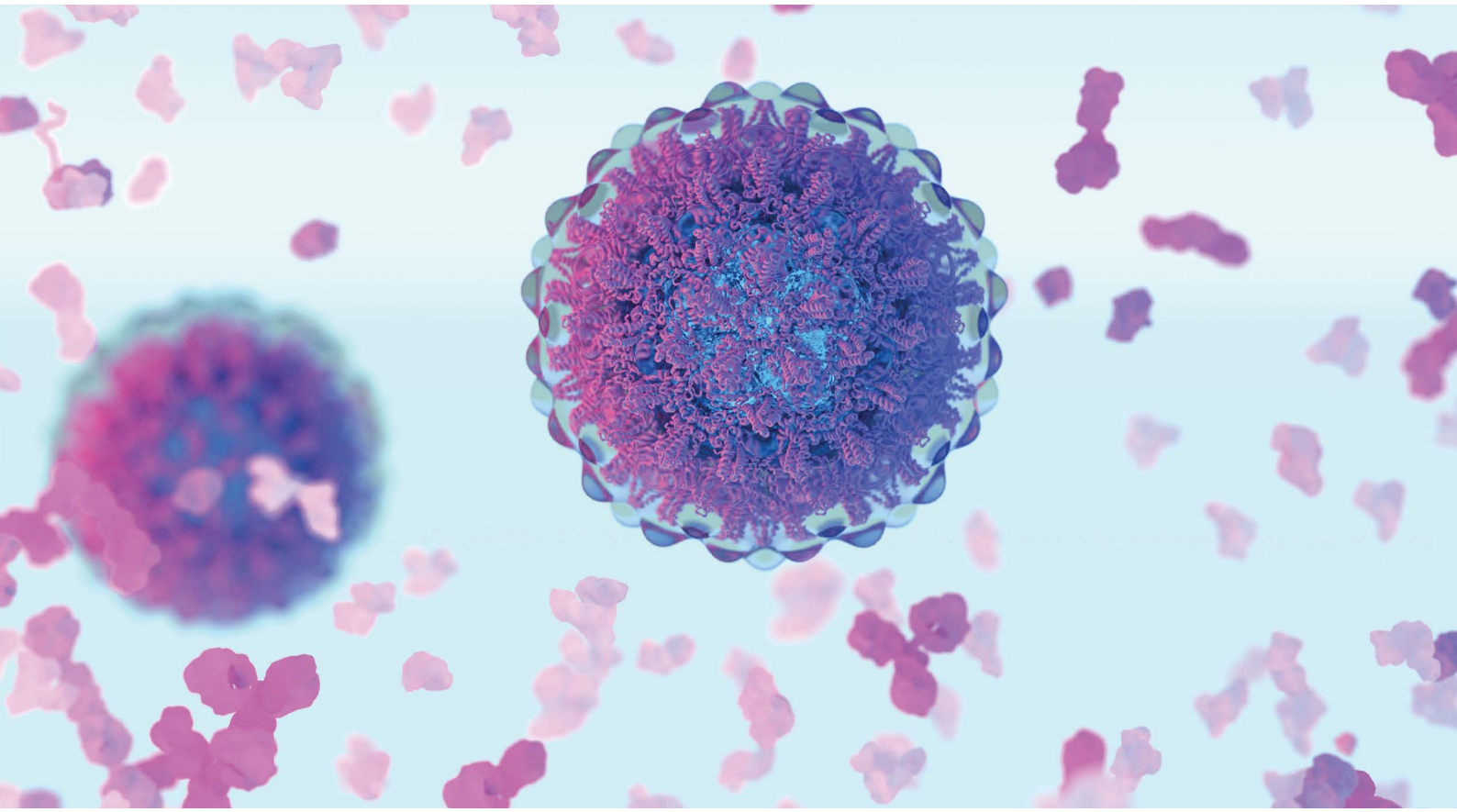
ICE-HBV

International Coalition to Eliminate HBV



Worldwide, more than 250 million people are chronically infected with hepatitis B virus (HBV) and even though a prophylactic vaccine and effective antiviral therapies have been developed, there is no cure.

HBV kills more people than malaria. Chronic HBV (CHB) infection results in 686,000 deaths per year from cirrhosis and liver cancer[1]. No cure for CHB exists due in part to the continued presence of a viral reservoir which is not targeted by current therapies. CHB persists despite the best treatment, and risks of liver cancer remain. Current treatments must generally be taken for life to remain effective and fewer than 1 per cent of people living with CHB have access to them.

This high burden of disease, in spite of the availability of effective interventions to prevent infection and treat adverse outcomes in those affected, warrants a coordinated international public health approach to cure CHB.

