Supplemental Results

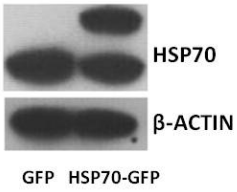


Fig S1. Western blot analysis of protein expression for endogenous and exogenous Hsp70 in granulosa cells transfected with a full-length Hsp70-GFP fusion construct or mock vector. Transfected granulosa cells lysates were subjected to SDS-PAGE and immunoblotting using the anti-Hsp70 antibody. β-actin was used as fractionation control.

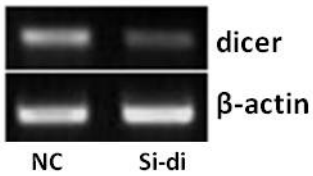
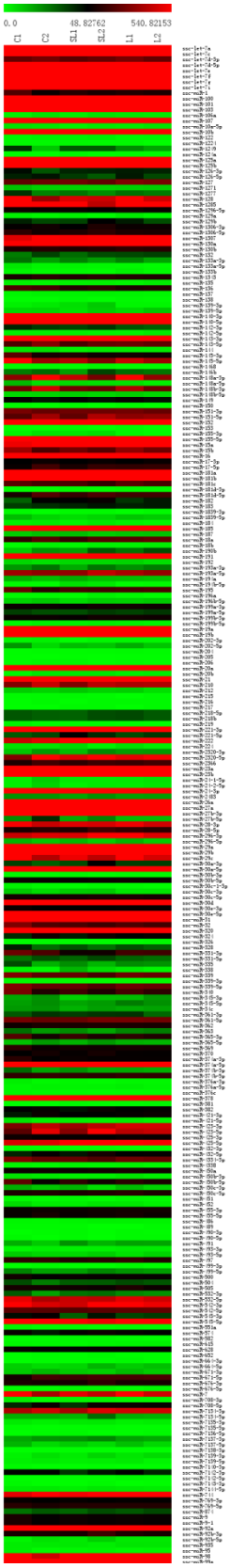
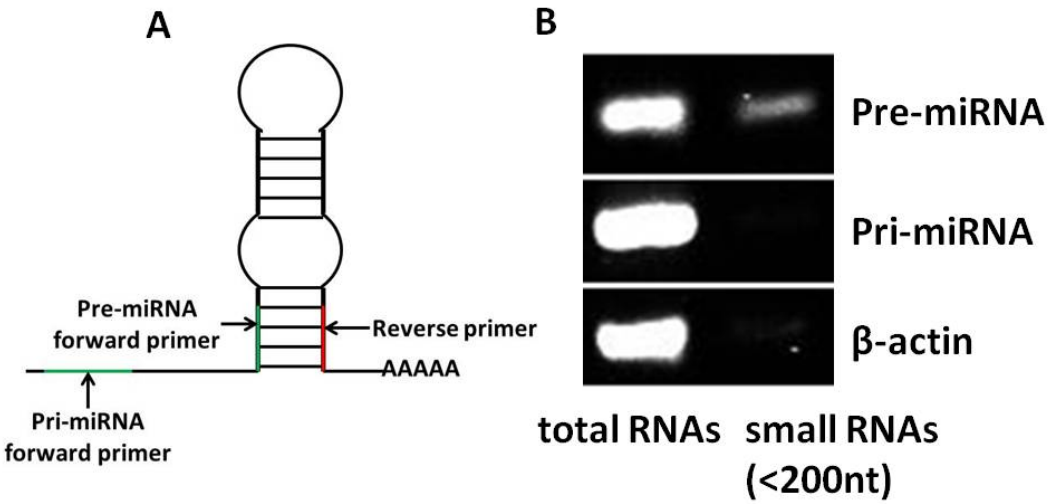


