

# Virus hepatitis A sampai E di Indonesia

Original Article

## Effect of Hepatitis B Virus X Gene on the Expression Level of p53 Gene using Hep G2 Cell Line

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### Abstract

**Background:** The HBV-X (HBX) protein is believed to contribute to the development of HCC. However, the molecular mechanisms involved in HBX-mediated hepatocarcinogenesis remain obscure. In this study, the effect of hepatitis B virus X gene and its protein product HBxAg on expression of p53 gene in Hep G2 cell line was investigated.

**Methods:** Viral DNA extracted from HBV-positive serum and HBX gene region was amplified using polymerase chain reaction (PCR). Then, PCR product was cloned into the pcDNA3 vector. After confirmation of cloning, the recombinant plasmid pcDNA3-X was transfected into HepG2 cell line using lipofectamine-mediated DNA-transfection procedure. SDS-PAGE and western blotting methods were used to identify expression of HBX protein. Relative quantification was used to analyze the p53 gene expression using the 2<sup>-ΔΔCt</sup> method.

**Results:** Recombinant plasmid pcDNA3-HBX was confirmed by restriction endonucleases digestion and colony-PCR. The results of SDS-PAGE and western blot assays showed that HBX gene could be expressed in Hep G2 cell line. There was no significant difference between the expression levels of p53 compared with GAPDH gene as housekeeping gene (p<0.05).

**Conclusion:** There was no significant difference in the protein levels between the transfected cells with X gene containing HBX30 and HBX31 double mutations and p53 gene. It is necessary to do more studies on Hepatitis B virus to understand the role of HBX on the development of liver cancer and its function on p53 tumor suppressor protein.

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**Keywords:** Hepatitis B virus, Hep G2 cell line, p53 gene, X gene

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### Introduction

Hepatocellular Carcinoma (HCC) is a common malignancy and a leading cause of death worldwide. Recent epidemiological data have demonstrated that liver cancer incidence has been continuously rising for more than a decade, not only in Asia and Africa but also in North America and Europe<sup>1</sup>. The risk factor of HCC has been identified based on epidemiological studies i.e. chronic HBV and HCV infection and prolonged exposure to aflatoxin<sup>2</sup>. Chronic Hepatitis B Virus (HBV) infection

is the dominant global cause of HCC, accounting for 55% of cases worldwide and 80% or more in eastern Pacific region and sub-Saharan Africa, the regions with highest rates for incidence of the tumor<sup>3</sup>. The mechanisms whereby HBV causes malignant transformation remain uncertain. However, much of the evidence available supports a pathogenic role for the product of HBVX gene, the HBX protein<sup>4</sup>. HBX gene is the smallest of the four partially overlapping open reading

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Afterward, the incidence of hepatitis E was reported sporadically. . Hepatitis B virus/B3 was distributed widely in Indonesia, and has not been HEPATITIS A - HEPATITIS B - HEPATITIS C - HEPATITIS E. Approximately million people are chronically infected with hepatitis B virus ( HBV), 75% of whom reside in Asia. Approximately of PREVALENCE OF HBV - CHARACTERISTICS OF - LIVER CANCER IN. Available in the National Library of Australia collection. Author: Sulaiman, H. Ali, ; Format: Book; ii, p.: ill. ; 25 cm. Infeksi virus oleh virus hepatitis B (HBV) menyebabkan banyak perubahan hepatosit yang disebabkan oleh aksi langsung dari protein yang dikodekan virus, . The Hepatitis B virus (HBV) can cause acute and chronic liver infections. It is transmitted through infected blood products, unprotected sex. Blood samples were collected from healthy volunteer blood donors from 21 of the 27 Indonesian provinces, and tested for antibodies to hepatitis C virus. A nationwide molecular epidemiological study on hepatitis B virus in Indonesia: Identification of two novel subgenotypes, B8 and C7. Article (PDF Available) in. H. Ali Sulaiman is the author of Virus Hepatitis A Sampai E Di Indonesia ( avg rating, 1 rating, 0 reviews). Hepatitis B virus (HBV) infection is a major public health problem. Eijkman Institute for Molecular Biology, Jakarta, Republic of Indonesia; Faculty of Medicine. Hepatitis B virus subtypes and hepatitis C virus genotypes in patients with chronic liver disease or on maintenance hemodialysis in Indonesia. J. Med. Virol. Molecular Epidemiology of Hepatitis B Virus in Minangkabau Ethnic Group of. West Sumatera, Indonesia. Marlinang D. Siburian, I Mariana D. B. A survey was performed to investigate HBV and HCV infection in Ujung Pandang . The total number of subjects was ; blood donors, 78 cases of acute. Background The Minangkabau is one of the major ethnic groups in Indonesia. Previous studies with a limited number of samples have shown a different. Hepatitis B virus pre-S2 start codon mutations in Indonesian liver disease Indonesia has a moderate to high endemicity of HBV infection[2]. Indonesia; Department of Microbiology, Cenderawasih University School of Medicine hepatitis B virus (HBV) have been identified worldwide. Human immunodeficiency virus, hepatitis B and hepatitis C in an Indonesian prison: prevalence, risk factors and implications of HIV screening. Erni J. Nelwan 1,2. Hepatitis A, hepatitis B dan hepatitis C adalah virus yang berlainan yang Sampai saat ini di Australia masih beresiko, demikian juga di negara anda dilahirkan Jika Anda ingin menghubungi pelayanan tersebut dalam bahasa Indonesia. Genotype and subtype analyses of hepatitis B virus (HBV) and possible and phylogenetic relatedness of hepatitis B virus isolates in Papua, Indonesia. in the transgender working as commercial sex workers in Surakarta, Indonesia. Human leukocyte antigen-E alleles are associated with hepatitis C Virus. Abstract The incidence of hepatitis B virus (HBV) infection has been in asymptomatic young adult population in Ternate, eastern Indonesia. Hepatitis B Vaccine INDONESIA by the comicbookguide.com (5/17). Page 1 of 2 Infeksi virus hepatitis B bisa hadir dalam tingkat yang akut atau.

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