Arbutus

Arbutus BIOPHARMA

Curing Chronic Hepatitis B

Singularly Focused on HBV

Corporate Overview | February 2019

NASDAQ: ABUS www.arbutusbio.com

Forward-Looking **Statements**

This presentation contains forward-looking statements within the meaning of the U.S. Private Securities Litigation Reform Act of 1995 and Canadian securities laws. All statements that are not historical facts are hereby identified as forward-looking statements for this purpose and include, among others, statements relating to: the potential for HBV to have a larger market opportunity than HCV; our ability meet a significant unmet medical need; our anticipated cash position as of December 31, 2018; the sufficiency of our cash and cash equivalents to extend into 2020; our ability to develop a curative regimen for HBV and unlock significant market growth opportunities; the potential of our drugs to improve patient outcomes; our expectation for top-line data from the Phase 1a/1b clinical study of AB-506 in Q2 2019; our expectation to initiate a Phase 1a/1b clinical study of AB-729 in Q2 2019; our expectation to make a decision regarding AB-452 clinical development in Q3 2019; our expectation to initiate HBV patient dosing on AB-729 in 2H 2019; our expectation to initiate a Phase 2 clinical study of AB-506 in Q4 2019; the trajectory for inclusion of AB-506 in a multi-drug combination regimen with AB-729 in 1H 2020; and the timeline to a combination cure for HBV.

With respect to the forward-looking statements contained in this presentation, Arbutus has made numerous assumptions regarding, among other things: the timely receipt of expected payments; the effectiveness and timeliness of preclinical and clinical trials, and the usefulness of the data; the continued demand for Arbutus' assets; and the stability of economic and market conditions. While Arbutus considers these assumptions to be reasonable, these assumptions are inherently subject to significant business, economic, competitive, market and social uncertainties and contingencies. Forward-looking statements herein involve known and unknown risks, uncertainties and other factors that may cause the actual results, events or developments to be materially different from any future results, events or developments expressed or implied by such forward-looking statements. Such factors include, among others: anticipated pre-clinical and clinical trials may be more costly or take longer to complete than anticipated, and may never be initiated or completed, or may not generate results that warrant future development of the tested drug candidate; Arbutus may not receive the necessary regulatory approvals for the clinical development of Arbutus' products; economic and market conditions may worsen; changes in estimated cash position based on the completion of financial closing procedures; and market shifts may require a change in strategic focus. A more complete discussion of the risks and uncertainties facing Arbutus appears in Arbutus' Annual Report on Form 10-K and Arbutus' periodic disclosure filings which are available at www.sec.gov and at www.sedar.com.

The forward-looking statements made in connection with this presentation represent our views only as of the date of this presentation (or any earlier date indicated in such statement). While we may update certain forward-looking statements from time to time, we specifically disclaim any obligation to do so, even if new information becomes available in the future.

Investment Highlights

Singular therapeutic focus - curing chronic Hepatitis B Virus (HBV)

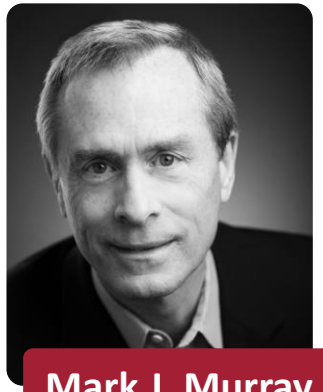
Significant unmet medical need in HBV	Team with antiviral expertise/proven track record	Most Robust HBV Pipeline	Strong Financial Position	Genevant provides value from delivery technology
Global HBV prevalence double that of HCV, potential for larger market opportunity	Applying knowledge gained from HCV success to find HBV cure through proprietary drug combinations	HBV assets generating clinical data, leading to clinical combination	$125M (unaudited) cash at 12/31/18* extends into 2020 Onpattro royalty entitlement represents potential non-dilutive capital	Strategic decision to spin out LNP and conjugate delivery technologies to support new RNA therapeutics company

HCV: Hepatitis C Virus | **LNP:** Lipid Nanoparticle

*** While we have not finalized our full financial results for the fiscal year ended December 31, 2018, we expect to report that we had approximately $124.6 million of cash, cash equivalents and short-term investments as of December 31, 2018. This amount is preliminary, has not been audited and is subject to change pending completion of our audited financial statements for the fiscal year ended December 31, 2018. Additional information and disclosures would be required for a more complete understanding of our financial position and results of operations as of December 31, 2018.**

Proven Leadership Team

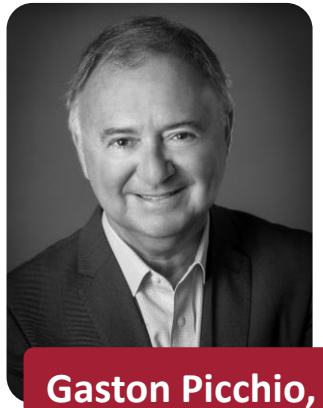
Successful track records in both the discovery and development of multiple antivirals: sofosbuvir etravirine, rilpivirine, telaprevir and simeprevir



Mark J. Murray, PhD

President & CEO

Tekmira · Protiva · ZymoGenetics · Xcyte



Gaston Picchio, PhD

Chief Development Officer

Janssen

David C. Hastings

Chief Financial Officer

Incyte · ArQule · Unilife

Michael J. Sofia, PhD

Chief Scientific Officer

Pharmasset · OnCore Biopharma, Inc. · Gilead · Bristol-Myers Squibb

Significant Opportunity To Improve HBV Cure Rates

HBV cures are achievable with today's SOC in **<5% of patients**. **Sustained** HBsAg and HBV DNA* loss off-treatment is rare.

***HBsAg & HBV DNA:** endpoints accepted as a cure.

SOC THERAPIES FOR CHRONIC HBV

	Pegasys (PegIFN)	Baraclude (Entecavir)	Viread (TDF)
Dosing Duration	48-weeks	Chronic	Chronic
HBV DNA Undetectable	14-19%	67-90%	76-93%
HBsAg Loss	**~3-4%**	**~1-2%**	**~1-3%**

