

Supplementary Table 1. Top 20 differentially expressed genes in *Erβ^{null}* primordial follicles

Gene symbol	Full name description	TPM value	Fold change	FDR p-value	Brief function
<i>Av320801</i>	PRAME like 3E	11.15	179.56	0.040	No biological data is available yet
<i>H2ac19</i>	H2A clustered histone 19	115.44	94.12	0.006	DNA binding
<i>Or11a4</i>	Olfactory receptor family 11 subfamily A member 4	12.54	33.31	0.010	G protein-coupled receptor activity
<i>Gm14147</i>	Predicted gene 14147	16.71	31.14	0.001	Nucleotide-binding
<i>Gm5795</i>	Predicted gene 5795	16.06	25.31	0.020	No biological data is available yet
<i>Gm8947</i>	Predicted gene 8947	11.46	23.41	0.030	No biological data is available yet
<i>Gm21103</i>	Predicted gene 21103	15.46	20.89	0.020	No biological data is available yet
<i>Gm12184</i>	Cyclin-dependent kinase 2 associated protein 1 retrotransposed	18.43	18.96	0.030	DNA polymerase binding
<i>Pramel28</i>	PRAME like 28	12.79	18.82	0.030	No biological data is available yet
<i>Or8b41</i>	Olfactory receptor family 8 subfamily B member 41	12.71	18.76	0.000	G protein-coupled receptor activity
<i>Gm49388</i>	Predicted gene 49388	14.58	-22.47	0.001	RNA binding
<i>Nutf2</i>	Nuclear transport factor 2	34.53	-21.45	0.003	Structural constituent of nuclear pore
<i>Fam151a</i>	Family with sequence similarity 151 member A	21.84	-20.12	0.010	No biological data is available yet
<i>Vsx2</i>	Visual system homeobox 2	159.32	-16.35	0.000	RNA polymerase II transcription regulatory region sequence-specific DNA binding
<i>Gm49378</i>	Predicted gene 49378	6.53	-10.86	0.050	No biological data is available yet
<i>Pabpn1l</i>	Poly(A)binding protein nuclear 1-like	26.83	-10.63	0.040	Nucleic acid binding
<i>H3c2</i>	H3 clustered histone 2	183.28	-9.99	0.000	DNA binding
<i>Tead3</i>	EA domain family member 3	94.04	-9.96	0.000	RNA polymerase II cis-regulatory region sequence-specific DNA binding
<i>Dnmt1</i>	DNA methyltransferase (cytosine 5) 1	337.80	-8.16	0.000	DNA binding
<i>Gdpd2</i>	Glycerophosphodiester phosphodiesterase domain containing 2	18.27	-7.56	0.001	Phosphoric diester hydrolase activity

Supplementary Table 2. Top 20 differentially expressed genes in *Erβ^{null}* primary follicles

Gene symbol	Full name description	TPM value	Fold change	FDR p-value	Brief function
<i>Gm5128</i>	PRAME like 3C	105.00	116.22	0.000	No biological data is available yet
<i>Rhox4a2</i>	Reproductive homeobox 4A2	84.46	85	0.030	No biological data is available yet
<i>Gm11757</i>	Predicted gene 11757	44.42	82.51	0.040	No biological data is available yet
<i>Or4x18</i>	Olfactory receptor family 4 subfamily X member 18	42.20	43.1	0.001	Signal transduction
<i>H2bc23</i>	H2B clustered histone 23	59.67	23.61	0.009	Chromatin organization
<i>Gm5798</i>	Predicted gene 5798	43.17	19.16	0.020	No biological data is available yet
<i>Gm45799</i>	Predicted gene 45799	11.76	16.62	0.020	Protein transport
<i>Mageb1</i>	MAGE family member B1	62.59	16.12	0.010	Negative regulation of transcription by RNA polymerase II
<i>Gm20605</i>	Predicted gene 20605	14.96	16.07	0.020	Membrane raft assembly
<i>Vmn1r242</i>	Vomeroneasal 1 receptor 242	69.51	15.48	0.020	G-protein coupled receptor signaling pathway
<i>Fam177a</i>	Family with sequence similarity 177 member A	35.28	-390.51	0.020	No biological data is available yet
<i>Gm7903</i>	Prame like 3B	37.47	-276.23	0.020	No biological data is available yet
<i>H4c18</i>	H4 clustered histone 18	273.45	-42.93	0.001	DNA binding
<i>Zfp968</i>	Zinc finger protein 968	22.75	-26.11	0.000	RNA polymerase II cis-regulatory region sequence-specific DNA binding
<i>Gm14288</i>	Predicted gene 14288	41.52	-22.47	0.000	Regulation of DNA-templated transcription
<i>Ott</i>	Ovary testis transcribed	29.51	-21.76	0.009	No biological data is available yet
<i>Map1lc3a</i>	Microtubule-associated protein 1 light chain 3 alpha	42.55	-18.02	0.020	Protein binding
<i>Thoc7</i>	THO complex 7	49.32	-17.39	0.020	RNA Binding
<i>Pigyl</i>	Phosphatidylinositol glycan anchor biosynthesis, class Y-like	42.52	-17.09	0.020	Phosphatidylinositol N-acetylglucosaminyltransferase activity
<i>Derpc</i>	DERPC proline and glycine-rich nuclear protein	18.82	-15.7	0.030	Nucleus