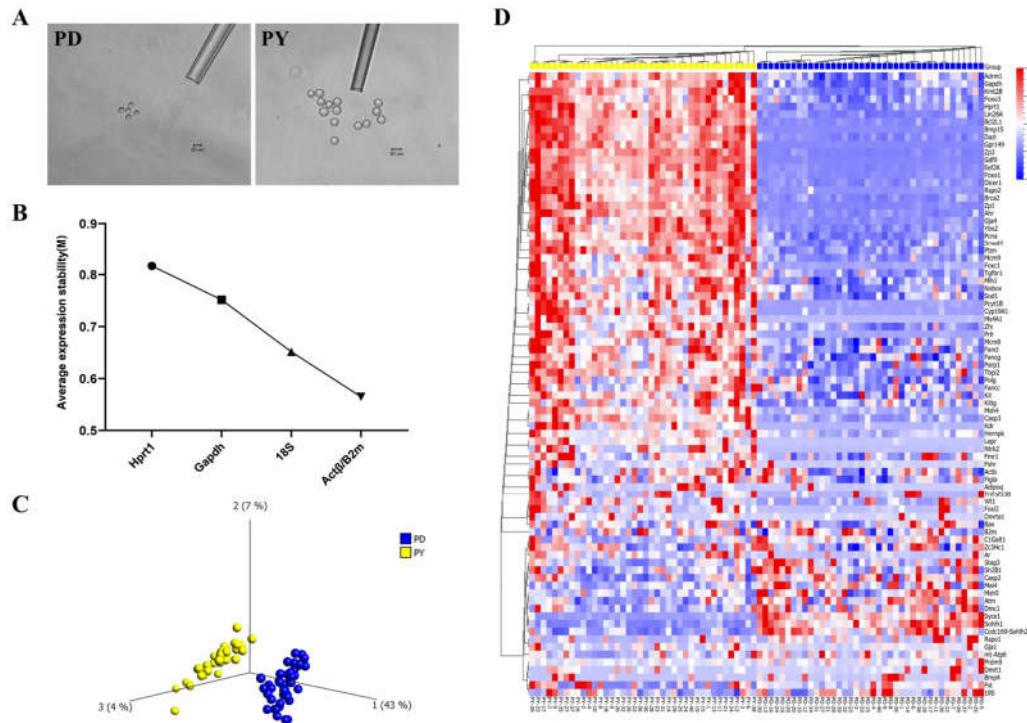


**Supplementary Figure S1.** Single oocyte isolation and candidate gene expression profiling. **(A)** Isolated single oocytes. The diameter of the glass mi-cropipette in the left figure is 30  $\mu\text{m}$ , and the diameter of the glass micropipette in the right figure is 50  $\mu\text{m}$ . **(B)** The mean M-value of the 5 reference genes using the geNorm algorithm. **(C)** PCA of 80 single oocytes. **(D)** Heatmap and hierarchical clustering analysis of 80 oocytes. PD: Primordial follicle oocytes, PY: Primary follicle oocytes.



**Supplementary Table S1. Gene information of custom TaqMan array cards**

<b>Genes</b>	<b>Assay IDs</b>	<b>Genes</b>	<b>Assay IDs</b>
<i>Ahr</i>	Mm00478932_m1	<i>Dazl</i>	Mm01273546_m1
<i>Bax</i>	Mm00432051_m1	<i>Adipoq</i>	Mm00456425_m1
<i>Casp2</i>	Mm01160323_m1	<i>Zp3</i>	Mm00442176_m1
<i>Eef2K</i>	Mm00432996_m1	<i>Zfx</i>	Mm03053842_s1
<i>Figla</i>	Mm00488823_m1	<i>Ybx2</i>	Mm00497476_m1
<i>Foxo3</i>	Mm01185722_m1	<i>Stra8</i>	Mm00486473_m1
<i>Fshr</i>	Mm00442819_m1	<i>Dmrt1</i>	Mm00443809_m1
<i>Gdf9</i>	Mm00433565_m1	<i>Atm</i>	Mm01177457_m1
<i>Kit</i>	Mm00445212_m1	<i>Adrm1</i>	Mm00727402_s1
<i>Kitlg</i>	Mm00442972_m1	<i>Vgf</i>	Mm01204485_s1
<i>Lep</i>	Mm00434759_m1	<i>PcytlB</i>	Mm00616920_m1
<i>Lin28A</i>	Mm00524077_m1	<i>Fancc</i>	Mm00514846_m1
<i>Mei4</i>	Mm00613706_m1	<i>Tgfbr1</i>	Mm00436964_m1
<i>Parp1</i>	Mm01321084_m1	<i>Sh2B1</i>	Mm01137783_m1
<i>Pcna</i>	Mm00448100_g1	<i>Ptger2</i>	Mm00436051_m1
<i>Smad4</i>	Mm03023996_m1	<i>Ntrk2</i>	Mm00435422_m1
<i>Spo11</i>	Mm00488876_m1	<i>Gpr149</i>	Mm00805216_m1
<i>Tbpl2</i>	Mm01337558_m1	<i>C1Galt1</i>	Mm01167001_m1
<i>Vip</i>	Mm00660234_m1	<i>Robo2</i>	Mm00620713_m1
<i>Zc3Hc1</i>	Mm01168068_m1	<i>Sod1</i>	Mm01344233_g1
<i>Casp3</i>	Mm01195085_m1	<i>Prdm9</i>	Mm01279317_m1
<i>Ccdc169-Sohlh2</i>	Mm00512314_m1	<i>Msh4</i>	Mm01320240_m1
<i>Cxcr5</i>	Mm00432086_m1	<i>Gja4</i>	Mm00433610_s1
<i>Cyp19A1</i>	Mm00484049_m1	<i>Fst</i>	Mm00514982_m1
<i>Gjal</i>	Mm01179639_s1	<i>Fancl</i>	Mm00840321_m1
<i>Ms4A1</i>	Mm00545909_m1	<i>Fancg</i>	Mm00474063_m1
<i>Ngf</i>	Mm00443039_m1	<i>Bmp4</i>	Mm00432087_m1
<i>Nkx2-3</i>	Mm01199403_m1	<i>Bcl2L1</i>	Mm00437783_m1
<i>Prlr</i>	Mm04336676_m1	<i>Dicer1</i>	Mm00521722_m1
<i>Rspo1</i>	Mm00507077_m1	<i>Dmrt1</i>	Mm00558696_m1
<i>Rspo2</i>	Mm00555790_m1	<i>Foxc1</i>	Mm01962704_s1

