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Citation	Japanese Journal of Veterinary Research, 34(2), 142-142
Issue Date	1986-04-30
Doc URL	https://hdl.handle.net/2115/2989
Type	departmental bulletin paper
File Information	KJ00002374396.pdf



A STUDY OF THE DEVELOPMENTAL CAPACITY OF MICROMANIPULATED
2- AND 4-CELL MOUSE EMBRYOS

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Two- and 4-cell mouse embryos were micromanipulated and the effects of the decrease in the number of blastomeres and removal of zona pellucida (ZP) were studied. ZP was removed mechanically. The 2-cell embryos were manipulated and classified into ZP-intact 2-cell (control), ZP-free 2-cell, single blastomere with ZP, single blastomere without ZP. While the 4-cell embryos were classified into ZP-intact 4-cell (control), ZP-free 4-cell, three blastomeres with ZP and three blastomeres without ZP, two blastomeres with ZP, two blastomeres without ZP, one blastomere with ZP and one blastomere without ZP. The blastomeres of an embryo with ZP were destroyed using a glass needle. Nevertheless, blastomere separation was done by pipetting or by placing a glass needle between the blastomeres. After *in vitro* culture in Whitten's medium, these embryos were studied for their developmental capacity, volume and cell number.

In this experiment, it was indicated that when the number of blastomeres of the 2-cell and 4-cell embryos was decreased, there was also a decrease in the developmental rate, volume and cell number of the blastocyst. Concurrently, an abnormal form of development such as false blastocyst, trophoblastic vesicle and non-integrated form increased. The decrease in the number of blastomeres significantly affected the development of the embryo, and ZP was not always required for the development of these blastomeres.