New HBV Therapies

rate of **Undetectable HBV DNA**

\+

rate of **HBsAg Loss**

=

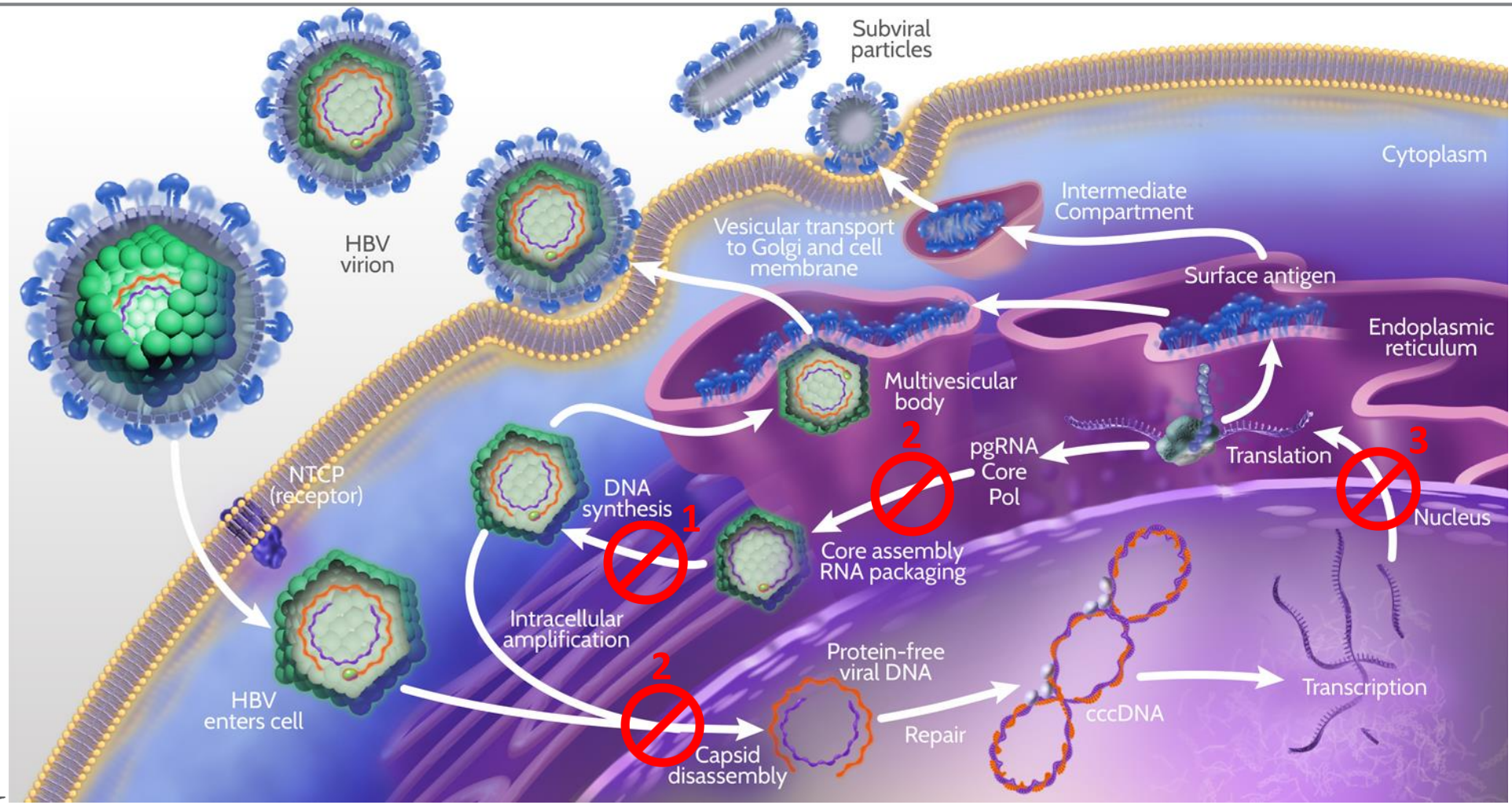
HIGHER **CURES RATES**

Achievable **HBV Cure Rates** with Current SOC

SOC: Standard Of Care | **HBsAg**: HBV Surface Antigen | **PegIFN:** Pegylated Interferon
Source: EASL HBV Clinical Practice Guidelines, 2012 - Pegasys, Baraclude and Viread Package Inserts

