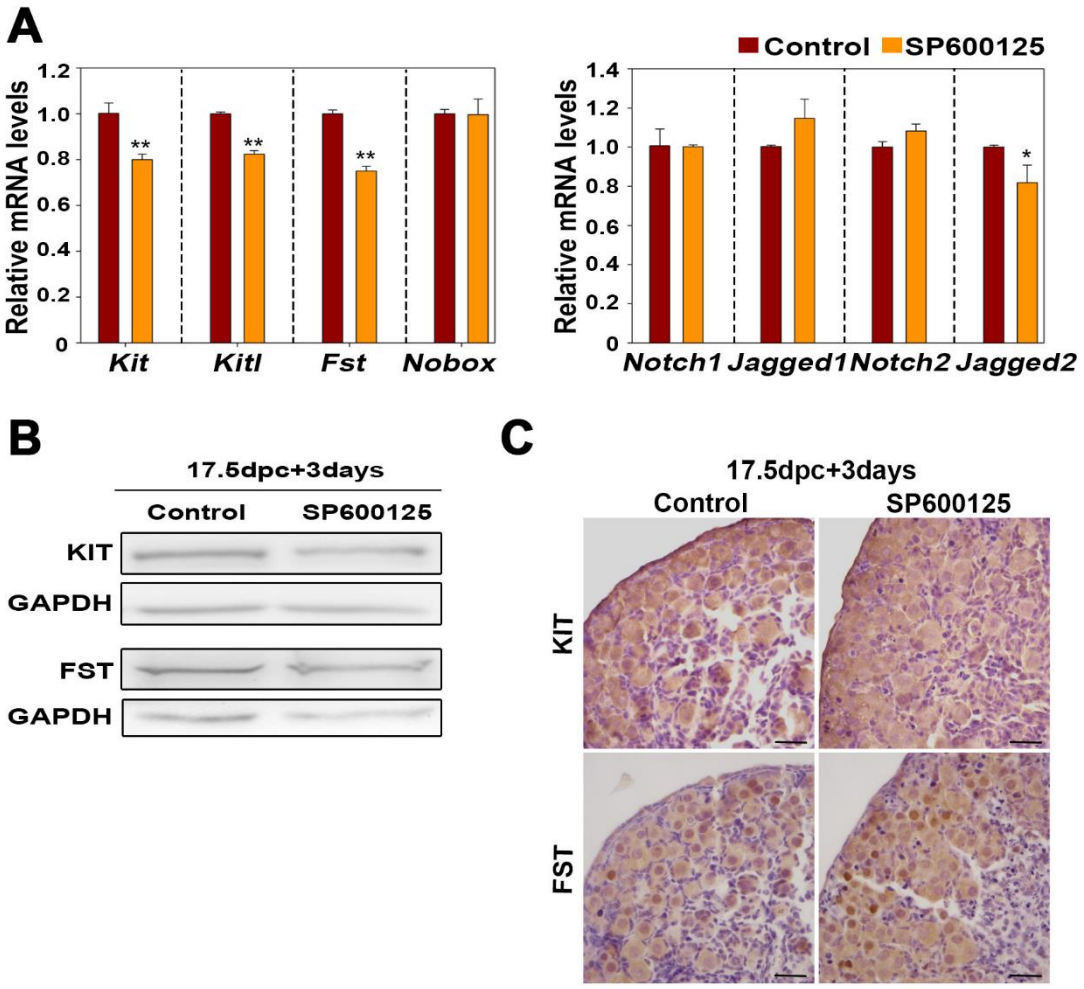

Figure S1. JNK signaling inhibition does not affect KIT, FST protein expression. 17.5 dpc ovaries were cultured with SP600125 for 3 days *in vitro*. **(A)** The mRNA levels of several primordial folliculogenesis related genes were detected using qRT-PCR. The expression of *Kit*, *Kitl*, *Fst*, and *Jagged2* were decreased following the SP600125 treatment, while the expression of *Nobox* and other *Notch* family genes exhibited mild alterations. Asterisk (*) indicates a significant difference between control and treated ovaries. $*P < 0.05$, $**P < 0.01$(*t*-test), control versus treated ovaries. **(B)** Western blotting analyses indicated no remarkable change in KIT and FST protein expression following SP600125 treatment. **(C)** KIT and FST were both mainly expressed in oocytes and not affected by JNK inhibition after immunohistochemistry analyses. Scale bars: 25 μm.

