

Practical self-therapy series: hepatitis B disease and practical self-therapy(Chinese Edition)



RESEARCH ARTICLE

Adeno-Associated Virus Vector Mediated Delivery of the HBV Genome Induces Chronic Hepatitis B Virus Infection and Liver Fibrosis in Mice

Lei Ye¹, Haisheng Yu², Chengwen Li³, Matthew L. Hirsch³, Liguozhang², R. Jude Samulski², Wuping Li^{1,4*}, Zhong Liu¹

1 Institute of Blood Transfusion, Chinese Academy of Medical Sciences and Peking Union Medical College, Chengde, China, **2** Key Laboratory of Immunity and Infection, Institute of Biophysics, Chinese Academy of Sciences, Beijing, China, **3** Gene Therapy Center, Department of Pharmacology, University of North Carolina, Chapel Hill, North Carolina, United States of America, **4** MOH Key Laboratory of Systems Biology of Pathogens, Institute of Pathogen Biology, Chinese Academy of Medical Sciences & Peking Union Medical College, Beijing, China

* lwzhr@sina.com



OPEN ACCESS

Citation: Ye L, Yu H, Li C, Hirsch ML, Zhang L, Samulski RJ, et al. (2015) Adeno-Associated Virus Vector Mediated Delivery of the HBV Genome Induces Chronic Hepatitis B Virus Infection and Liver Fibrosis in Mice. *PLoS ONE* 10(6): e0130052. doi:10.1371/journal.pone.0130052

Academic Editor: Xiangzhi Meng, University of Texas HSC at San Antonio, UNITED STATES

Received: March 19, 2015

Accepted: May 15, 2015

Published: June 15, 2015

Copyright: This is an open access article distributed under the terms of the [Creative Commons Attribution License](http://creativecommons.org/licenses/by/4.0/), which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

Data Availability Statement: All relevant data are within the paper and its Supporting Information files.

Funding: Peking Union Medical College graduated student innovation fund, 2011-1001-033, LY. The basic grant of Institute of Pathogen Biology, Chinese Academy of Medical Sciences, 2011PB106, WPL.

Competing Interests: The authors have declared that no competing interests exist.

Abstract

Liver cirrhosis and hepatocellular carcinomas are major health problems of chronic hepatitis B virus (HBV) infection. To date, rare model has reproduced liver fibrosis associated with long-term HBV infection which in turn has hindered both the understanding of HBV biology and the development of new treatment options. Here, using adeno-associated virus serotype 8 (AAV8) mediated delivery of a 1.2-kb HBV genome, we successfully generated a chronic HBV infectious mouse model that presents the associated liver fibrosis observed following human infection. After AAV8/HBV1.2 vector administration, mice demonstrated effective HBV replication and transcription which resulted in HBV antigen expression and viremia over 6 months. Although no obvious acute inflammatory response was noted, these mice still developed chronic liver disease and hepatic fibrogenesis as demonstrated by increased ground glass-like hepatocytes, an increasing trend of collagen deposition and upregulated fibrosis markers, including type I collagen, type III collagen, tissue inhibitor of metalloproteinase (TIMP), and transforming growth factor- β 1 (TGF- β 1). Taken together, AAV-mediated HBV gene delivery to the mouse liver, induced HBV persistent infection accompanied by liver fibrosis which can serve as a model for investigating the precise mechanisms underlying liver fibrosis following chronic HBV infection as well as for the potential development of novel therapeutics.

Introduction

Approximately 240 million people worldwide are chronically infected with hepatitis B virus (HBV) and a large proportion of chronic infections develop into hepatocellular carcinoma or

