

## Supplementary Material

**Mammalian target of rapamycin/eukaryotic initiation factor 4F pathway regulates follicle growth and development of theca cells in mice**

Chao Zhang<sup>A</sup>, Xiao-Ran Liu<sup>B</sup>, Yong-Chun Cao<sup>A</sup>, Jin-Ling Tian<sup>A</sup>, Di Zhen<sup>A</sup>, Xiao-Fei Luo<sup>A</sup>, Xin-Mei Wang<sup>A</sup>, Jian-Hui Tian<sup>C,D</sup> and Jian-Ming Gao<sup>A,D</sup>

<sup>A</sup>Animal Science and Technology College, Beijing University of Agriculture, Beijing 102206, China.

<sup>B</sup>Galactophore Breast Clinic, Peking University School of Oncology, Beijing 100142, China.

<sup>C</sup>College of Animal Science and Technology, China Agricultural University, Beijing 100083, China.

<sup>D</sup>Corresponding author. Email: jianming.gao@hotmail.com

**Table S1. DEGs associated with cell growth and proliferation**

Condition pairs	Probe name	Log2 ratio	Gene symbol	Description ( <i>Mus musculus</i> )	Gene bank accession	GO Biological process
<b>Dpp3 vs dpp0</b>	A_55_P21 83587	2.0191462	Gli 1	GLI-Kruppel family member GLI1 (Gli1)	NM_010296	Cell differentiation, Canonical Wnt receptor signaling pathway, Embryonic organ development, Regulation of cell proliferation
	A_51_P19 5573	2.9409535	DNMT1	DNA methyltransferase (cytosine-5) 1 (Dnmt1), transcript variant 2	NM_010066	Cell differentiation, Regulation of cell proliferation
	A_52_P59 8605	2.0869536	PTCH1	cDNA, RIKEN full-length enriched library, clone: M5C1096C04 product: patched homolog1, full insert sequence	AK147626	Cell differentiation, Developmental process, Tissue development, Cell proliferation, Embryo development.
	A_55_P19	3.1007926	GSK3B	Glycogen synthase kinase 3	NM_019827	Cell differentiation,

	81415			beta (Gsk3 $\beta$ )		Developmental process, Tissue development, Cell development
	A_55_P21 63353	-4.7950463	SOX3	SRY-box containing gene 3 (Sox3)	NM_009237	Reproduction, Developmental process involved in reproduction
	A_52_P28 3628	-2.2321572	RPS6KA3	Ribosomal protein S6 kinase polypeptide 3 (Rps6ka3)	NM_148945	Negative regulation of molecular function, Regulation of molecular function
<b>Dpp5 vs dpp3</b>	A_52_P24 843	2.2495787	PTEN	Phosphatase and tensin homolog (Pten)	NM_008960	Regulation of cell proliferation, Positive regulation of biological process, Regulation of signaling
	A_55_P19 79768	2.11998	Hoxa9	Home O box A9 (Hoxa9)	NM_010456	Cell activation, Cellular biosynthetic process
	A_55_P19 70755	2.0275857	HDAC9	Histone deacetylase 9 (Hdac9)	NM_024124	Regulation of developmental process, Cell differentiation, Regulation of cell differentiation
	A_52_P63 8895	2.3631468	VEGFA	Vascular endothelial growth factor A (Vegfa), transcript variant	NM_001025250	Regulation of cell proliferation, Cell development, Positive regulation of cell proliferation
	A_51_P51 6637	2.120296	BMP5	Bone morphogenetic protein 5 (Bmp5)	NM_007555	Regulation of cell proliferation, Positive regulation of cellular process, Cell differentiation, Regulation of cell differentiation
	A_51_P28 6748	8.1500225	FRZB	frizzled-related protein b (Frzb)	NM_011356	Regulation of cell proliferation, Positive regulation of cellular process, Cell development, Cell differentiation
	A_52_P16 1495	3.4849408	BCL6	B cell leukemia/lymphoma 6 (Bcl6)	NM_009744	Regulation of cell proliferation, Positive regulation of cellular process, Cellular developmental process, Positive regulation of cell proliferation, Cell differentiation
	A_55_P19 90495	2.2549117	STAT5A	Signal transducer and activator of transcription 5A (Stat5a), transcript variant 1	NM_011488	Regulation of cell proliferation, Positive regulation of cellular process, Positive regulation of cell proliferation, Cell differentiation, Regulation of cell differentiation
	A_55_P20 88237	2.3641624	CYP27B1	Cytochrome P450, family 27, subfamily b, polypeptide 1 (Cyp27b1), nuclear gene encoding mitochondrial	NM_010009	Regulation of cell proliferation, Cell proliferation, Cell differentiation, Regulation of cell differentiation

