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Development of newborn care system for gnotobiotic miniature piglets

Su-Cheong Yeom[2], Sang-Hwan Hyun[1*], Eui-Bae Jeung[1]

[1]College of Veterinary Medicine, Chungbuk National University,[2]Center for Animal Resource Development, College of Medicine, Seoul National University

Transgenic animals are of great value for research and commercial purposes, and animal donors such as pigs could provide an alternative source of organs for transplantation. This study is conducted to establish the gnotobiotic raring system of transgenic cloned miniature piglets. Germ-free delivery and maintenance of three litters of miniature piglets as well as equipment for operation, isolation and rearing were performed. On 113th day of gestation, germ-free miniature pigs were produced aseptically from the uterus by hysterectomy and rearing them in isolators. For that reason it is absolutely necessary to know the exact date of transferred Somatic Cell Nuclear Transfer (SCNT) embryos and medical steps against spontaneous farrowing have to be taken. Delivered miniature piglets were maintained in isolators in the gnotobiotic status. The rearing isolator is equipped with an individual feeding system of the piglets and telemetry of health monitoring. Different exterior materials of isolator such as soft and hard type were examined for the aseptically maintenance and the health of newborn piglets. In their first days of life newborn piglets were provided the intensive care by investigators. Basic parameters of health monitoring in miniature piglets were as follows; body size, body temperature, pulse, breathing rate, eating rate and sleeping duration. This study was supported by the bio-organ production research grant of the NLRI.

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