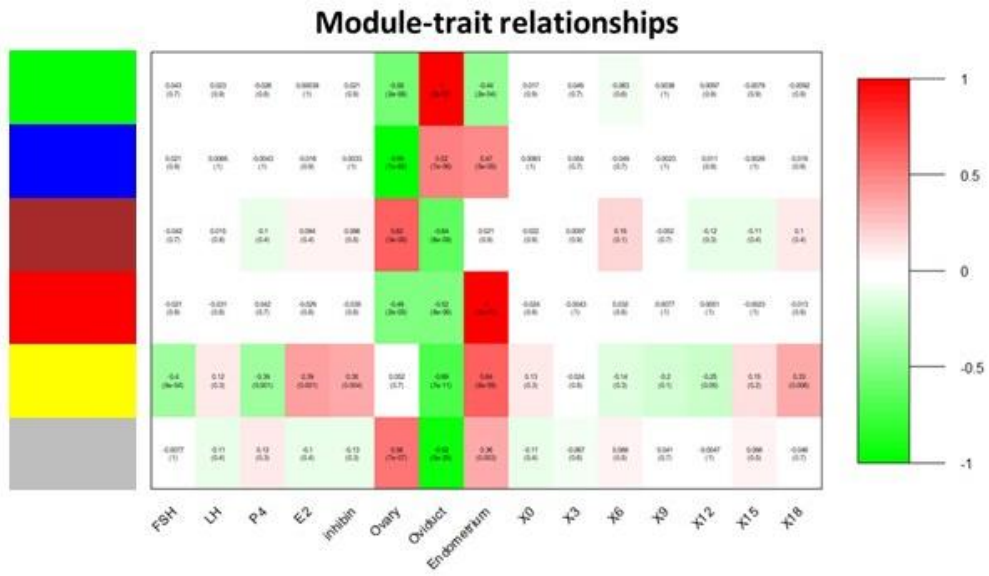
Supplementary Figure S4. Number of DElncRNA and DEmRNA by tissue and date. (A) Venn diagram of DElncRNA in three reproductive tissue by date (D00 vs D03, D06, D09, D12, D15, D18), (B) of DEmRNA in three reproductive tissue by date (D00 vs D03, D06, D09, D12, D15, D18).

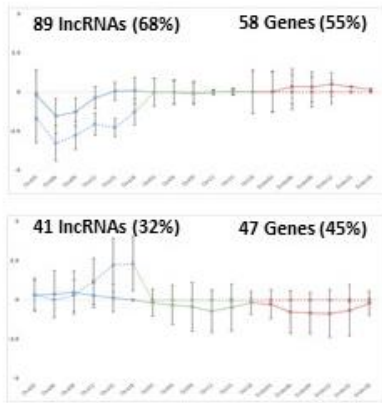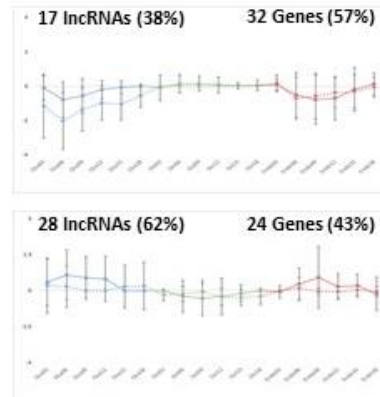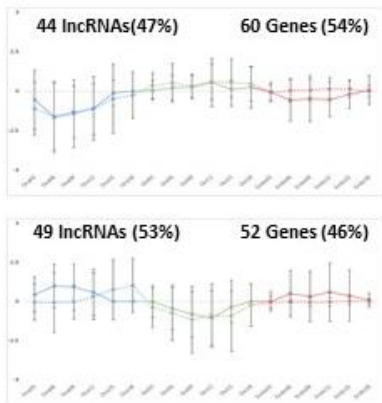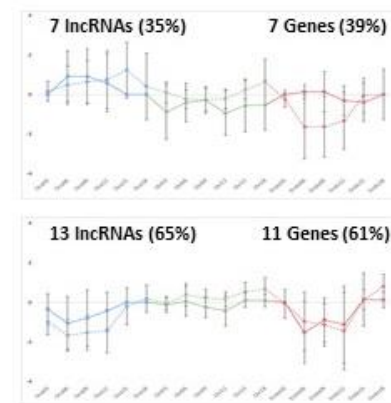## Module-trait relationships

23

Supplementary Figure S5. The original module-trait relationships heatmap of lncRNA according to hormones, tissues (ovary, oviduct, endometrium), and days (D00, D03, D06, D09, D12, D15 D18).

