

## Optimization of Mouse Embryo Transfer and Superovulation of C57BL/6J Inbred Mice Technique

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Currently, the technique of pronuclear microinjection is the most successful and most widely-used method for producing transgenic animals. Among this technique, superovulation and embryo transfer are the crucial steps for obtaining a large number of fertilized eggs and birth as much as potential founders from the transferred embryos.

1. Superovulation of C57BL/6J mice was performed by using gonadotropins of two different companies (Sigma and Intervet) and two different procedures of injection time. The best results were obtained by using gonadotropins of Intervet and the second procedure of injection time (PMSG was injected at 4:00 PM and HCG was injected at 46~47 hours later). By performing this method, when one mouse was induced superovulation, averagely, the number of total eggs obtained was 24.5 and among them the number of injectable eggs was 12.7. Comparing with the data of Manipulating The Mouse Embryo (Hogan et al. 1994), the number of total eggs obtained per mouse was similar. But the number of injectable eggs was a little lower than the standard method. This might be due to male reproductive ability and the breeding environments in our mouse house. However, the value of gonadotropins (Intervet) is 140 times cheaper than the standard method.
2. Four embryo transfer procedures were performed to initially investigate the relationship between the pregnancy ratio and three factors (single and double oviducts embryo transfer methods, one-cell and two-cell stage eggs transfer, transfer time) for optimizing embryo transfer protocol in mice. The experimental results suggested that double oviducts embryo transfer method was efficient (over 94% transferred foster mother were pregnancy and 7-8 average normal pups per foster mother were born), and the embryos were better transferred into the oviducts of foster at two-cell stage in the morning (0.5 dpc foster mother). The superovulation protocol was improved to a more commercial way and at the same time didn't lower the yield of embryos. The embryo transfer protocol was optimized and the pregnancy ratio was over 94%.

Key words) *superovulation, E.T. cheaper hormones*