HBV Lifecycle Illustrates Key Points for Intervention

A combination of agents with complementary MOA is needed to cure HBV

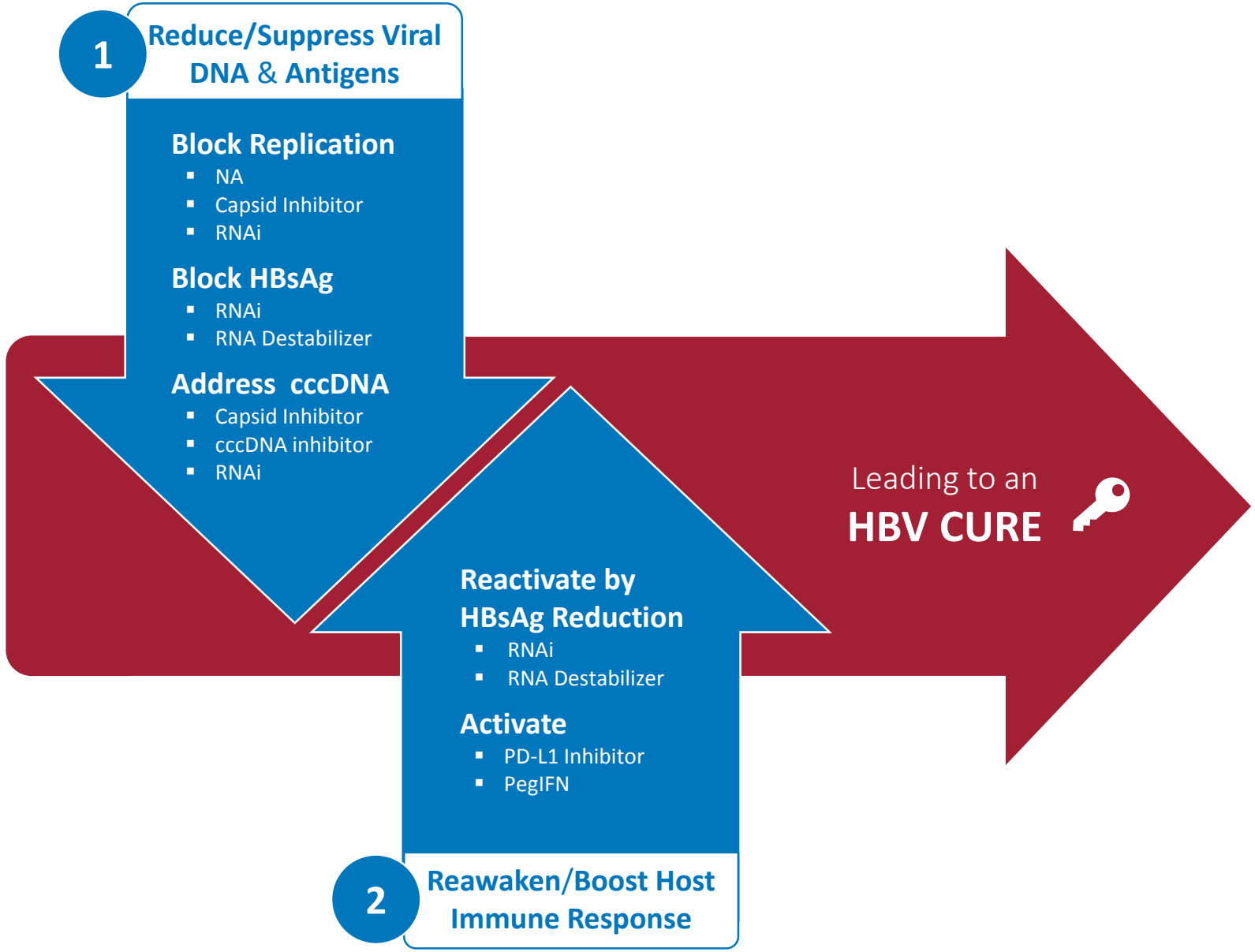


- *1 – NA*
- *2 – AB-506*
- *3 – AB-729*
- *3 – RNA destabilizer*

Keys to Therapeutic Success

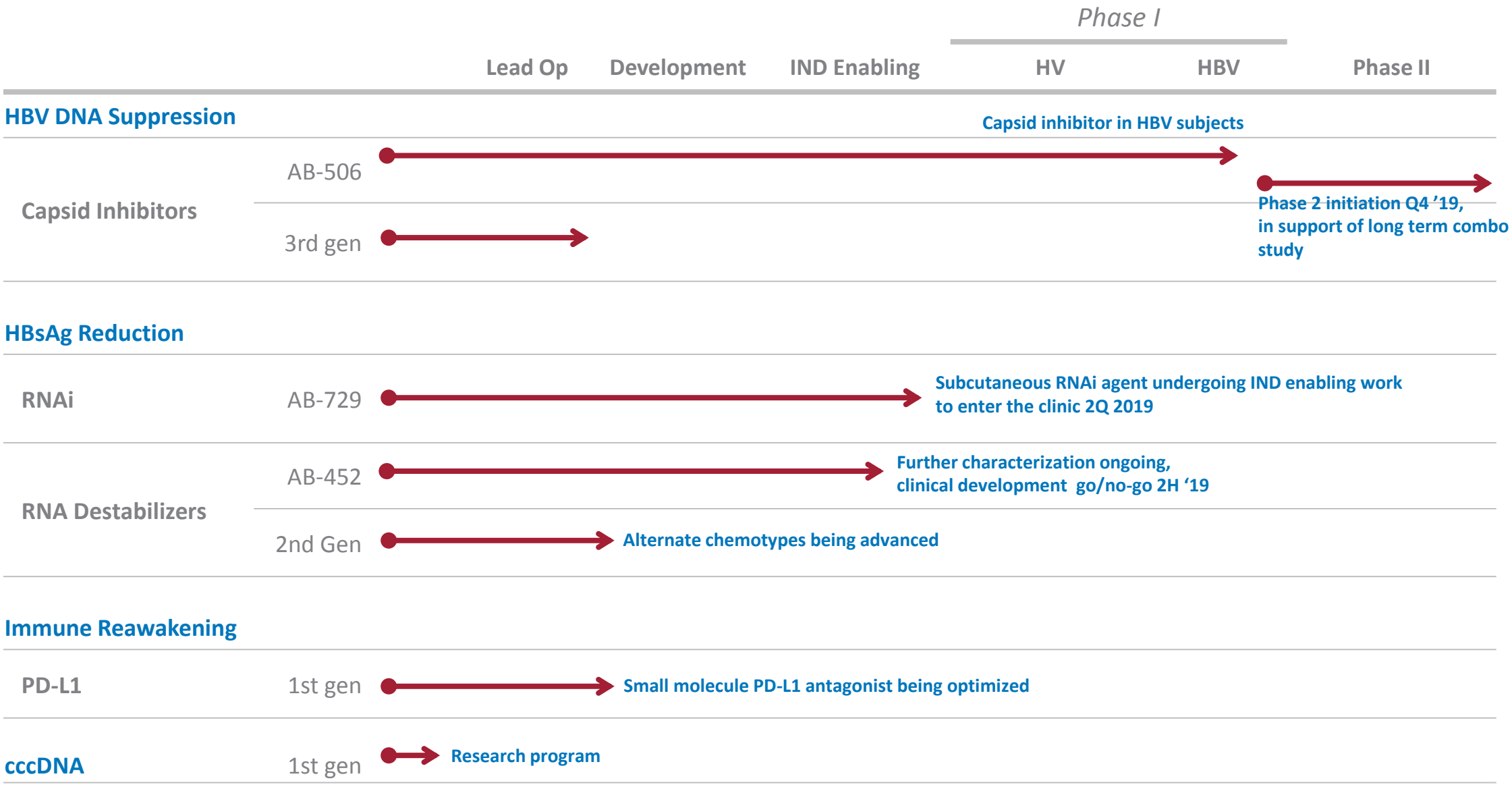
- Suppress HBV DNA and viral antigens
- Reawaken host immune response

Therapeutic success will require a combination of drugs with *complementary MOAs.*



MOA: Mechanism Of Action | **NA:** Nucleot(s)ide Analog |**PegIFN:** Pegylated Interferon | **HBsAg**: HBV Surface Antigen

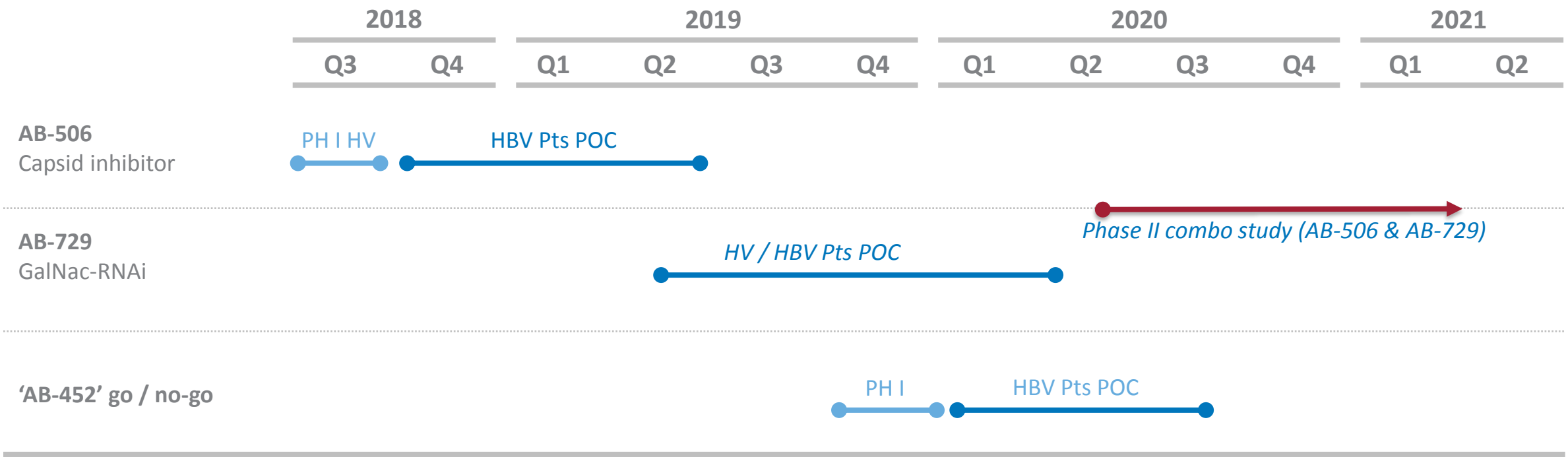
Arbutus HBV Pipeline



The Company has discontinued the ARB-1467 program.