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<i>Rxrg</i>	Mm00436411_m1	<i>Hnrnpk</i>	Mm04409831_s1
<i>Tnf</i>	Mm00443258_m1	<i>Kdr</i>	Mm01222421_m1
<i>Tnfrsf13B</i>	Mm00840182_m1	<i>Kmt2B</i>	Mm01175393_g1
<i>I8S</i>	Hs99999901_s1	<i>Lepr</i>	Mm00440181_m1
<i>Gapdh</i>	Mm99999915_g1	<i>Zpl</i>	Mm00494367_m1
<i>Hprt1</i>	Mm00446968_m1	<i>Brca2</i>	Mm01218747_m1
<i>Actb</i>	Mm00607939_s1	<i>Foxo1</i>	Mm00490671_m1
<i>B2m</i>	Mm00437762_m1	<i>Mcm8</i>	Mm00508536_m1
<i>Ar</i>	Mm00442688_m1	<i>Mcm9</i>	Mm01179858_m1
<i>Bmp15</i>	Mm00437797_m1	<i>Msh5</i>	Mm00488974_m1
<i>Dmcl</i>	Mm00494490_m1	<i>mt-Atp6</i>	Mm03649417_g1
<i>Fmr1</i>	Mm01339582_m1	<i>Nog</i>	Mm01297833_s1
<i>Foxl2</i>	Mm00843544_s1	<i>Polg</i>	Mm00450527_m1
<i>Lhcgr</i>	Mm00442931_m1	<i>Pten</i>	Mm00477208_m1
<i>Nobox</i>	Mm00453743_m1	<i>Stag3</i>	Mm00450460_m1
<i>Sohlh1</i>	Mm01338424_g1	<i>Wtl</i>	Mm01337048_m1
<i>Mlh1</i>	Mm00503449_m1	<i>Syce1</i>	Mm01279053_m1

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**Supplementary Table S2 primer sequences**

Name	Accession number	Forward primer (5'→3')
		Reverse primer (5'→3')
<i>Actb</i>	NM_007393.5	GGCTGTATTCCCCTCCATCG CCAGTTGGTAACAATGCCATGT
<i>Pten</i>	NM_008960.2	TGGATTGCGACTTAGACTTGACCT GCGGTGTCATAATGTCTCTCAG
<i>Foxo3</i>	NM_001376967.1	CTGGGGGAACCTGTCCTATG TCATTCTGAACGCGCATGAAG
<i>Nobox</i>	NM_130869.3	ATGGAACCTACGGAGAAGCTC CTCAGAGGTCTTCGACAGTGG
<i>Amh</i>	NM_007445.3	CCACACCTCTCTCCACTGGTA GGCACAAAGGTTTCAGGGGG
<i>Gdf9</i>	NM_008110.2	TCTTAGTAGCCTTAGCTCTCAGG TGTCAGTCCCATCTACAGGCA
<i>Casp3</i>	NM_001284409.1	GAGCTTGGAACGGTACGCTA CCGTACCAGAGCGAGATGAC
<i>Bcl2</i>	NM_009741.5	GAACTGGGGGAGGATTGTGG GCATGCTGGGGCCATATAGT
<i>Il-6</i>	NM_001314054.1	CCAAGAGGTGAGTGCTTCCC CTGTTGTTTCAGACTCTCTCCCT
<i>Ikbkb</i>	NM_001159774.1	GTAGCAAAGTCCGAGGTCCC GTCTAGAGTCGTGAAGCTTCTGT