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**Xin Zhao***Nankai University, China***Minimum damage-oriented robotic enucleation for oocytes and cloned piglet produced by robotic SCNT**

Since the first sheep was produced by somatic cell nuclear transfer (SCNT), cloned animals have been produced in many mammalian species. Nuclear transfer is a complicated procedure. Usually, only around 1-3% of reconstructed embryos developed into live cloned animals. This low success rate is considered to be the major limitation of extensive application of the SCNT technique in pigs. Here we developed a robotic SCNT manipulation process, in which operation consistency was kept and force/pressure in the process was well controlled to reduce the damage in manipulation process and increased the success rate of cloning. Experiment results show that the proposed robotic SCNT system reduce the mechanical damage of the oocytes, and lead to high development rate. In our experiment, we achieved the blastocyst rate of 21%, which is a better result by comparison to the blastocyst rate of 10-14%

in pig cloning. Furthermore, robotic SCNT has been applied to pig cloning. We did thousands of robotic SCNT operations and transferred 510 reconstructed embryos into 6 pigs and obtained 13 cloned pigs at last. Our results demonstrate that the robotic SCNT not only relieves the operator from tedious cell operations, but also reduces the damage of the oocytes in SCNT.

Speaker Biography

Xin Zhao received the B.S. degree from Nankai University, Tianjin, P.R.China, in 1991, the M.S. degree from Shenyang Institute of Automation, CAS, Shenyang, P.R.China, in 1994 and the Ph.D. degree from Nankai University, in 1997, all in control theory and control engineering. Prof. Zhao was the recipient of 1999 Excellent Professor Award, Nankai University, 2000 Inventory Prize, Tianjin Municipal Government, 2002 Excellent Professor Award of "College Key Teachers Fund", Ministry of Education. His team pioneered robotic animal cloning and successfully got 13 cloned piglets in 2017

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