Path to a **Combination Cure**

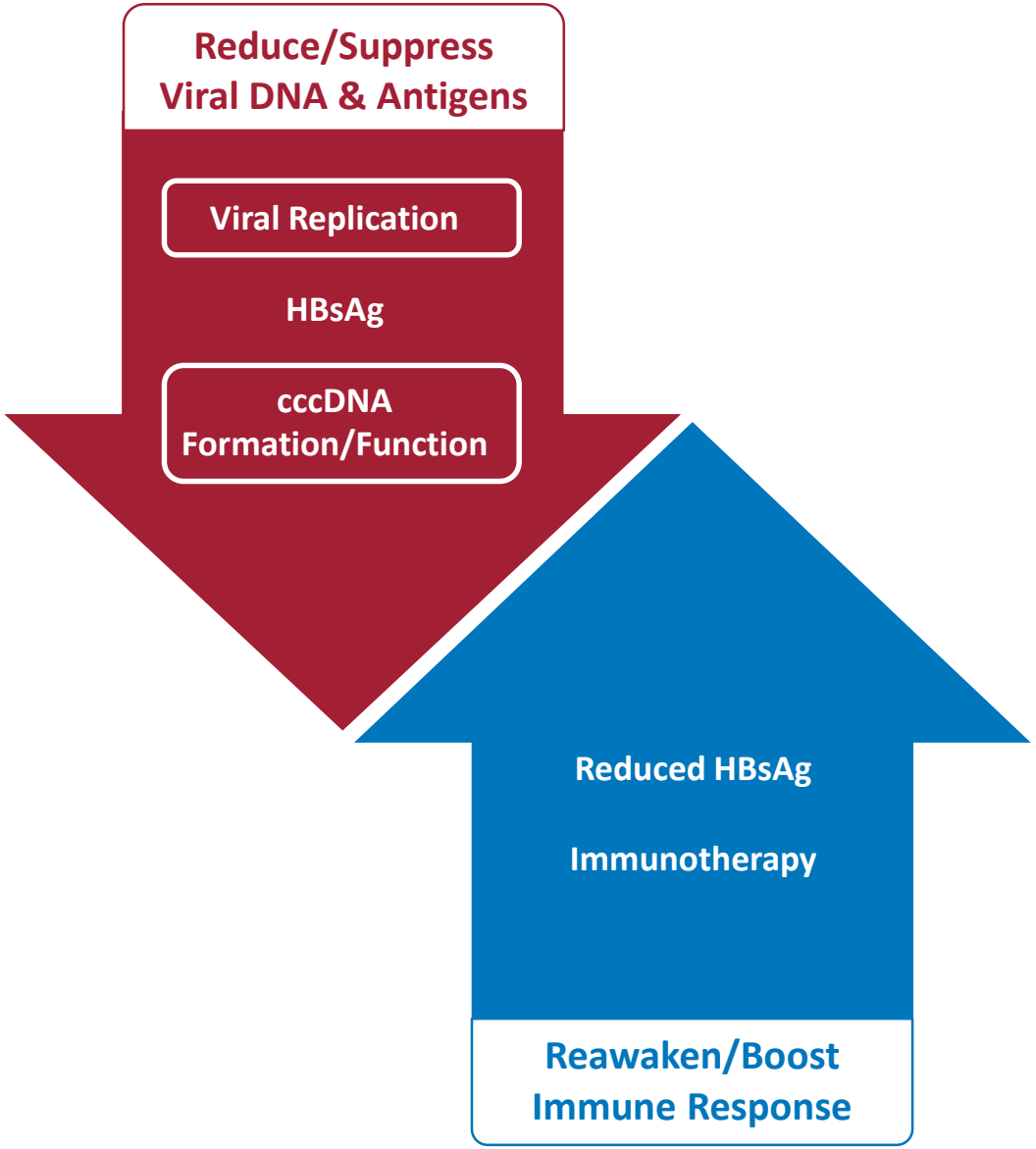
Drive to undetectable HBV DNA and HBsAg



Capsid Inhibitor: Blocking Viral Replication

Driving HBV DNA to undetectable is a key to therapeutic success in HBV

- in the serum and
- in the liver



Capsid Inhibitors – Dual Action HBV Antiviral Agent

MOA, distinct from but complementary to approved SOC NAs.