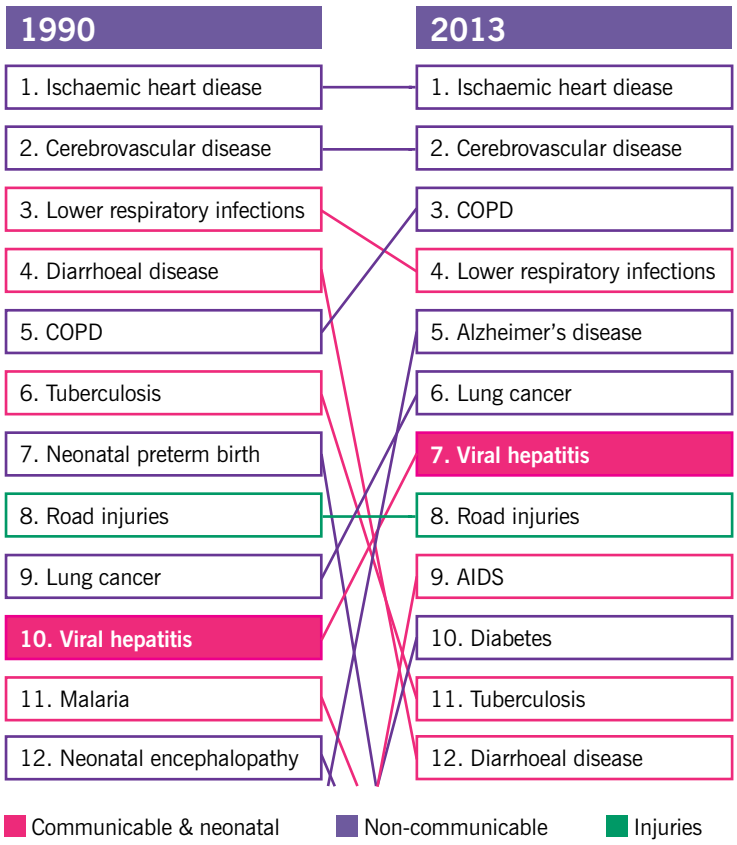
WHY DO WE NEED TO CURE HBV?

The World Health Organization considers viral hepatitis as an international public health challenge comparable to other major communicable diseases[2]. While these have become less lethal, the number of viral hepatitis related deaths is increasing.

Hepatitis B is responsible for 53 per cent of all cases of liver cancer - which is the 3rd most common cause of cancer death worldwide - and 30 per cent of all cirrhosis[3,4].

Experts estimate that liver cancer deaths will substantially increase in coming decades while deaths from most other cancers are decreasing.

Not all people chronically infected with HBV fall within the current treatment guidelines. Even among those who achieve viroal suppression, the risk of cancer is still significant. Existing treatments must generally be taken for life, which represents a substantial financial and lifestyle burden on societies and individuals. Treatment today does not cover all categories of infected patients and it is not accessible worldwide.



Leading causes of mortality and trends, 1990-2013. The global burden of viral hepatitis from 1990 to 2013: findings from the Global Burden of Disease Study 2013. Stanaway, Jeffrey D et al. The Lancet , Volume 388 *NB: HBV causes approximately half of all viral hepatitis-related deaths.*

WHY NOW?

The push for a cure for CHB infection is particularly timely and builds upon a solid foundation:

Recent scientific discoveries herald an exciting new era in HBV research. These include:

- identification of the NTCP receptor, the point of entry the virus uses to infect cells;
- improved cell culture and animal models;
- characterization of the function of HBx, the viral protein that favours replication of the virus;
- increased knowledge of HBV minichromosome biology.

Significant momentum in the global response to viral hepatitis and effective curative treatments for hepatitis C create fertile ground for a global push for an HBV cure.

HOW WE CAN CURE HBV

A combination of strategies that target the virus and enhance the immune response will most likely be required to cure the infection[5].

> *"Our aim is to support the discovery of a safe, affordable, scalable and effective cure, available to all persons living with CHB. To achieve this, our vision is to create an international, independent, research-based and patient-centered forum in order to coordinate, promote and foster collaborative partnerships working towards a cure for HBV."*

Peter Revill, ICE-HBV Chair, Peter Doherty Institute for Infection and Immunity (Doherty Institute)

RESEARCH EDUCATION COLLABORATION INNOVATION

WHAT WE DO

To advance HBV cure research we created international working groups on virology, immunology, innovative tools and clinical studies to identify research gaps to address to discover an HBV cure and perform the research needed to fill these gaps, including, but not restricted to:

- standardised quantitative cccDNA measurements;
- immunological biomarkers of HBV natural history, treatment response and disease progression;
- new HBV biomarkers predicting cure of infection.

ICE-HBV participates in the DZIF-ANRS international research project on the standardisation of quantitative cccDNA measurements. The objective of this project is to develop reliable laboratory protocols for cccDNA quantification by comparing head to head different methodologies and by exploring new strategies to improve specificity of cccDNA qPCRs.