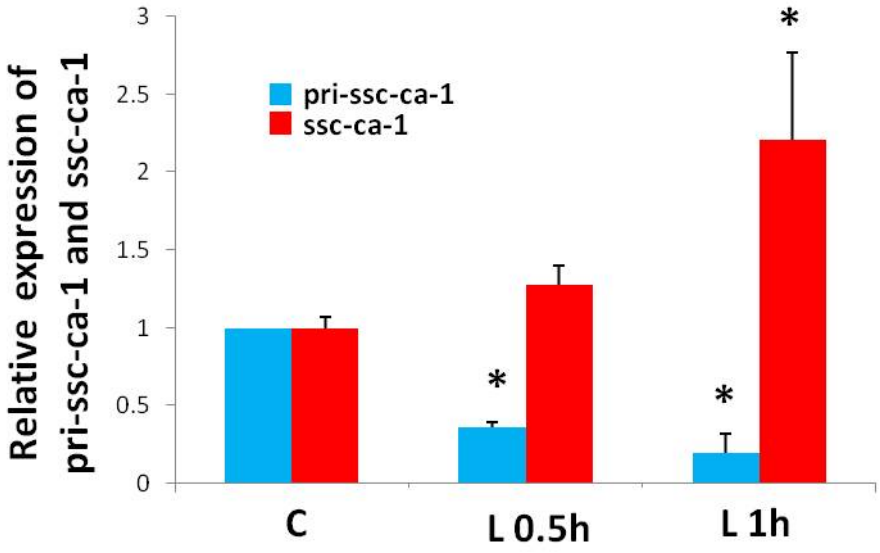
Fig S2. Transcript levels of *DICER* by RT-PCR after transfection of granulosa cells with control siRNAs (NC) and *DICER* siRNA (Si-di).



FigS3. Expressed pattern of known microRNAs detected by small RNAs deep sequencing in porcine granulosa cells from non-treated (C1, C2) and treated by sublethal (SL1, SL2) as well as lethal (L1, L2) heat stress.



FigS4. (A) Schematic illustration of PCR primers of pri-ssc-ca-1 and pre-ssc-ca-1. The PCR product length of pri-miRNA is 400 bp, and product length of pre-miRNA is 67 bp. (B) RT-PCR analysis showed the primary (pri) and precursor (pre) forms of ssc-ca-1 existed in granulosa cells. The β -actin gene was used as control. The small RNAs (<200 nt) were isolated using mirVana™ miRNA Isolation Kit (Ambion), and the total RNAs were isolated using Trizol reagent (Invitrogen). The RNAs were reverse-transcribed with oligo(dT).



FigS5. ssc-ca-1 and its pri-miRNA expressions in granulosa cells after exposure to lethal heat stress (LHS) for the indicated times.