Capsid + NA combination **drives deeper HBV DNA reductions**

Competitive Landscape

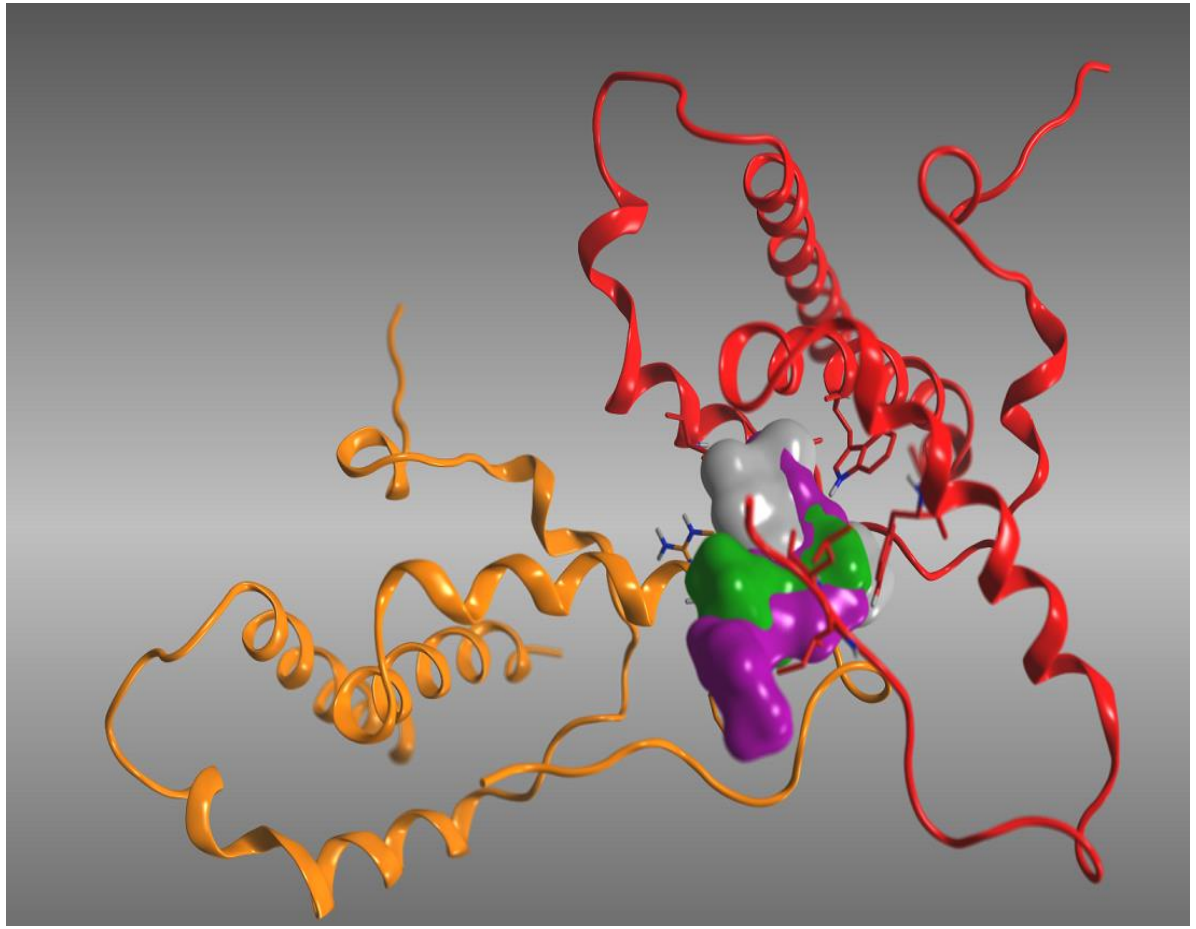
All capsid inhibitors bind to the same site on HBV Core protein

All have a dual MOA:

- **Block DNA replication** by inhibiting capsid assembly
- **Block new cccDNA formation** by inhibiting viral uncoating

Differentiation

- Clinical success will require potency, PK and combination with HBsAg targeting agent



AB-506 – Capsid Inhibitor

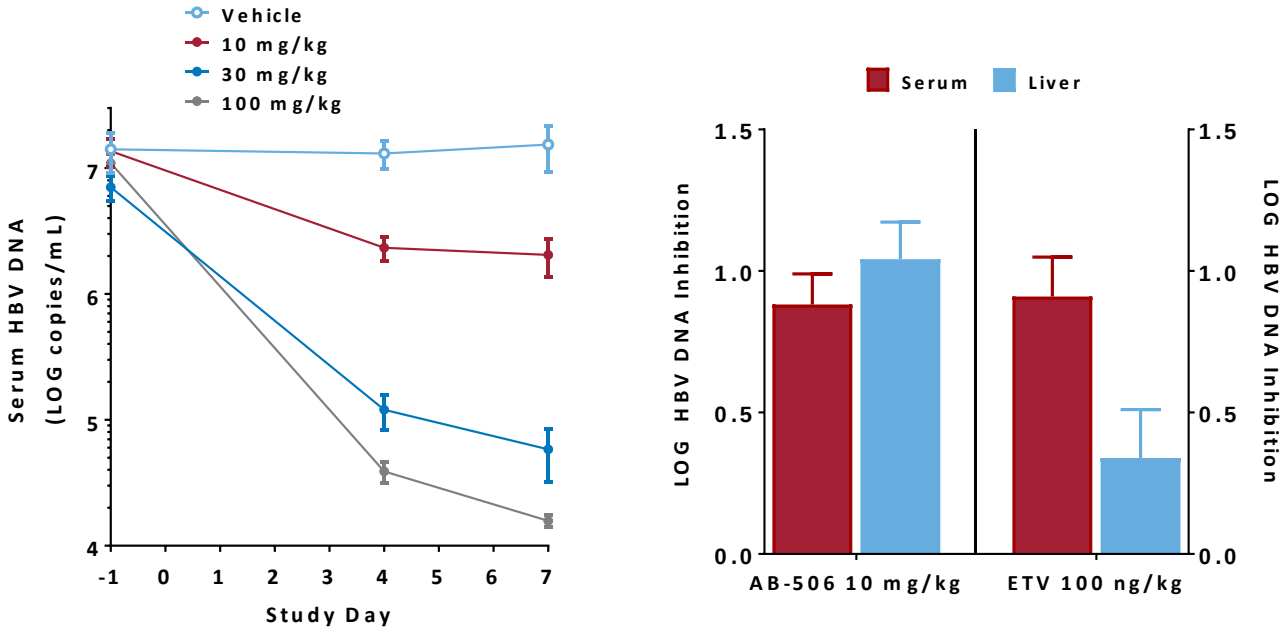
AB-506 shows preclinical potency and PK profile consistent with best in class agents

- Active across multiple genotypes and against NA resistant variants
- Once daily dosing
- Complementary with HBsAg targeting agents

Clinical Development

- Top-line data from Phase 1 a / 1 b Q2 '19
- Inclusion with AB-729 in a combination regimen 1H '20
- Phase 2 initiation Q4'19, inform combination regimen
  - Dose finding (w/ NA)
  - Establish long term safety (w/ NA)
  - Determine long term impact on uncoating and cccDNA formation / HBsAg

AB-506 Potently Reduces HBV DNA in Serum and Inhibits Liver HBV DNA more than ETV

