

구두발표-3

The present and the future of the gene-modified miniature pig for
xenotransplantation and biomedical research

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Miniature pigs are the most expected animal as the source of cells, tissues, and organs for xenotransplantation and biomedical research: the miniature pig, sharing many physiological similarities with humans, offers several advantages in breeding and handling. Now in USA there are nearly 90,000 candidates waiting for organ transplants, yet only less than 20% transplants were performed per year, according to the United Network for Organ Sharing (UNOS), the organization that oversees organ donations. Therefore, the use of miniature pig organs for human transplantation would potentially alleviate the worldwide critical shortage of donor organs. However, the use of miniature pigs will likely require overcoming barriers of rejection and the risk of xenosis (disease transmission) to supply safe and relief animals applicable to the clinic, thus has stimulated investigation of novel strategies directed at generating the gene-modified miniature pig. One of a unique inbred strain, Clawn miniature pigs established 1990 in our Laboratory, has a huge potential value for xenotransplantation and biomedical research due to its clear genetic background and tiny individual differences. The present talk offers several examples taken from current research in the generation of gene-modified miniature pig for xenotransplantation and biomedical research.