

**Sperm-borne miR-449b influences cleavage, epigenetic  
reprogramming and apoptosis of SCNT embryos in bovine**

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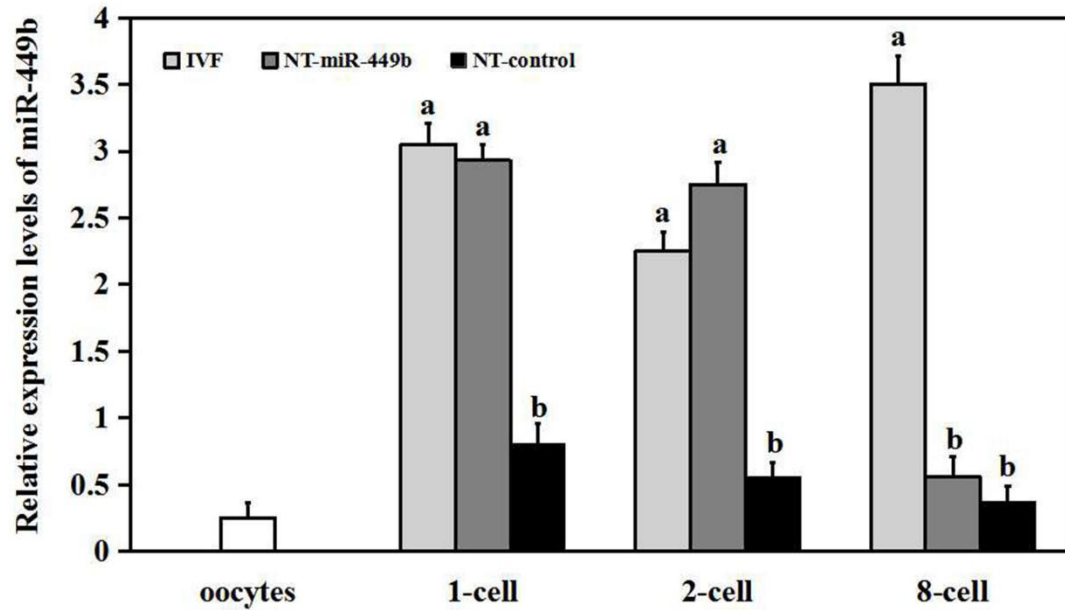
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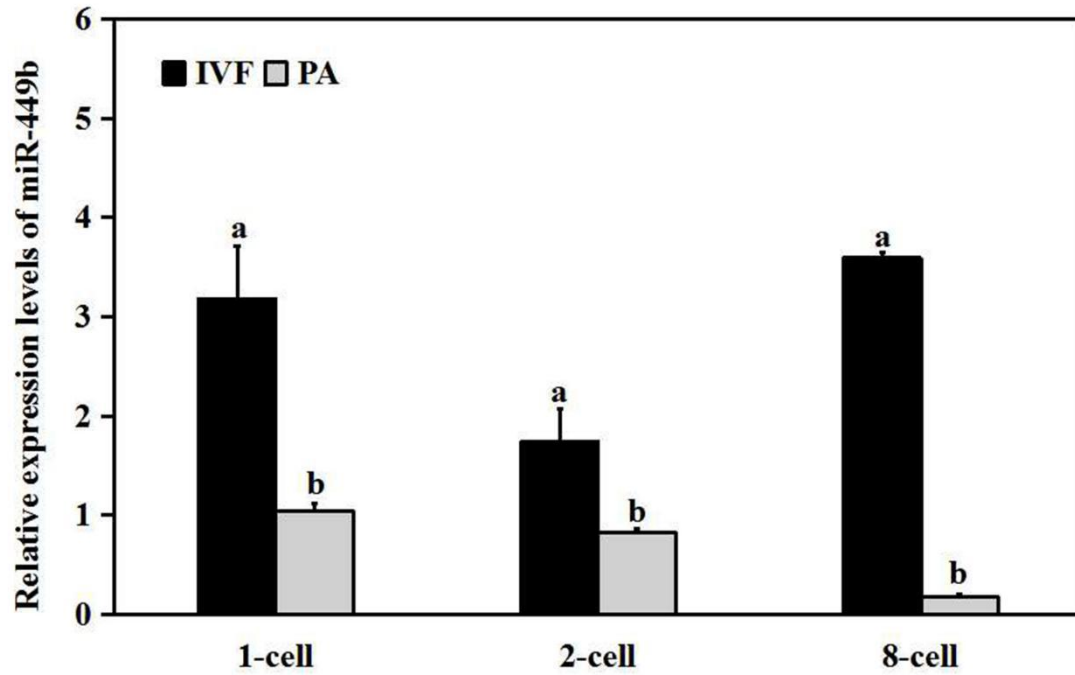
Supplementary Fig. S1

