

E319 Purification of Hepatitis B Virus Polymerase expressed in *E. coli*

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The human hepatitis B virus (HBV) infects hepatocytes, induces acute and chronic liver disease in humans, and has been linked to hepatocellular carcinoma. Within the genome of hepadnavirus, there are four open reading frames (ORFs). The ORF of the polymerase (P) gene occupies 80% of the whole genome. This polymerase is the essential factor for replication but has the difficulties to express and purify. We expressed human HBV polymerase in *E. coli* as a fusion protein four years ago. Now the polymerase which was isolated by affinity column was further purified using gel filtration and anion exchange chromatography.

E320 Expression of Heat Shock Protein 70 in Umbilical Vein Endothelial Cells Infected by *Staphylococcus aureus*

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The environmental stress is known to induce heat shock proteins (HSPs) in eukaryotic cells. However, the induction of HSPs in host cells by microbial infection has not been well explained yet. *Staphylococcus aureus* (*S. aureus*) is one of the major pathogens in the pathogenesis of endovascular diseases such as infective endocarditis. In this study, synthesis of the stress-inducible 70 kDa HSPs was investigated in the endothelial cells (ECs) after 3 hrs to 20 hrs of incubation with *S. aureus*. The effect of *S. aureus* infection on the expression of HSPs in cultured ECs was analyzed by the laser scanning confocal microscopy (LSCM). The increase of HSP70 expression was dependent upon the incubation time and inoculum size of *S. aureus* infection. HSP70 expression in ECs infected by *S. aureus* (10^4 cfu/ml) for 20 hrs was increased 1.3-fold higher than that in heat shock treated ECs and was increased 2.3-fold higher than that in uninfected cells. The heat shock is known to induce intranuclear HSP70 expression in mammalian cells, while the *S. aureus* infection induced perinuclear expression in ECs as observed by the LSCM. Consequently, the expression of HSP70 in ECs plays an important role in the pathogenesis of endovascular infection.