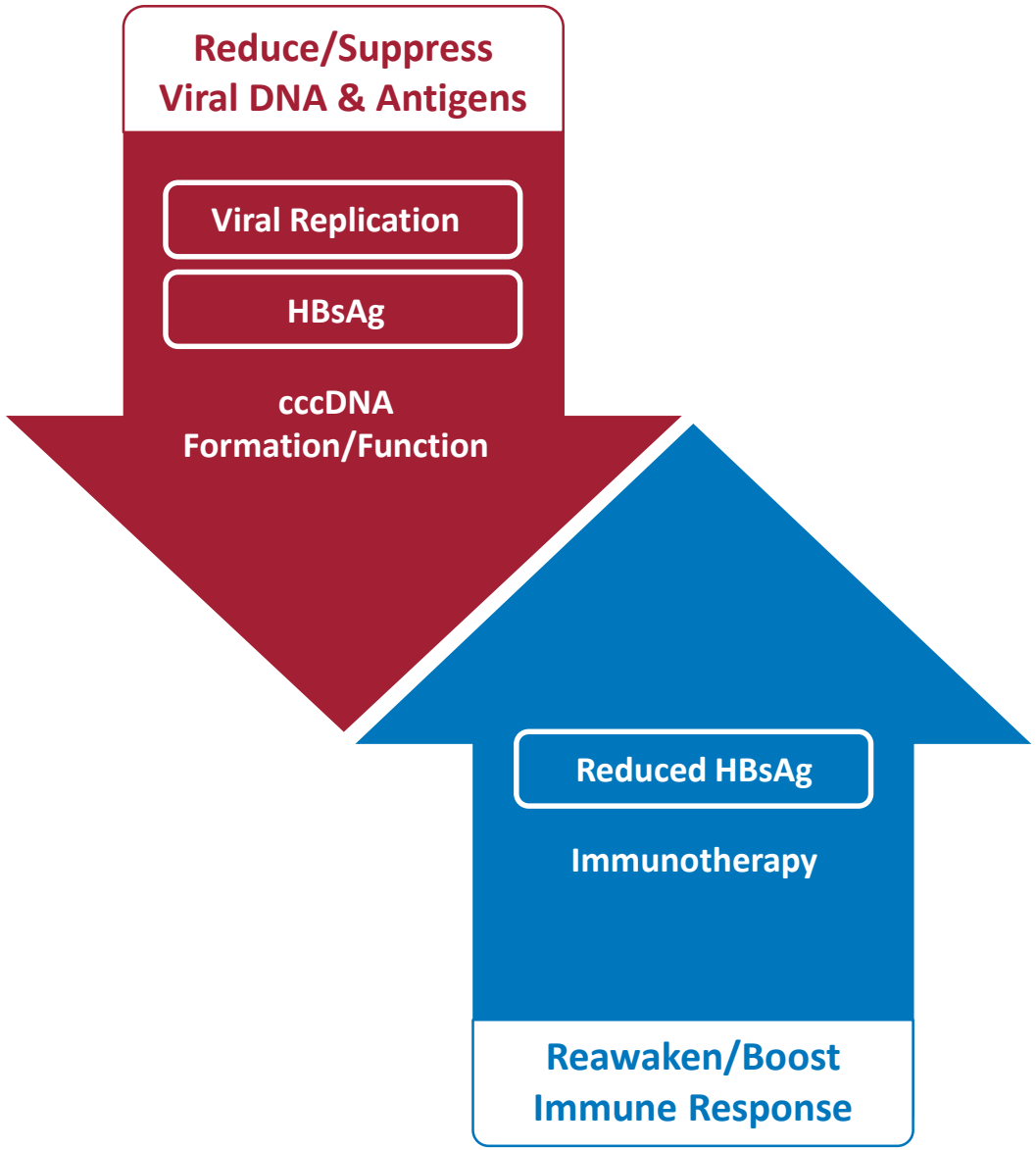


In vivo antiviral activity of AB-506. A) Reduction in serum HBV DNA is dose responsive following AB-506 administration. B) AB-506 surpassed ETV at inhibiting liver HBV DNA, at dosages where the serum HBV DNA inhibition was equivalent (data relative to vehicle at Day 7)

Driving Down HBsAg

Is A Key to Therapeutic Success in HBV

- *Replication inhibitors do not block HBsAg production*
- *HBsAg is responsible for immune exhaustion*



AB-452 and RNA Destabilizer Program

- Multiple evaluations underway to clarify AB-452 and RNA destabilizer program next steps

Completed:

- ✓ IND enabling studies and 28 day toxicology, in two species, supporting initial clinical studies
- ✓ AB-452 mechanism of action studies demonstrate AB-452 causes HBV mRNA poly A tail shortening
- ✓ Host protein pull-down experiments to identify host target protein
- ✓ Host gene expression studies indicating that AB-452 has no detectable effect on host cell mRNAs

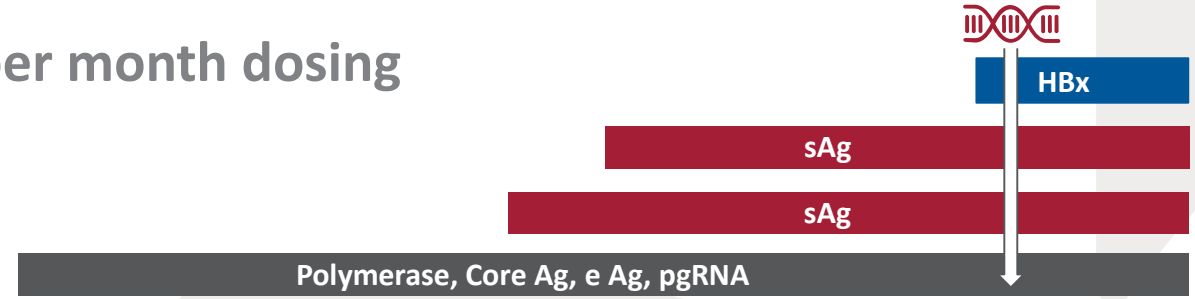
Ongoing:

- *In vitro* target engagement and target-based cell viability evaluations
- Specialized, additional *in vitro* and *in vivo* non-clinical safety assessments
- In depth DMPK evaluations

- Multiple small molecule chemotypes under investigation to maximize program opportunity
- Anticipated go/no go decision for AB-452 clinical development in 2H 2019

