Poster Session III

Hepadnavirus, Respiratory Virus, and Other Infections

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Priming of Duck Hepatitis B Virus DNA Replication: A Viral Function Which is Refractory to Inhibition by Triphosphates of Dideoxynucleoside Analogs

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Hepatitis B virus is a small double-stranded DNA virus which replicates via reverse transcription of an RNA pre-genome intermediate. Recently, it was shown that duck hepatitis B virus (DHBV) encoded reverse transcriptase also functions as the primer for viral DNA replication (Wang and Seeger, Cell, 14:663-670, 1992). Priming of DHBV DNA replication initiates with the covalent addition of G-T-A-A to the reverse transcriptase as the first four nucleotide residues of the viral DNA. This priming activity was found to be refractory to inhibition by the pyrophosphate analogs, PAA and PFA, as well as the nucleotide triphosphate analogs, ddGTP, ddTTP, and AZTTP, known inhibitors of retrovirus reverse transcriptase or endogenous duck HBV DNA polymerase. In contrast, DHBV priming activity was inhibited, in a dose-dependent manner, by the triphosphates of fialuridine (FIAUTP) and ara-A (ara-ATP), both inhibitors of HBV replication. These data indicate that the priming activity of the hepatitis B virus reverse transcriptase is biochemically distinct from reverse transcription and is inhibited by nucleotide analogs which contain an intact 3'-OH.