				protein		
	A_55_P21 58990	-17.16571	JUN	Jun oncogene (Jun)	NM_010591	Negative regulation of biological process, Negative regulation of cellular process, Cell proliferation, Apoptotic process, Cell differentiation
	A_55_P20 29285	-2.1011615	SMAD1	SMAD family member 1 (Smad 1)	NM_008539	Cellular biosynthetic process, Negative regulation of biological process
	A_55_P21 22066	-26.725424	PPP2R3D	Protein phosphatase 2 (formerly 2A), regulatory subunit B", delta (Ppp2r3d), transcript variant 1	NM_001163415	Negative regulation of cellular process, Cell proliferation, Apoptotic process, Cell differentiation
	A_55_P20 31668	-9.225057	GSTP1	Glutathione S-transferase, pi 1 (Gstp1)	NM_013541	Negative regulation of cellular process, Cell proliferation, Apoptotic process, Cell differentiation
	A_51_P11 8650	-3.878692	WDR6	WD repeat domain 6 (Wdr6)	NM_031392	Negative regulation of cellular process, Cell proliferation, Apoptotic process, Cell differentiation,
	A_55_P20 84807	-3.193252	RARB	Retinoic acid receptor, beta (Rarb)	NM_011243	Negative regulation of cellular process, Cell proliferation, Apoptotic process, Cell differentiation
<b>Dpp8 vs dpp5</b>	A_51_P28 2179	2.4641519	<b>mTOR</b>	Mechanistic target of rapamycin (serine/threoninekinase) (Mtor)	NM_020009	Regulation of cell differentiation, Positive regulation of cell differentiation, Cell proliferation
	A_52_P49 250	2.1586885	ERBB2	v-erb-b2 erythroblastic leukemia viral oncogene homolog 2, neuro/glioblastom aderived oncogene homolog (avian) (ErbB2)	NM_001003817	Cellular developmental process, Positive regulation of cell proliferation, Positive regulation of molecular function, Cell differentiation, Regulation of cell differentiation
	A_55_P19 71347	2.0509293	MTA3	Metastasis associated 3 (Mta3), transcript variant 4	NM_001171054	Cell cycle process, Positive regulation of cell proliferation
	A_52_P27 6792	2.3619466	FOXP1	Fork head box P1 (Foxp1), transcript variant 1	NM_053202	Positive regulation of cell proliferation, Cell differentiation, Regulation of cell differentiation, Cell development
	A_51_P41 6419	2.1029928	CALR	Cal reticulin (Calr)	NM_007591	Regulation of cellular process, Positive regulation of cell proliferation, Cellular developmental process

A_55_P21 52225	3.9467764	IHH	Indian hedgehog (Ihh)	NM_010544	Positive regulation of cell differentiation, Cell differentiation, Regulation of cell differentiation
A_51_P35 7664	4.0282755	HRAS1	Harvey rat sarcoma virus oncogene 1 (Hras1), transcript variant 1	NM_008284	Positive regulation of cellular process, Positive regulation of cellular biosynthetic process, Cell proliferation, Regulation of cell proliferation
A_55_P19 74533	2.5293105	<b>eIF4E</b>	Eukaryotic translation initiation factor 4E (Eif4e)	NM_007917	Positive regulation of cellular process, Cellular process, Positive regulation of cell cycle, Regulation of protein metabolic process
A_52_P27 244	2.733389	MAPK9	mitogen-activated protein kinase 9 (Mapk9), transcript variant alpha 2	NM_207692	Cellular developmental process, Cell differentiation, Regulation of cell differentiation
A_51_P13 0475	5.6605687	WNT4	wingless-related MMTV integration site 4 (Wnt4)	NM_009523	Cellular developmental process, Cell differentiation, Regulation of cell differentiation
A_51_P11 6813	10.12056	<b>CYP17A1</b>	Cytochrome P450, family 17, subfamily, polypeptide 1 (Cyp17a1)	NM_007809	Lipid biosynthetic process, Steroid metabolic process, Regulation of steroid biosynthetic process
A_51_P35 5360	8.048817	JAK3	Janus kinase 3 (Jak3), transcript variant 1	NM_010589	Positive regulation of cell proliferation, Cell differentiation, Regulation of cell differentiation
A_66_P11 3059	2.6281242	ITGB1	Integrin beta 1 (fibronectin receptor beta) (Itgb1)	NM_010578	Cell differentiation, Regulation of cell differentiation, Cell development
A_52_P16 5654	4.9048777	STAR	Steroidogenic acute regulatory protein (Star), nuclear gene encoding mitochondrial protein	NM_011485	Regulation of cellular process, Regulation of cell differentiation, Cell development
A_52_P41 3646	2.0662806	BMP6	Bone morphogenetic protein 6 (Bmp 6)	NM_007556	Positive regulation of cell proliferation, Cellular developmental process, Cell differentiation, Steroid metabolic process
A_66_P10 2879	2.0196054	THRA	Thyroid hormone receptor alpha (Thra)	NM_178060	Cell differentiation, Regulation of cell differentiation, Cell development, Positive regulation of cell differentiation
A_55_P30 1476	-2.016244	<b>4EBP1</b>	Musmusculus eukaryotic translation initiation factor 4E	NM_007918	Positive regulation of cell cycle, Regulation of protein metabolic process

---

A_52_P30 6236	-2.0529394	EPHA7	binding protein 1 (Eif4ebp1) Eph receptor A7 (Epha7), transcript variant 2	NM_001122889	Cell development, Negative regulation of biological process
A_55_P20 71656	-2.0123637	KCNMA1	Potassium large conductance calcium-activated channel, subfamily M, alpha member 1 (Kcnma1), transcript variant 4	NM_001253361	Cell development, Cell differentiation
A_55_P21 81191	-2.0435998	BTG1	B cell translocation gene 1, anti-proliferative (Btg1)	NM_007569	Regulation of cell differentiation, Positive regulation of cellular process
A_55_P20 59931	-2.0062685	PROM1	Prominin 1 (Prom1), transcript variant 2	NM_001163577	Cell differentiation, Regulation of cell differentiation, Regulation of cellular process

---