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STUDIES ON THE SUSCEPTIBILITY OF MOUSE EMBRYOS AT THE BLASTOCYST STAGE TO SENDAI VIRUS INFECTION

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The susceptibility of mouse blastocysts to Sendai virus and its effect on their development were studied *in vitro*. Embryos were exposed to the virus at varying levels of infectivity, and examined for the presence of viral antigens, using the fluorescent antibody test, egg inoculation test and hemagglutination test.

At $10^{7.8}EID_{50}$ / 0.1ml, approximately 40 % of the exposed zona-intact (ZI) blastocysts were positive for viral antigens in the zona pellucida (ZP). At lower infectivity titers ($10^{5.8}$ or $10^{3.8}EID_{50}$), 26.8 and 0 % were positive, respectively. Viral replication was observed from 6 to 48 hrs after exposure and embryos continued to develop normally. However, the higher the infectivity titer, the fewer embryos that developed into hatched blastocysts.

When the zona-free (ZF) blastocysts were exposed to the virus, viral antigens were found to be present almost all over the embryonic cells including the inner cell mass, indicating that the embryos are susceptible to Sendai virus infection. The embryos developed normally despite the presence of the virus.

It was shown in this study that the ZP is capable of playing a role as an effective barrier against Sendai virus infection as evidenced by non-penetration of the virus through the ZP. However, the adherence of the virus was noted and there is a risk of the embryos being infected in the hatching stage when the ZP breaks away. Furthermore, even in the presence of viral antigens, the embryos were still capable of development indicating that the infection may be harmful to subsequent fetal growth.