

# **p53 point mutation enhanced by hepatic regeneration in aflatoxin B1-induced rat liver tumors and preneoplastic lesions**

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摘要

## **Abstract**

Aflatoxin B1 (AFB1) is a well-known mutagen and carcinogen which induces human hepatocellular carcinoma (HCC). It has been found to be an important factor in inducing a high frequency of codon 249 mutation in the p53 gene. We characterized p53 mutations in specimens from preneoplastic lesions or tumors from the liver of rats induced by AFB1 with or without regeneration by partial hepatectomy treatment. PCR-SSCP and direct sequencing were used for screening and identification of p53 gene mutations in these samples. In rats treated with AFB1 with or without liver regeneration, 29% (5/17) of rats with hepatoma or neoplastic lesion had p53 mutation. No p53 mutations were found in the tumor samples from the rats without liver regeneration. However, in samples from the rats with liver regeneration, 38% (5/13) of the rats with hepatoma or neoplastic lesion were found to have p53 mutations. In one of these samples, we also observed a transversion mutation G -->T on codon 247, compared to codon 249 in humans. These findings suggest that the process of hepatocarcinogenesis induced by AFB1 does not necessarily involve p53 mutation, but mutation of the p53 gene can be enhanced by liver regeneration and that there is a possibility of a high mutability of the third base of codon 247, even though there is a small probability of detecting such a mutation in rats due to its silent mutation.