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Manipulation of Hepatitis B Viral DNA for Generating Transgenic Mice

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Hepatitis B virus (HBV) infection is one of the serious problems in Southeast Asia including Korea because it causes chronic hepatitis, which can easily be transformed to fatal conditions such as cirrhosis and hepatoma. Even though lots of informations on structural characteristics and gene expression mechanisms have been accumulated, the mechanism for HBV-induced hepatocellular injury which is believed to be the consequences of the immunological response is not well understood. In order to perform immunopathological studies for prevention and treatment of HBV infection, we designed transgenic mice as a disease model which can mimic HBV infection. In this study, a promoter-HBV DNA fragment for the preparation of HBV transgenic mice has been constructed. To add a proper enzyme site on 5′ end of HBV gene, total HBV (subtype *adr*) gene was inserted into *Bam*HI site of pBluescript SK vector and reextracted by *Pst*I-*Sac*I treatment. A liver-specific promotor, rat α_{2U} globulin gene promoter, was inserted to pBluescript SK vector and reextracted by *Bam*HI-*Pst*I treatment. Promoter-HBV DNA was constructed by ligation of two fragments using identical *Pst*I sites. For large scale production of promoter-HBV DNA, it was inserted to *Bam*HI-*Sac*I site of pBluescript SK vector.