Name of Journal: *World Journal of Gastroenterology*

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Manuscript Type: REVIEW

Silencing HBV cccDNA - the potential of an epigenetic therapy approach

Epigenetic therapy for HBV

Abstract

Global prophylactic vaccination programmes have helped to curb new hepatitis B virus (HBV) infections. However it is estimated that nearly 300 million people are chronically infected (CHB) and have a high risk of developing hepatocellular carcinoma (HCC). As such, HBV remains a serious health priority and the development of novel curative therapeutics is urgently needed. CHB has been attributed to the persistence of the covalently closed circular DNA (cccDNA) which establishes itself as a minichromosome in the nucleus of hepatocytes. As the viral transcription intermediate, the cccDNA is responsible for producing new virions and perpetuating infection. HBV is dependent

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Gene Therapy for Chronic HBV-Can We Eliminate cccDNA?

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Gene therapy strategies developed for **HBV** include **gene silencing** by harnessing RNA interference, transcriptional inhibition through **epigenetic** modification of target **DNA,** genome editing by designer nucleases, and immune modulation with cytokines.

Cited by: 23 **Author:** Kristie Bloom, Mohube Betty Maepa, Abdull...
Publish Year: 2018

[PDF] Mapping of histone modifications in episomal HBV cccDNA ...

https://www.pnas.org/content/pnas/112/42/E5715.full.pdf

epigenetic modifying agent, suggesting that **silencing cccDNA** epigenetically might be a viable **therapeutic approach.** Results Experimental System: De Novo Infection of **HepG2** Cells with **HBV** and **cccDNA-Contai**ning Chromatin Enrichment. **HepG2** is a hepato-blastoma-derived cell line that supports **HBV** replication (17)

Cited by: 167 **Author:** Philipp Tropberger, Alexandre Mercier, Mar...
Publish Year: 2015

Mapping of histone modifications in episomal HBV cccDNA ...

https://www.ncbi.nlm.nih.gov/pmc/articles/pmid/26438841

Oct 20, 2015 · Chronic hepatitis **B virus** (HBV) infection is maintained by the persistence of episomal HBV closed circular DNA (**cccDNA**) in infected hepatocytes. Current therapeutic regimes have no or limited

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https://www.cell.com/molecular-therapy-family/...

Hepatitis **B virus** (HBV) infection is hyper-endemic (>8 % chronic carriers) to parts of Asia and sub-Saharan Africa. Persistent HBV infection predisposes to liver diseases such as cirrhosis and hepatocellular carcinoma. Current anti-HBV therapies face several limitations. RNA interference-based therapies lack the robustness and specificity required for therapeutic effect while interferon-α and ...

Cited by: 2 **Author:** Buhle Moyo, Samantha Nicholson, Ilke Roel...
Publish Year: 2015

(PDF) 483. Epigenetic Silencing of Hepatitis B cccDNA In ...

https://www.researchgate.net/publication/312466534...

Epigenetic Silencing of Hepatitis **B cccDNA** In Vitro and In Vivo Using AAV-Delivered Engineered Repressor Transcription Activator-Like Effector. ... Molecular **Therapy** 23(1) DOI: 10.1016/S1525-0016 ...

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Publish Year: 2018

Epigenetic modulation in chronic hepatitis B virus ...

https://link.springer.com/article/10.1007/s00281-020-00780-6

Mar 17, 2020 · Knowledge of the complex network of interactions that **HBV** engages with its host is still

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Silencing hepatitis B virus covalently closed circular DNA: The

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Objective: Therapeutic strategies **silencing** and reducing the **hepatitis B virus** (HBV) reservoir, the **covalently closed circular DNA** (cccDNA), have **the potential** to cure chronic HBV infection. We aimed to investigate the impact of small interferring RNA (siRNA) targeting all HBV transcripts or pegylated interferon-α (peg-IFNα) on the viral regulatory HBx protein and the structural maintenance ...

[PDF] Therapeutic shutdown of HBV transcripts promotes ...

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Cited by: 1 **Author:** Lena Allweiss, Katja Giersch, Andrea Piros...

Publish Year: 2021

Therapeutic shutdown of HBV transcripts promotes ...

https://gut.bmj.com/content/early/2021/02/04/gutjnl-2020-322571

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Publish Year: 2018

Hepatitis B virus

Dna Viru

Hepatitis B virus, is a partially double-stranded DNA virus, a species of the genus Orthohepadnavirus and a member of the Hepadnaviridae family of viruses. This virus causes the disease hepatitis B.

Wikipedia

Scientific name: Hepatitis B virus

Family: Hepadnaviridae

Genus: Orthohepadnavirus

Domain: Virus

Class: Revtraviricetes

Biological rank: Species

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