26

A

89 lncRNAs (68%)   58 Genes (55%)

41 lncRNAs (32%)   47 Genes (45%)

B

17 lncRNAs (38%)   32 Genes (57%)

28 lncRNAs (62%)   24 Genes (43%)

C

44 lncRNAs(47%)   60 Genes (54%)

49 lncRNAs (53%)   52 Genes (46%)

D

7 lncRNAs (35%)   7 Genes (39%)

13 lncRNAs (65%)   11 Genes (61%)

•••••• ova_lnc   •••••• ovi_lnc   •••••• endo_lnc   ——ova_m   ——ovi_m   ——endo_m

Supplementary Figure S6. Analysis of lncRNA and DEcis-acting gene clustering of each network by k-means clustering algorithm in multi-experimental viewer software. Gene clustering anlaysis showed two expression patterns in each of the four networks. (A) Gene clusters in the blue network, (B) in the green network, (C) in the red network, (D) in the yellow network.
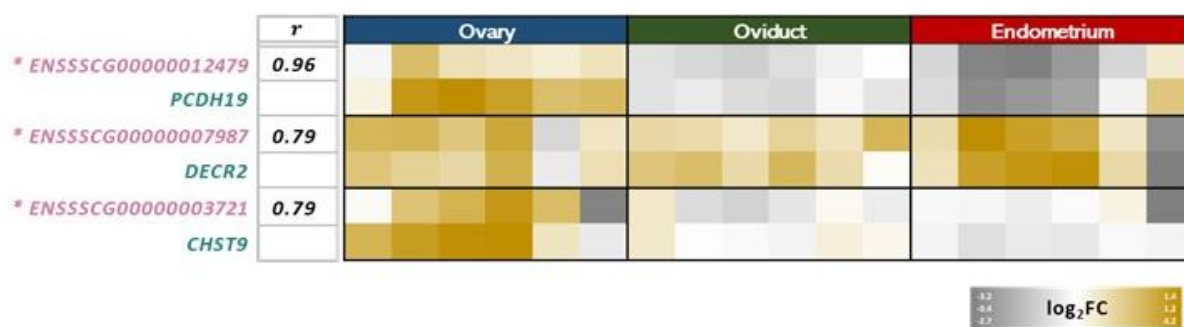
Supplementary Figure S7. Correlation heatmap of the significant lncRNA and cis-acting gene of yellow network. Correlation coefficients (r) were calculated as log2FC values. Log2FC of D03, D06, D09, D12, D15, and D18 in order from the first column to the last column of each tissue category. LncRNAs marked with an asterisk (*) indicate DElncRNAs.

A

	r	Ovary	Oviduct	Endometrium
XLOC_000748				
XLOC_021792	*0.98*			
XLOC_017111	*0.97*			
XLOC_000342	*0.97*			
ENSSSCG00000050977	*0.98*			
ENSSSCG00000050380	*0.97*			

0   log₂TMM   8.1

B

	r	Ovary	Oviduct	Endometrium
* ENSSSCG00000051124				
XLOC_008338	*-0.98*			
XLOC_037548	*0.97*			

0   log₂TMM   10.6

Supplementary Figure S8. Correlation heatmap of the core lncRNA and main lncRNA. Correlation coefficients (r) were calculated as log2TMM values. Log2TMM of D00, D03, D06, D09, D12, D15, and D18 in order from the first column to the last column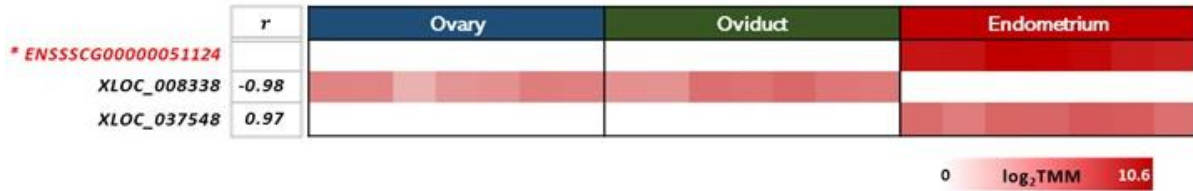 of each tissue category. LncRNAs marked with an asterisk (*) indicate both core lncRNA and main lncRNA. (A) Correlation heatmap of core lncRNA and main lncRNA of network from the blue, and (B) red modules.