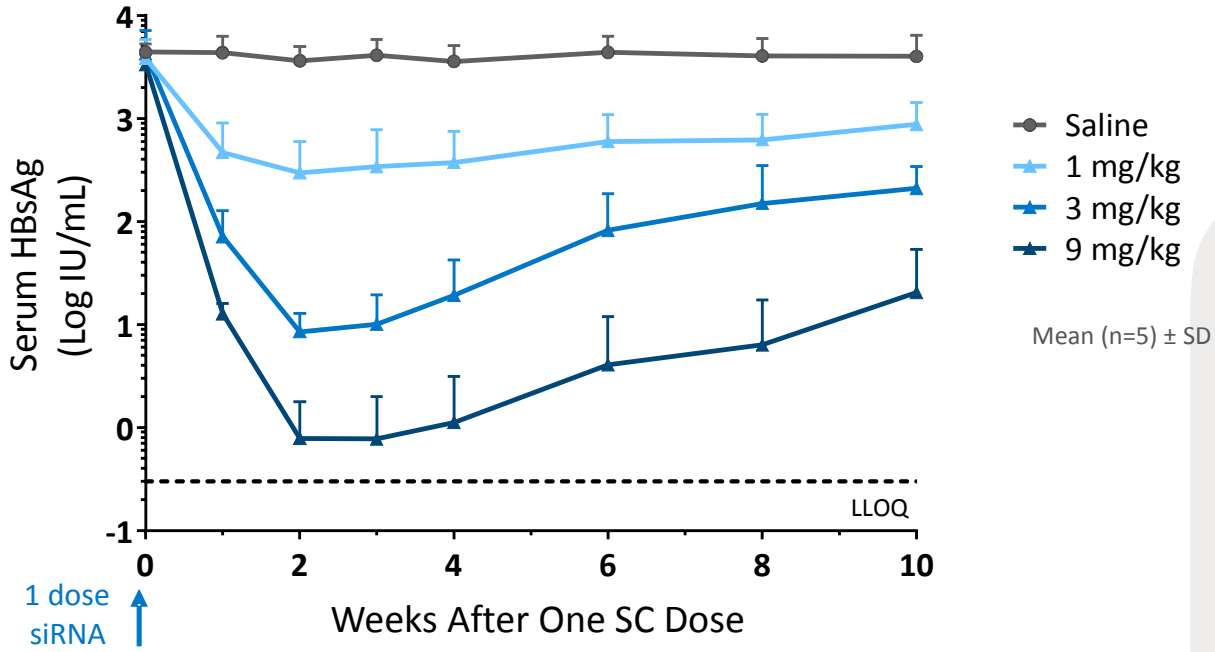
AB-729 - RNAi Therapeutic

- **Proprietary GalNAc-conjugate delivery technology**
  - Liver targeting for efficient hepatocyte uptake
  - Enables **subcutaneous dosing**
- Single trigger RNAi agent targeting all HBV transcripts
- Inhibits HBV replication and lowers all HBV antigens
  - Potent HBsAg reduction in preclinical models
- Pan-genotypic activity across HBV genotypes A to D
- **Duration of HBsAg reduction supports once per month dosing**
- **"IND" enabling** studies underway
- Initiation of clinical studies – Q2 2019

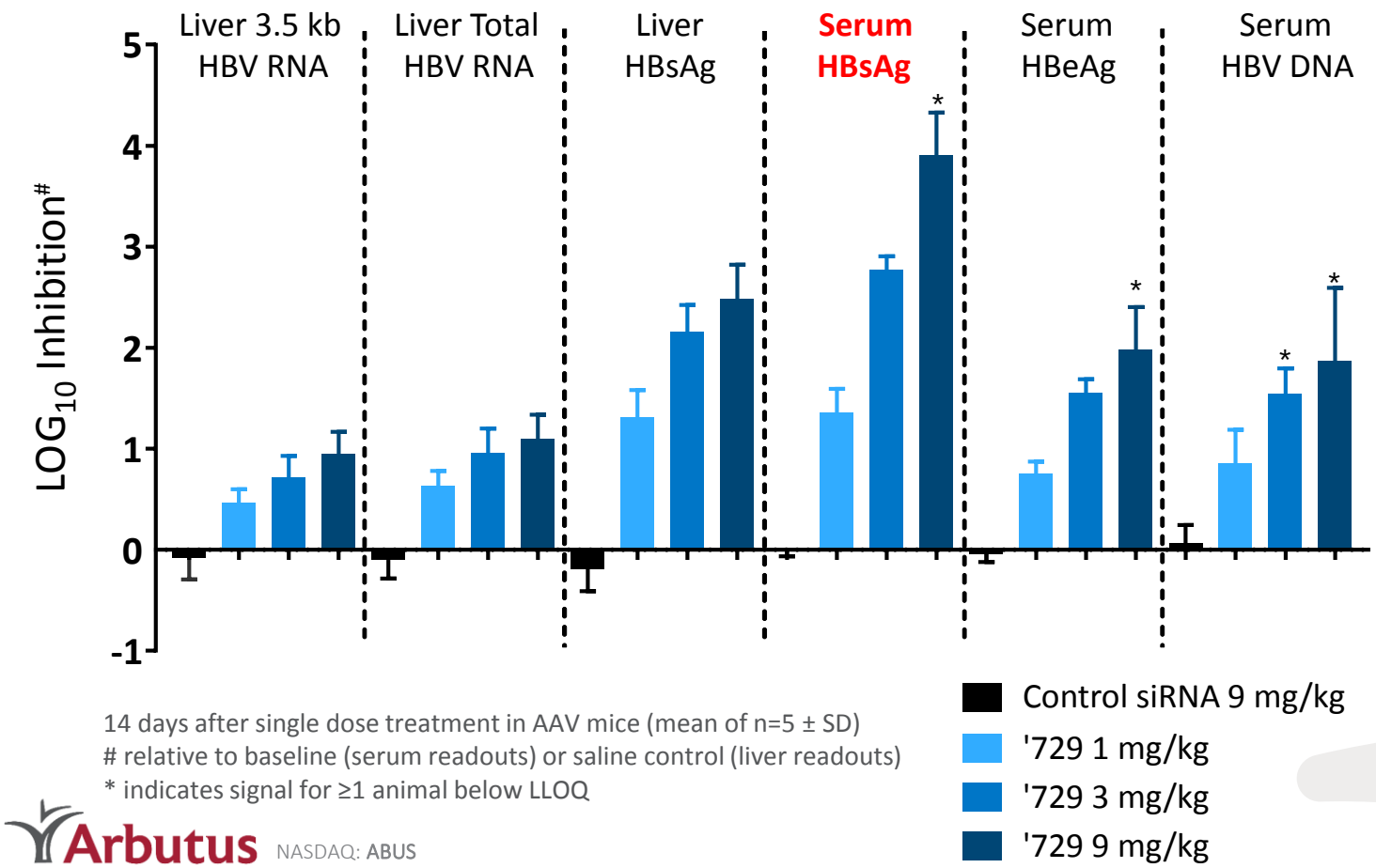


AB-729 - *In Vivo* Single Dose Response & Duration

- Clear dose response in AAV mouse model
- Achieves maximal **HBsAg reduction** possible in this model
- Duration supports a clinical dosing frequency of once per month



Inhibition of Multiple HBV Markers by AB-729 *In Vivo*



14 days after single dose treatment in AAV mice (mean of n=5 ± SD)
relative to baseline (serum readouts) or saline control (liver readouts)
* indicates signal for ≥1 animal below LLOQ

