PRODUCTION OF INTERFERON BY RINDERPEST VIRUS IN CALF KIDNEY CELL CULTURES

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The early production of interferon to the titre of 2^8 on days 4 to 6, later replaced by neutralizing antibody has been suggested as an important factor in the repair process of rabbits infected with a lapinised strain of rinderpest virus (*1*). We attempted to produce interferon in cell culture, using inactivated tissue culture-adapted strain of rinderpest (TCRP) virus.

The procedure for interferon production was a modification of the method described by Youngner *et al.* (*2*). TCRP virus was inactivated at 56 °C for 5 and 7 min and the samples were designated A and B, respectively. Confluent monolayers of calf didney (BK) cell cultures were inoculated with 2 ml of a 1 : 100 dilution of inactivated virus A and B (each corresponding to 10^3 $TCID_{50}$/ml) and incubated at 37 °C for a 3 hr. The cell sheet was washed with Hanks' balanced salt solution and 10 ml of maintenance medium was added to each bottle. The material was harvested after 24 hr of incubation at 37 °C from 3 infected bottles of each sample, pooled and stored at −20 °C. The interferon was produced at 3 occassions.

Partially purified (*3*) interferon was diluted 2-fold 1 : 32. One ml of each dilution was put in each tube with monolayers of BK cells, using 8 tubes for each dilution of each sample, and incubated at 37 °C for 18 hr. All tubes treated with interferon were challenged with 10^3 $TCID_{50}$ of TCRP virus; virus control and cell control tubes were included. The final reading was done on the 12th day. Interferon titres were expressed by the highest dilution in which 50 per cent the of culture showed inhibition of the cytopathic effect (CPE) due to challenge virus.

The two samples A and B of semipurified interferon in each experiment had a titre of 2^4 per ml, as only 50 per cent tubes of the 1 : 16 dilution and none below this dilution showed a CPE. All the infected tubes of the 1 : 32 dilution exhibited clear-cut CPE.

Interferon was thus produced in BK cell cultures. As TCRP vaccine is primarily used in cattle, the results suggest that probably interferon is one of the factors in protection of cattle in vivo in the first few days of vaccination with rinderpest vaccine, before the protection due to development of serum neutralizing antibodies becomes operative.

References

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