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## Hepatitis B virus genotypes/subgenotypes in voluntary blood donors in Makassar, South Sulawesi, Indonesia

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Published: 19 August 2009

Received: 23 June 2009

*Virology Journal* 2009, **6**:128 doi:10.1186/1743-422X-6-128

Accepted: 19 August 2009

This article is available from: <http://www.virologyj.com/content/6/1/128>

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### Abstract

**Background:** Hepatitis B virus (HBV) genotype appears to show varying geographic distribution. Molecular epidemiological study of HBV in particular areas in Indonesia is still limited. This study was aimed to identify the prevalence of HBV genotype/subgenotype and mutations in basal core promoter (BCP) region in voluntary blood donors in Makassar, one of the biggest cities in east part of Indonesia.

A total of 214 hepatitis B surface antigen (HBsAg)-positive samples were enrolled in this study. HBV genotype/subgenotype was identified by genotype-specific PCR method or direct sequencing of pre-S region. Mutations in BCP were identified by direct sequencing of the corresponding region.

**Results:** HBV/B and HBV/C were detected in 61.21% and 25.23% of the samples, while mix of HBV/B and HBV/C was found in 12.62% of the samples. Based on pre-S region, among HBV/B and HBV/C, HBV/B3 (95.00%) and HBV/C1 (58.82%) were predominant. Interestingly, HBV/D was identified in two samples (22.165.07 and 22.252.07). Complete genome sequences of two HBV/D strains (22.165.07 and 22.252.07) demonstrated that both strains belong to HBV/D6, and the divergence between the two strains were 1.45%, while divergences of both 22.165.07 and 22.252.07 strains with reference strain (AM422939/France) were 2.67%. A1762T/G1764A mutation was observed in 1.96% and 5.36%, whereas T1753V mutation was found in 2.94% and 1.79% of HBV/B and HBV/C, respectively.

**Conclusion:** HBV/B and HBV/C are dominant in Makassar, similar to most areas in Indonesia. Mutations in BCP which might be associated with severity of liver disease are less common.

### Background

Hepatitis B virus (HBV) infection is a major health problem leading to significant morbidity and mortality worldwide. Approximately, two billion people in the world

have been infected by HBV [1]. The majority of acute HBV infections are self-limiting, whereas chronic HBV infection can cause chronic hepatitis, liver cirrhosis, or hepatocellular carcinoma. It is well known that Indonesia has a