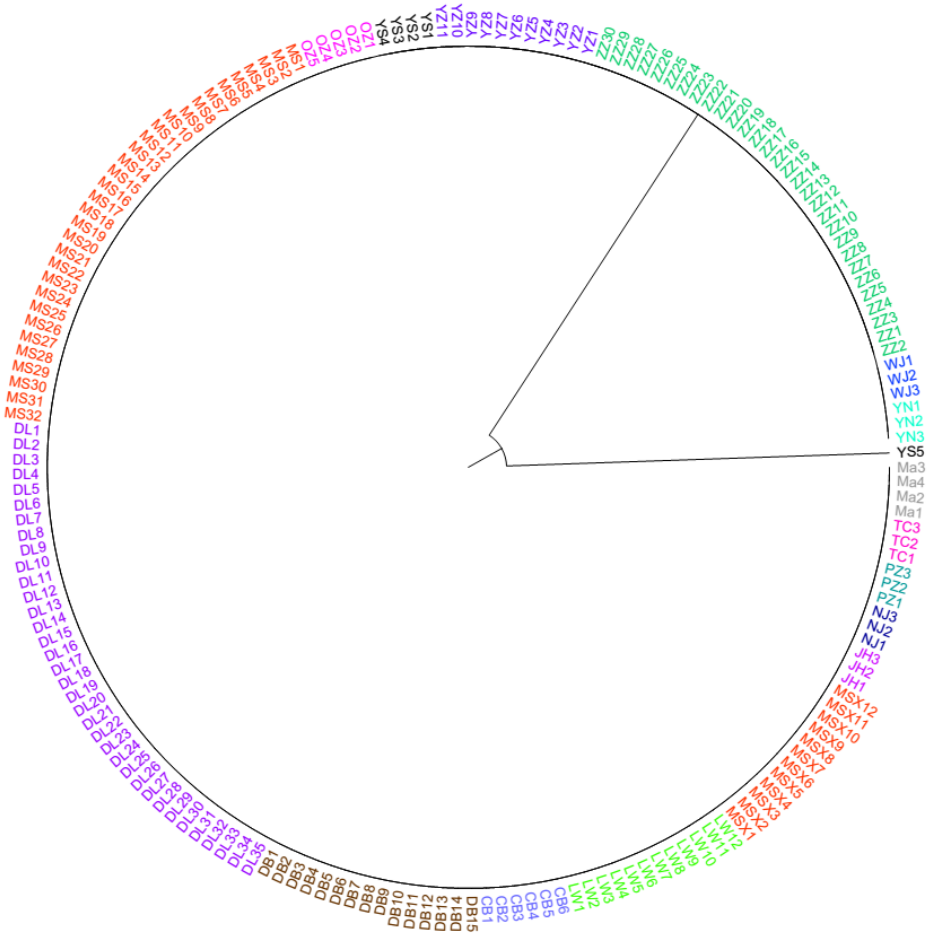


Fig S6. Neighbor-joining tree of ssc-ca-1 gene from wild and domestic pigs based on our data and publicly available whole-genome sequences of pigs. Different colors represent clusters of subpopulations. ZZ 1-30, Tibetan pigs; YZ 1-11, Asian wild boars; YS 1-5, primitive boars (YS1, Sumatran; YS2, Sus_barbatus; YS3, Phacochoerus_africanus; YS4, Sus_celebensis; YS5, Sus_verrucosus); OZ 1-5, European wild boars; MS 1-32, Meishan pigs; DL 1-35, Duroc pigs; DB 1-15, Large White pigs; CB 1-6, landrace pigs; LW 1-12, Laiwu pigs; MSX 1-12, Meishan pigs; JH 1-3, Jinhua pigs; NJ 1-3, Neijiang pigs; PZ 1-3, Pengzhou pigs; TC 1-3, Tongchen pigs; Ma1-4, Mangalica pigs; YN 1-3, Yanan pigs; WJ 1-3, Wujin pigs.