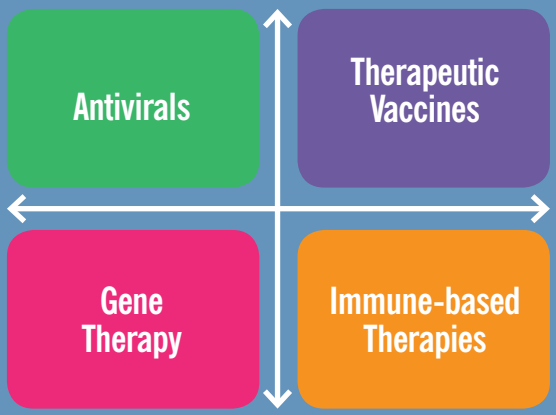
We collaborate with key stakeholders to accelerate research in HBV cure, to develop:

- promotion and coordination of existing HBV cure events worldwide;
- scholarship programmes for junior scientists and researchers from developing countries;
- HBV cure prize for young investigators.

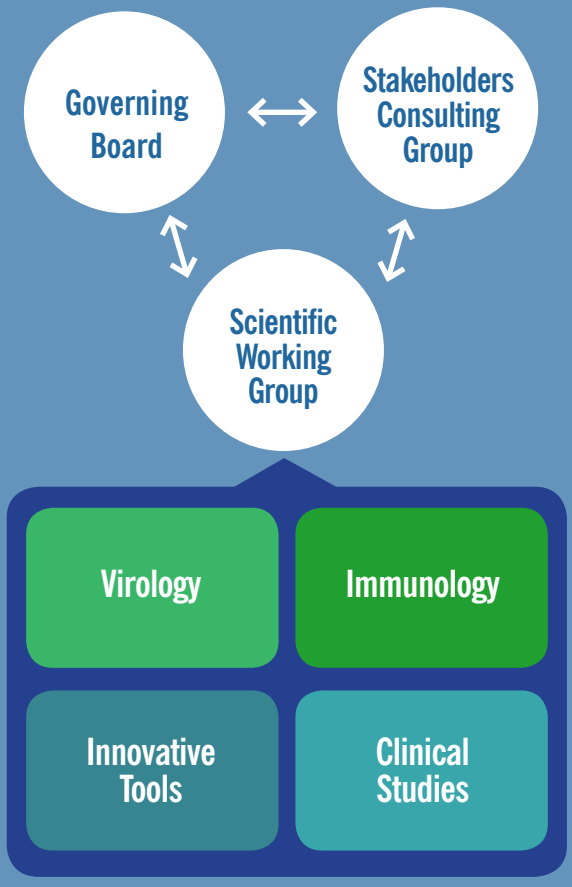
WHAT YOU CAN DO

1. Support ICE-HBV activities: by funding our working groups, donating towards one of our young investigators projects, sponsoring our meetings.
2. Raise awareness and advocate for an HBV cure, asking your government to fund life-saving research on CHB.

HBV CURE STRATEGIES



ICE-HBV STRUCTURE



"Thanks to recent technological breakthroughs, the HBV scientific community finally has a chance to discover a durable cure for chronic HBV infection. Everyone involved in the ICE-HBV initiative is fully committed to achieving that goal. I look forward to doing everything I can to encourage global cooperative research focused on eradication and/or permanent silencing of the viral cccDNA transcriptional template and development of innovative immunological approaches that prevent viral spread and selectively eliminate HBV-infected cells."

Frank Chisari, ICE-HBV Honorary President, Emeritus Professor of Virology and Immunology at The Scripps Research Institute (TSRI), La Jolla, California.

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HBV PREVENTION, CARE, TREATMENT, AND CURE

ICE-HBV supports the Global Health Sector Strategy on Viral Hepatitis (WHO, 2016). By no means should the strengthening of HBV cure research direct resources away from scaling-up effective HBV prevention, care and treatment programmes. However, the HBV scientific community believes that governments, foundations and other research sponsors should work together to make a substantial investment in HBV cure research now. HBV research has been largely underfunded compared to other diseases; enhanced investments could make a big difference and create important resource-savings from treatment scale-up by 2030[6]. Furthermore, scaling-up deployment of current treatments is not enough to prevent adverse outcomes in all patients; a substantial risk of liver cancer remains[7]. Coupled with the implementation of the 2016 Global Health Sector Strategy on Viral Hepatitis, an HBV cure could help fully eradicate HBV thus saving millions of lives.

SPONSORS

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AUSTRALIAN CENTRE FOR HEPATITIS VIROLOGY

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DZIF

THE SCIENCE OF HBV CURE
2 - 3 JUNE 2017
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STAKEHOLDERS

ICE-HBV collaborates with key stakeholders to accelerate research in HBV cure. ICE-HBV Stakeholders' Consulting Group gathers annually to provide input on the development of ICE-HBV global research roadmap, share information about HBV cure programmes and identify potential synergies and collaborations areas. The Stakeholders' Consulting Group provides advice to researchers working towards the discovery of a safe, affordable, scalable and effective hepatitis B cure. The Group is co-chaired by Timothy Block (Hepatitis B Foundation), Veronica Miller (HBV Forum) and Ulrike Protzer (DZIF).

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