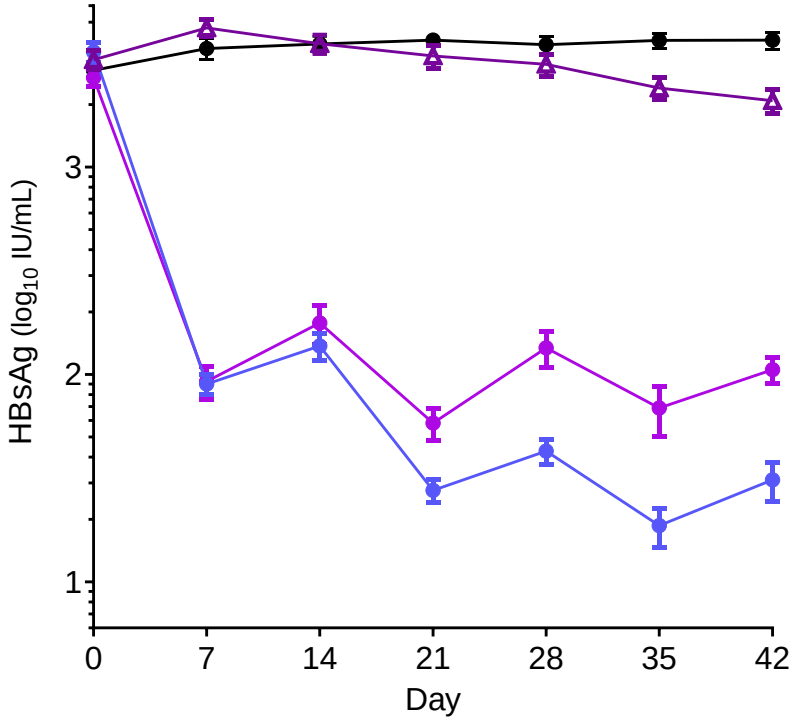
Results validate RNAi mechanism of action

- Dose response reductions of all measured HBV markers in liver and serum
  - HBsAg
  - HBV RNA
  - HBV eAg
  - HBV DNA

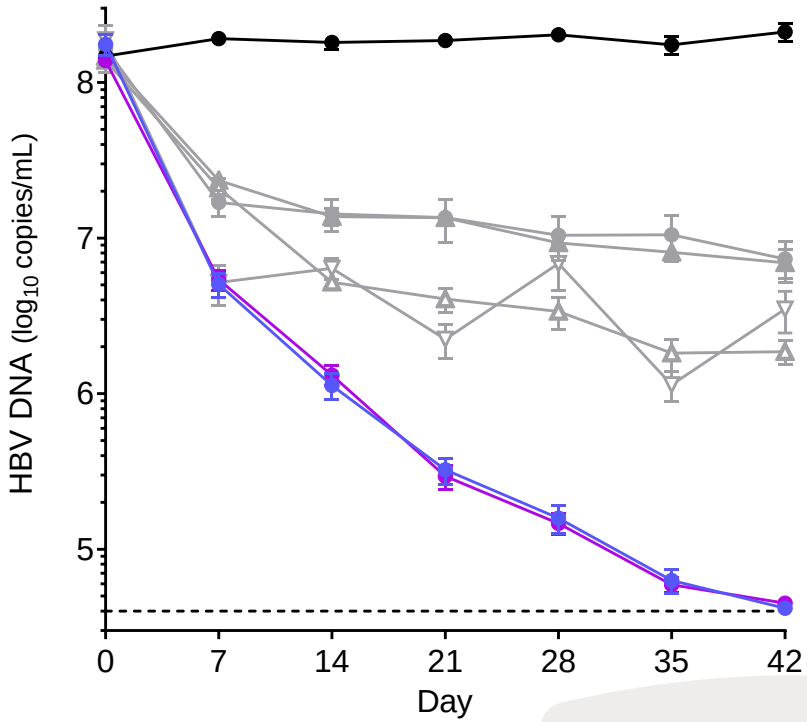
Preclinical Combination In Humanized Mouse Model

RNAi + Capsid inhibitor containing regimens result in HBV DNA and HBsAg reductions

Serum HBsAg



Serum HBV DNA

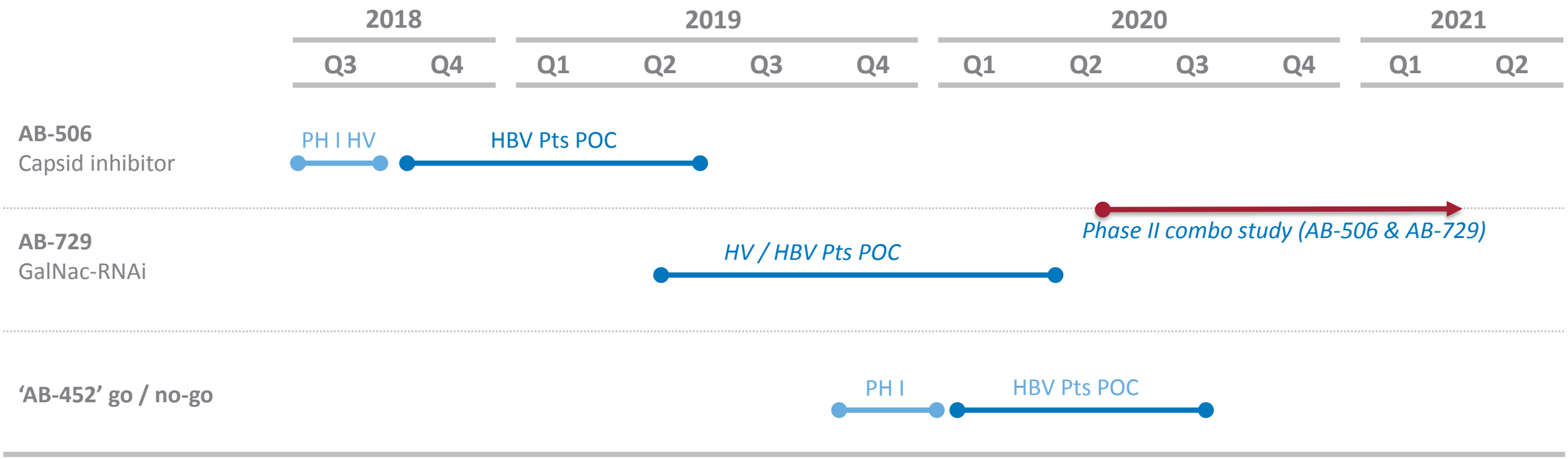


	Treatment for 6 weeks		
	Dosage	Route	Frequency
Capsid Inhibitor	100 mg/kg	PO	BID
ETV	1.2 µg/kg	PO	QD
PegIFN	30 µg/kg	SQ	2×/wk
RNAi	3 mg/kg	IV	biweekly

- Vehicle
- Capsid Inhibitor + PegIFN
- RNAi + Capsid Inhibitor + ETV
- RNAi + Capsid Inhibitor + PegIFN

Path to a **Combination Cure**

Drive to undetectable HBV DNA and HBsAg



Key Catalysts for 2019