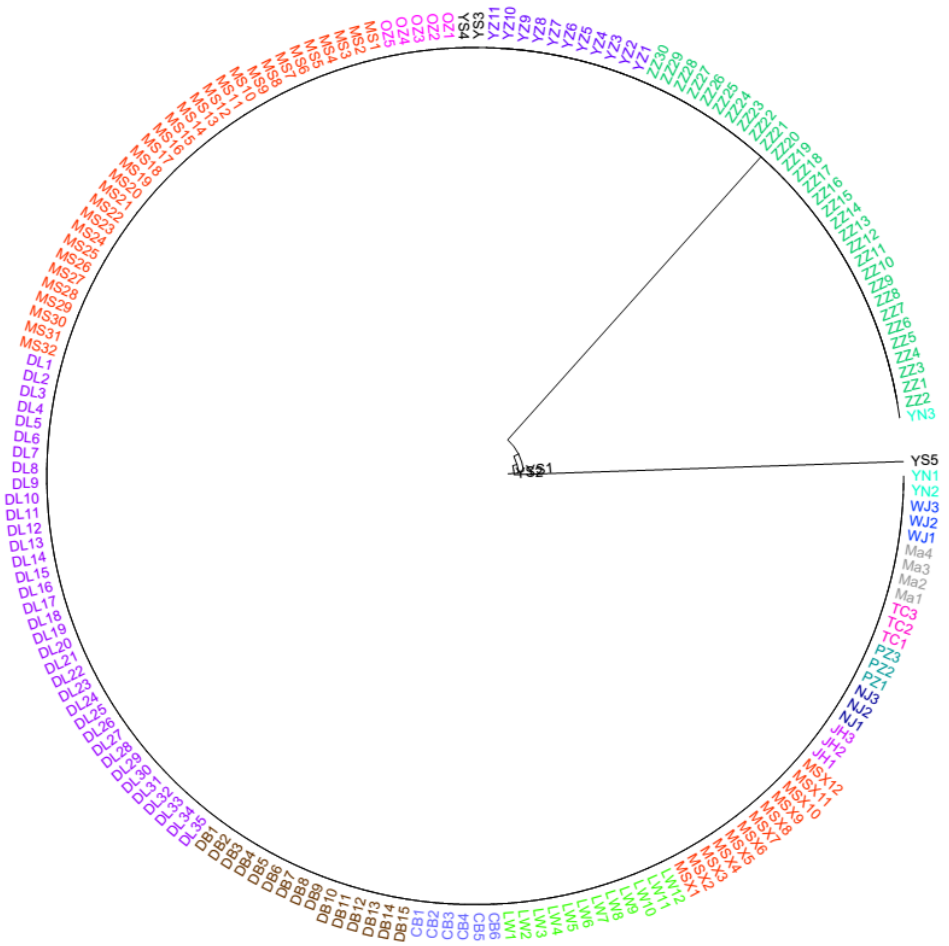


Fig S7. Neighbor-joining tree of precursor gene of ssc-ca-1 from wild and domestic pigs based on our data and publicly available whole-genome sequences of pigs. Different colors represent clusters of subpopulations. ZZ 1-30, Tibetan pigs; YZ 1-11, Asian wild boars; YS 1-5, primitive boars (YS1, Sumatran; YS2, Sus_barbatus; YS3, Phacochoerus_africanus; YS4, Sus_celebensis; YS5, Sus_verrucosus); OZ 1-5, European wild boars; MS 1-32, Meishan pigs; DL 1-35, Duroc pigs; DB 1-15, Large White pigs; CB 1-6, landrace pigs; LW 1-12, Laiwu pigs; MSX 1-12, Meishan pigs; JH 1-3, Jinhua pigs; NJ 1-3, Neijiang pigs; PZ 1-3, Pengzhou pigs; TC 1-3, Tongchen pigs; Ma1-4, Mangalica pigs; YN 1-3, Yanan pigs; WJ 1-3, Wujin pigs.

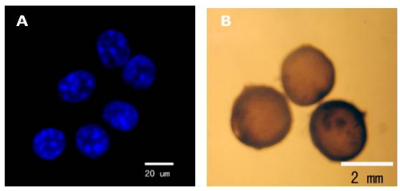


Fig S8. Morphology of isolated follicles from porcine ovaries. (A) Hoechst 33342 staining of isolated porcine primordial follicles, with granulosa cells located at the periphery. Bar = 20 µm. (B) Morphology of isolated growing follicles. Bar = 2 mm.

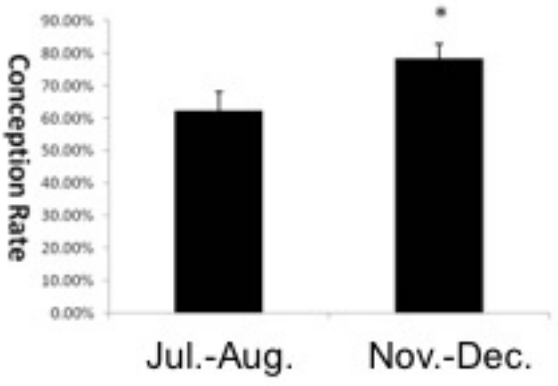


Fig S9. Effect of seasonal variations on conceptions rates in sows.
Jul.-Aug.: The duration time from July to August in 2013, 2014 and 2015. Nov.-Dec.: The duration time from November to December in 2013, 2014 and 2015. The experiment was conducted in the experimental dairy herd of the Agricultural Research Organization in Beijing, China. N > 50 in every group. *p<0.05.