Supplementary Fig. S2

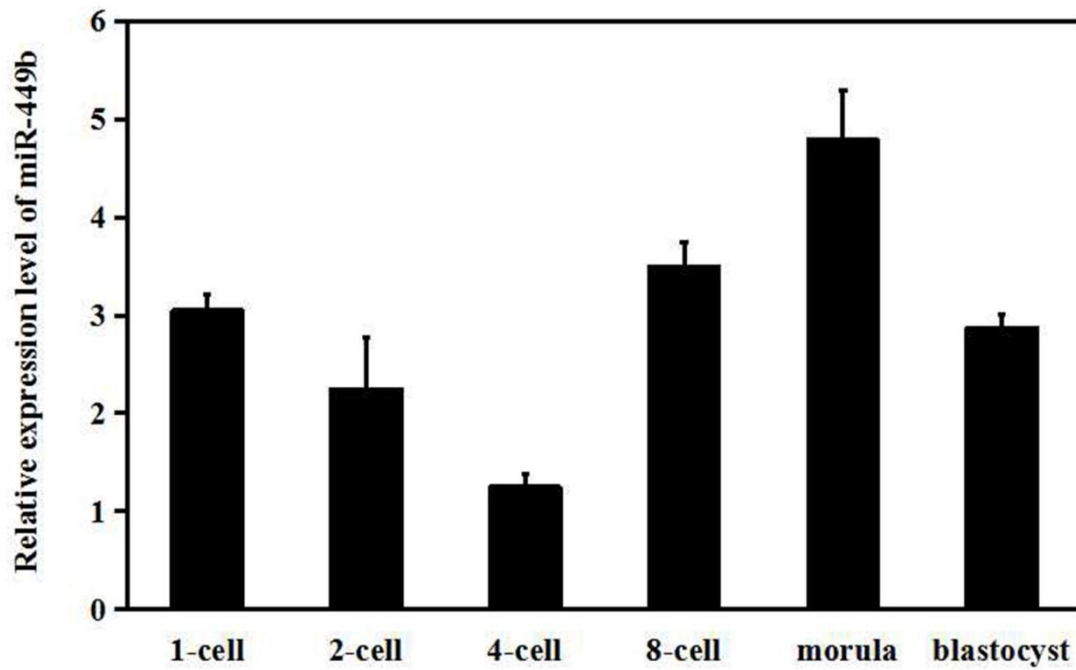
Supplementary Fig. S3



Supplementary Fig. S1 Quantitative (q) PCR analysis of relative expression levels of miR-449b in bovine oocytes as well as embryos derived from IVF, NT-control and NT-miR449b group, respectively. miR-449b expression was similar in IVF and NT-miR449b and significantly higher than NT-control at the 1-cell stage, then the level decreased, especially in NT-control. However, the relative expression level of miR-449b significantly increased in IVF group at the 8-cell stage. The bars graphs indicate the mean  $\pm$  SEM from three independent biological samples. a, b values with different superscripts within columns are significantly different from each other ( $P < 0.05$ ).



Supplementary Fig. S2 Quantitative (q) PCR analysis of relative expression levels of miR-449b in bovine embryos derived from IVF and parthenogenetic activation (PA). As shown in the result, miR-449b was more strongly expressed in IVF at early development stages compared to PA embryos. The bars graphs indicate the mean  $\pm$  SEM from three independent biological samples. a, b values with different superscripts within columns are significantly different from each other ( $P < 0.05$ ).



Supplementary Fig. S3 The expression pattern of miRNA-449b in bovine IVF preimplantation embryos. As shown in the result, miR-449b expression decreased at the 1-cell to 4-cell stage, then increased in the 8-cell and morula stage. When developed to blastocyst, the level of miR-449b decreased again, but still higher than that in 4-cell stage.