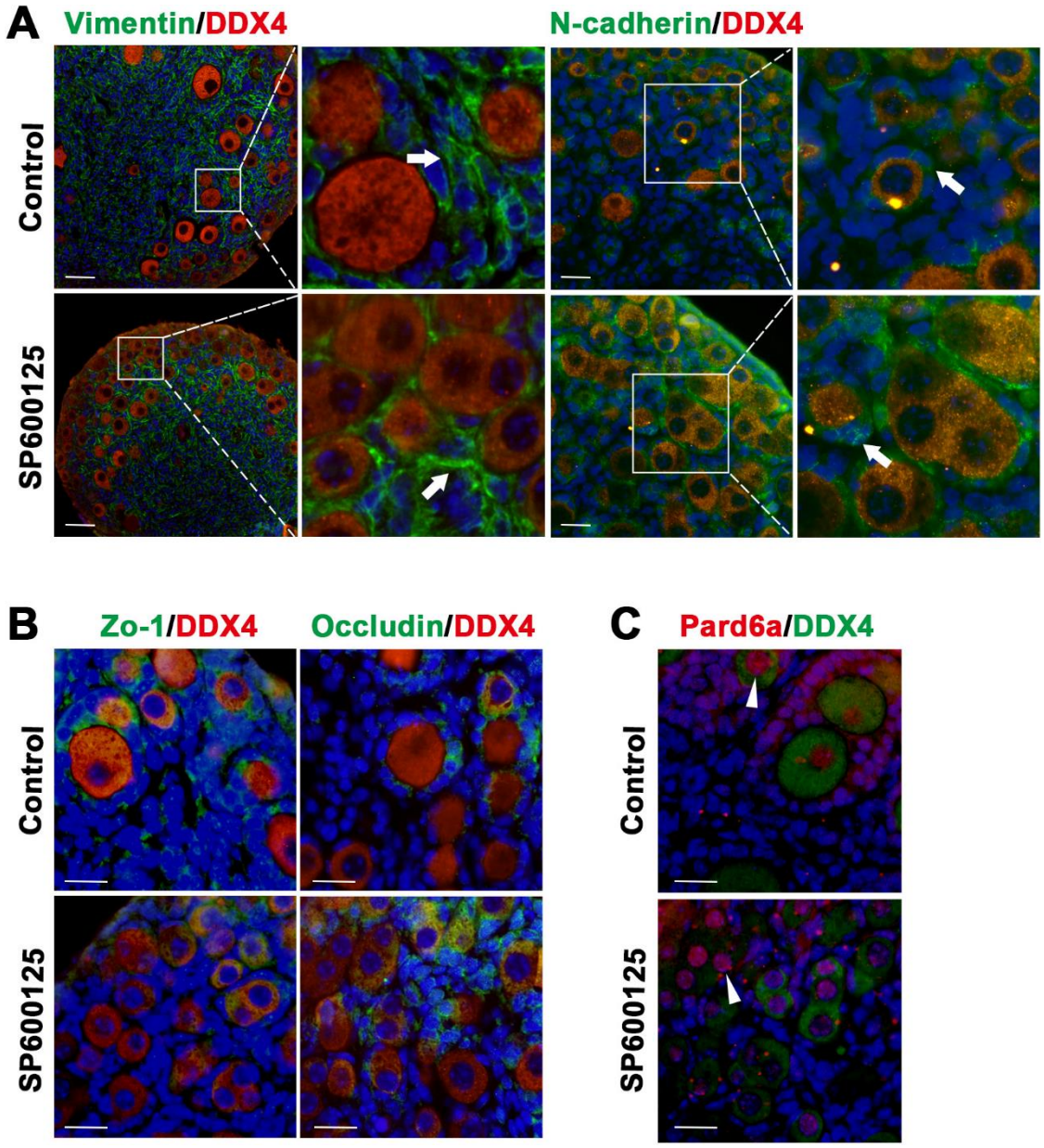

Figure S2. JNK inhibition signaling does not affect other cell junction related factors. 17.5 dpc ovaries were cultured with SP600125 for 6 days *in vitro* and immunofluorescence was performed to examine the expression of some cell junction related factors. Sections of ovary were stained with DDX4 antibody to identify oocytes. **(A)** N-cadherin (green) and Vimentin (green) were detected in pre-granulosa cells (arrows) and the SP600125 treatment had no impact on their localization and expression. **(B)** The tight junction protein Zo-1 (green) and Occludin (green) were hardly detected in fetal mouse ovaries. **(C)** The polarity protein Pard-6a (red) was strongly localized in oocytes (arrowheads), but was not affected by inhibition of JNK signaling. Scale bars: 25 μm.