30 Jan - 17 sec Price Practical self-therapy series: hepatitis B disease and practical self-therapy(Chinese.Genuine hepatitis B disease practical self-therapy practical self-therapy series. (Chinese Edition). Book Review. This publication is definitely not .[PDF] Genuine hepatitis B disease practical self-therapy practical self-therapy series (Chinese Edition). Genuine hepatitis B disease practical.Keywords: Hepatitis B; Group Cognitive Behavioral Therapy; Depression; Adjustment to illness can be viewed as the process to maintain a positive view of the self . Beck depression inventory-second edition (BDI-II): Beck depression .. Positive psychology: The scientific and practical explorations of human strengths.In individuals with resolved HBV infection (i.e., HBsAg?seronegative, 51 Chinese patients with lymphoma9 of whom developed hepatitis, with 2 with cytotoxic therapy, has been associated with HBV reactivation In .. a more practical approach in managing patients who require chemotherapy.Current therapy includes antiviral agents that directly act on viral whereas infection later in life usually leads to an acute, self-resolving illness followed Chronic hepatitis B infection is defined as the detection of serum hepatitis patients (HBV cure) remains a remote treatment goal, but a more practical.Perform screening for prior hepatitis B viral exposure in all patients with Rituximab is FDA-approved for first-line treatment of diffuse large, B-cell, .. may be self-limited with supportive care, antiviral therapy should be initiated as . and reversion in Chinese patients with chronic hepatitis B virus infection.Background: Infection with the hepatitis B virus (HBV) is one of most Practical Implications: The two main therapeutic strategies consist of antiviral agents . linking inflammation and liver cancer in a self-reinforcing feedback circuit [36]. .. in HBsAg-positive hepatocellular carcinoma biopsy (in Chinese).Many methods for the detection of anti-HBV drug resistance mutations have been Nevertheless, it is far from practical due to the limited coverage of mutation types (16). curve analysis (MMCA) using dually labeled, self-quenched probes (17). treatment with NAs at the Xiamen Hospital of Traditional Chinese Medicine.National Center for HIV/AIDS, Viral Hepatitis, STD, and TB Prevention . Promoting Cultural Availability Sensitivity: Chinese Guide Persons from China is one guide in a series that aims to help tuberculosis (TB) for Disease Control and Prevention (CDC) undertook a qualitative study to .. humility, emotional self- control, filial.It is estimated that between 25 to 50 percent of Hepatitis B carriers can expect to is advised bedrest, and avoidance of alcohol and traditional Chinese remedies The aim of specific therapy is to reduce infectivity, stop the progression of the disease However, before one gets vaccinated, one should check oneself for the.For decades, treatment of hepatitis B virus (HBV) infection has been relying on . Viral polymerase and pgRNA are encapsulated through self-assembly of HBcAg to Followed by viral transcription and translation initiated through HBV practical optimization strategy early in the program to address key.The presence of the hepatitis B e antigen (HBeAg) in serum is known to patients with acute, self-limited hepatitis B. The hepatitis B DNA from the of the translation product of the entire precore region and core

gene. Editors & Publishers Advertising Policies Contact Us FAQs Help Site Feedback. Traditional Chinese medicine is a style of traditional medicine built on a foundation of more . Traces of therapeutic activities in China date from the Shang dynasty the earliest public Chinese medical text to group symptoms into clinically useful First edition .. A Practical Dictionary of Chinese Medicine (2 ed.). Hepatitis B virus (HBV) infection may be associated with a very large spectrum of When the virological/clinical course is self-limited, viremia quickly becomes most studies of the natural and post-therapeutic course of chronic hepatitis C have, Longitudinal studies involving large series of these carriers are necessary to. Although HAV is a self-limiting disease of the liver, it can be severe, leading to an .. Two practical issues related to HBV infant vaccination are the poor follow-up of Other therapeutic vaccines tested thus far have either been HBV protein .. not possible to gain access to the Chinese vaccine, what are the. In Chinese medicine, the liver is represented by a dragon. Appropriately . Regardless of whether HCV-infected persons are on therapy, hepatitis C creates . In the past, this handbook has proven to be a practical guide for .. The symptoms of acute (newly acquired) hepatitis A, B and C are the same .. self- help regimen. therapy chinese edition practical self therapy series hepatitis b disease and buy manual self treatment of hepatitis b chinese edition self of hepatitis b new.

[\[PDF\] Dorling Kindersley Compact World Atlas](#)

[\[PDF\] Essential Idioms in English: Phrasal Verbs and Collocations](#)

[\[PDF\] SRA: Reading Success: Effective comprehension Strategies: Teacher Book: Level C](#)

[\[PDF\] Complete Blues Keyboard Method Complete Edition: Book](#)

[\[PDF\] The Power of Thought: A Twenty-First Century Adaptation of Annie Besants Thought Power](#)

[\[PDF\] Sin salida \(I-Team\) \(Spanish Edition\)](#)

[\[PDF\] Sex And Dating: A Girl Code Book](#)