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Ganciclovir is a Potent Inhibitor of Duck Hepatitis B Virus Replication in vivo. Tim Shaw, Scott Bowden, Yanyan Wang, Gilda Civitico and Stephen Locarnini. Hepatitis Research Unit, Macfarlane Burnet Centre for Medical Research, Fairfield Hospital, Fairfield, Victoria 3078, Australia.

We have used duck hepatitis B virus (DHBV) as a model to assess activity of various agents with potential anti-hepadnaviral activity. Pekin-Aylesbury crossbred ducks congenitally infected with the duck hepatitis B virus (DHBV) were treated with ganciclovir, a guanosine analogue. Ganciclovir was administered twice daily by intraperitoneal injection and plasma levels were monitored by HPLC. Sera and liver samples obtained before, during and after treatment were probed for DHBV replicative intermediates by dot-blot and Southern hybridization. Ganciclovir treatment produced prompt and profound decreases in viral DNA levels in both serum and liver. Except for the supercoiled DNA form, none of the DHBV replicative intermediates were detectable after three weeks' treatment. However, within two weeks of cessation of treatment viral replication recommenced and in some cases rebound occurred. These results (1) demonstrate that ganciclovir is a potent inhibitor of DHBV DNA replication in vivo and (2) confirm that supercoiled viral DNA is relatively resistant to conventional antiviral therapy. We suggest that the efficacy of conventional anti-HBV agents will be increased by combination with compounds which are active against supercoiled DNA.

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In Vivo Inhibition of HBsAg and DHBsAg Expression in Ducks after Injection of HBsAg or DHBsAg Antisense Vaccinia Recombinant

HS Chen*, Z Li*, JT Guo*, WG Yang*, H Su*, XX Zhou#, AC Zhang#, DL Mao#.*Institute of Medicinal Biotechnology, Chinese Academy of Medical Sciences. #Institute of Virology, Chinese Academy of Preventive Medicine, Beijing, China (PRC)

HBsAg and DHBsAg antisense recombinant vaccinia have been constructed, HBsAg antisense recombinant vaccinia has been reported to inhibit effectively the production of HBsAg in HBV transfected DC-281 cell cultures. Here we report their efficasy in vivo. 1. Groups of 1-3 day old ducks were injected by iv with HBsAg recombinant vaccinia(S1) to induce HBsAg antigenimia, HBsAg were detected in duck serum by RIA after the injection. To study HBsAg antisense recombinant vaccinia(S2) activity, S2 was given 24 hrs after S1 injection, serum HBsAg level was inhibited or disappeared in S2 treated ducks in comparison with control ducklings which injected with vaccinia virus. 2. Groups of 1-day old ducks were infected with DHBV intravenously, then, DHBsAg antisense recombinant vaccnia virus was injected intravenously to the infected ducks. Duck serum samples were taken on 7th day of infection and tested for DHBsAg level by EIA,serum DHBsAg level were inhibited about 30-68% in comparison with DHBV infected control ducklings treated with vaccinia virus The results showed in vivo inhibitory effects of HBsAg and DHBsAg antisense recombinant vaccinia on HBsAg and DHBsAg expression in Beijing duckings.