



Pathology >

Volume 42, 2010 - [Issue 7](#)

55 | 3 | 0  
Views | CrossRef citations to date | Altmetric

Molecular Pathology

# A variant in microRNA-196a2 is associated with susceptibility to hepatocellular carcinoma in Chinese patients with cirrhosis

Xiao-Dong Li , Zhi-Gao Li, Xian-Xu Song & Chun-Fu Liu

Pages 669-673 | Received 11 May 2010, Accepted 13 Jul 2010, Published online: 17 Nov 2010

Cite this article



Full Article

Figures & data

References

Citations

Metrics

Reprints & Permissions

Read this article

Share

## Abstract

**Aims:** Cirrhosis is an important risk factor for hepatocellular carcinoma (HCC) in China, while little is known of the genetic susceptibility to hepatocarcinogenesis. Traditional approaches to identification of novel genetic predisposition genes have focused on protein encoding genes. There is evidence to suggest that microRNAs (miRNA) may play an important role in tumorigenesis. Recent studies have implicated that the rs11614913 SNP in miR-196a2 may be associated with susceptibility to lung cancer, congenital heart disease, breast cancer, as well as reduced survival in non-small cell lung cancer. This study aims to assess whether this functional polymorphism can influence susceptibility to and the progression of cirrhosis-related HCC.

**Methods:** 532 patients with hepatic cirrhosis (310 patients with HCC and 222 patients without HCC) were enrolled. DNA was extracted from blood specimens, and miR-196a2

polymorphism was genotyped by polymerase chain reaction-restriction fragment length polymorphism (PCR-RFLP). In addition, tumour tissues of liver (n = 59) were obtained from the studied HCC patients for measurement of miR-196a expression levels.

Results: The frequency of the CC genotype among HCC patients was higher than that in the control group, implying that the cirrhotic patients with the CC genotype or C allele containing genotypes (CT and CC) may have a higher risk of HCC. However, in a subsequent analysis of the association between this polymorphism and clinicopathological characteristics, there was an association between rs11614913 genotype and tumour size ( $p = 0.046$ ), but not with tumour number, grade, stage, invasiveness or Child-Pugh grade. In a genotype-phenotype correlation analysis using 59 tumour tissues of liver, rs11614913 CC or carrying at least one C allele was associated with significantly increased mature miR-196a expression ( $p = 0.006$  or  $= 0.002$ ).

Conclusions: Our results suggest, for the first time, that miR-196a2 polymorphism may contribute to cirrhosis-related HCC susceptibility in Chinese patients through influencing mature miR-196a expression.

Key words:

Cirrhosis

hepatocellular carcinoma

MiR-196a2

single nucleotide polymorphism

Related Research Data

[Oncomirs — microRNAs with a role in cancer](#)

Source: Nature Reviews Cancer

[MicroRNA signatures in human cancers](#)

Source: Nature Reviews Cancer

[A functional polymorphism in the miR-146a gene is associated with the risk for hepatocellular carcinoma](#)

Source: Carcinogenesis

[Transactivation of miR-34a by p53 Broadly Influences Gene Expression and Promotes Apoptosis](#)

Source: Molecular Cell

Frequent deletions and down-regulation of micro- RNA genes miR15 and miR16 at 13q14 in chronic lymphocytic leukemia

Source: Proceedings of the National Academy of Sciences

Retroviral Insertional Mutagenesis Identifies Genes that Collaborate with NUP98-

## Related research

Recommended articles

Cited by  
3

### Information for

[Authors](#)

[R&D professionals](#)

[Editors](#)

[Librarians](#)

[Societies](#)

### Opportunities

[Reprints and e-prints](#)

[Advertising solutions](#)

[Accelerated publication](#)

[Corporate access solutions](#)

### Open access

[Overview](#)

[Open journals](#)

[Open Select](#)

[Dove Medical Press](#)

[F1000Research](#)

### Help and information

[Help and contact](#)

[Newsroom](#)

[All journals](#)

[Books](#)

## Keep up to date

Register to receive personalised research and resources by email



Sign me up



Copyright © 2025 Informa UK Limited [Privacy policy](#) [Cookies](#) [Terms & conditions](#)

[Accessibility](#)



Taylor & Francis Group  
an informa business

Registered in England & Wales No. 01072954  
5 Howick Place | London | SW1P 1WG