Table S1. Oligonucleotide primers used for shRNA lentivirus production

Primers	Primer sequence (5'……3')	Length (bp)
JNK1-sh1-F	TGGTGCATTATGGGAGAAATTTCAAGAGAATTTCTCCC ATAATGCACCTTTTTTC	55
JNK1-sh1-R	TCGAGAAAAAAGGTGCATTATGGGAGAAATTCTCTTGA AATTTCTCCCATAATGCACCA	59
JNK1-sh2-F	TGTCCTGAATTCATGAAGAATTCAAGAGATTCTTCATGA ATTCAGGACTTTTTTC	55
JNK1-sh2-R	TCGAGAAAAAAGTCCTGAATTCATGAAGAATCTCTTGA ATTCTTCATGAATTCAGGACA	59
JNK2-sh1-F	TGGTGCATCATGGCAGAAATTTCAAGAGAATTTCTGCC ATGATGCACCTTTTTTC	55
JNK2-sh1-R	TCGAGAAAAAAGGTGCATCATGGCAGAAATTCTCTTGA AATTTCTGCCATGATGCACCA	59
JNK2-sh2-F	TGCCAACTGTAAGGAATTATTTCAAGAGAATAATTCCTT ACAGTTGGCTTTTTTC	55
JNK2-sh2-R	TCGAGAAAAAAGCCAACTGTAAGGAATTATTCTCTTGA AATAATTCCTTACAGTTGGCA	59
WNT4-sh-F	TGAGAAACTCAAAGGCCTGATTCAAGAGATCAGGCCT TTGAGTTTCTCTTTTTTC	55
WNT4-sh-R	TCGAGAAAAAAGAGAAACTCAAAGGCCTGATCTCTTG AATCAGGCCTTTGAGTTTCTCA	59
Scramble-sh-F	TGAACTCAAGACCGATATTATTCAAGAGATAATATCGGT CTTGAGTTCTTTTTTC	55
Scramble-sh-R	TCGAGAAAAAAGAACTCAAGACCGATATTATCTCTTGA ATAATATCGGTCTTGAGTTCA	59

Table S2. Primary antibodies used in the immunodetection

Antibody	Catalog Code	Source	Host	Dilution	
				IF/IHC	WB
JNK	Sc-1648	Santa Cruz	Mouse	1:100	1:500
DDX4	Ab27591	Abcam	Mouse		1:200
P-JNK	Sc-135642	Santa Cruz	Rabbit		1:500
GAPDH	AM4300	Life Technologies	Mouse		1:500
C-Jun	9165	Cell Signaling Technology	Rabbit		1:500
P-c-Jun (ser 63)	9261s	Cell Signaling Technology	Rabbit		1:200
E-cadherin	Ab76055	Abcam	Mouse	1:200	1:500
N-cadherin	Ab12221	Abcam	Rabbit	1:200	
β-catenin	Sc-7199	Santa Cruz	Rabbit	1:500	
WNT4	Ab91226	Abcam	Rabbit	1:100	1:500
MDM2	Ab178938	Abcam	Rabbit	1:200	1:500
FST	Sc-30194	Santa Cruz	Rabbit	1:200	1:200
KIT	Sc-168	Santa Cruz	Rabbit	1:200	1:200

Table S3. Primers used in qRT-PCR

Gene	Forward (5'……3')	Reverse (5'……3')
Kit	GGCCTCACGAGTTCTATTTACG	GGGGAGAGATTTCCCATCACAC
Kitl	GAATCTCCGAAGAGGCCAGAA	GCTGCAACAGGGGGTAACAT
Fst	TGCTGCTACTCTGCCAGTTC	GTGCTGCAACACTCTTCCTTG
Nobox	AAGACCCGAACCCTGTACC	CTCATGGCGTTTGTCACTGTC
Notch1	GATGGCCTCAATGGGTACAAG	TCGTTGTTGTTGATGTCACAGT
Jag1	CCTCGGGTCAGTTTGAGCTG	CCTTGAGGCACACTTTGAAGTA
Notch2	ATGTGGACGAGTGTCTGTTGC	GGAAGCATAGGCACAGTCATC
Jag2	CAATGACACCACTCCAGATGAG	GGCCAAAGAAGTCGTTGCG
Wnt4	CGGGGAAGGCCGATAATTTAAAC	CAAGGGACCCAAAAACCAAACC
E-cadherin	CAGCCTTCTTTTCGGAAGACT	GGTAGACAGCTCCCTATGACTG
Jnk1	ATGGCTGTCGATATTCAACCAG	CCTCTTGGGCATACCCCAC
Jnk2	GGGCTCCAGAAGTCATCCTG	AACCTTTCACCAGCTCTCCC