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Correlation between the external signs of surrogate and its ovulation status for the cloned embryo transfer

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Transgenic pigs could provide an alternative source of organs for transplantation. Various efforts have been made to establish this technology, and live piglets have been produced after transfer of somatic cell nuclear transfer (SCNT) embryos. However, the efficiency is poor with an extremely low rate of cloned piglet production. So far, most studies were limited to the *in vitro* production of SCNT embryos. To deliver cloned piglets, age and estrous stage of surrogates should be considered. This study was conducted to investigate the correlation between the external signs and its ovulation status in the surrogate. Potential surrogate gilts over 7 months of age were checked for their estrous status by observing external signs; vaginal fluid, vulva redness, vulva swelling, and back pressure. Viscosity of vaginal fluid was evaluated by none (0), medium (1), and strong (2). Vulva redness and swelling was respectively assessed by none or shrink (0), medium (1), strong (2). Back pressure was estimated by an immediate move (0), standing less than 10 sec (1), and standing over 10 sec (2). And then, ovulation status of each checked surrogate was classified as pre-ovulation (PO - 8 surrgates) group, just prior to ovulation (JPO - 7 surrogates) group, in ovulation (IO - 5 surrogates) group, and after-ovulation (AO - 12 surrogates) group, when we were doing the surgery for ET. In the results, when compared between external signs and ovulation status, estimated point was significantly higher in JPO group (over 6 point) compared with that observed in the other groups. Thirty two non-return surrogates were checked for pregnancy by

transabdominal ultrasound examination at Day 25 after ET and thereafter at 2-week interval. Seven surrogates in JPO group were pregnant. These results indicate that just prior to ovulation status of surrogates offer the SCNT embryo of *in vitro* produced one-cell stage the optimal condition for pregnancy in pigs. This study was supported by the bio-organ production research grant of the NLRI.

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