

UNITED STATES  
SECURITIES AND EXCHANGE COMMISSION  
WASHINGTON, D.C. 20549

FORM 8-K

CURRENT REPORT  
Pursuant to Section 13 OR 15(d) of The Securities Exchange Act of 1934

Date of Report (Date of earliest event reported): October 8, 2021

**Arbutus Biopharma Corporation**  
(Exact name of registrant as specified in charter)

British Columbia, Canada  
(State or other jurisdiction  
of incorporation)

001-34949  
(Commission  
File Number)

98-0597776  
(IRS Employer  
Identification No.)

701 Veterans Circle  
Warminster, Pennsylvania  
(Address of principal executive offices)

18974  
(Zip Code)

(267) 469-0914  
Registrant's telephone number, including area code

(Former name or former address, if changed since last report.)

Check the appropriate box below if the Form 8-K filing is intended to simultaneously satisfy the filing obligation of the registrant under any of the following provisions:

- Written communication pursuant to Rule 425 under the Securities Act (17 CFR 230.425)
- Soliciting material pursuant to Rule 14a-12 under the Exchange Act (17 CFR 240.14a-12)
- Pre-commencement communication pursuant to Rule 14d-2(b) under the Exchange Act (17 CFR 240.14d-2(b))
- Pre-commencement communication pursuant to Rule 13e-4(c) under the Exchange Act (17 CFR 240.13e-4(c))

Securities registered pursuant to Section 12(b) of the Act:

Title of each class	Trading Symbol(s)	Name of each exchange on which registered
Common Shares, without par value	ABUS	The Nasdaq Stock Market LLC

Indicate by check mark whether the registrant is an emerging growth company as defined in Rule 405 of the Securities Act of 1933 (§230.405 of this chapter) or Rule 12b-2 of the Securities Exchange Act of 1934 (§240.12b-2 of this chapter).

Emerging growth company

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 13(a) of the Exchange Act.

## Item 8.01. Other Events.

### ATM Prospectus Supplement

On October 8, 2021, Arbutus Biopharma Corporation (the “Company”) is filing a prospectus supplement (the “October 2021 Prospectus Supplement”) under a shelf registration statement on Form S-3 (File No. 333-248467) that was declared effective by the Securities and Exchange Commission (the “SEC”) on October 22, 2020 (the “Registration Statement”) in connection with the offer and sale of up to \$75.0 million of the Company’s common shares, without par value (the “Common Shares”), from time to time pursuant to the previously disclosed Open Market Sale Agreement<sup>SM</sup>, dated December 20, 2018, with Jefferies LLC, as sales agent (“Jefferies”), as amended by Amendment No. 1, dated December 20, 2019, Amendment No. 2, dated August 7, 2020 and Amendment No. 3, dated March 4, 2021 (as amended, the “Sale Agreement”).

The Company previously filed a prospectus supplement with the SEC (the “March 2021 Prospectus Supplement” and, together with the October 2021 Prospectus Supplement, the “Prospectus Supplements”) in connection with the offering of up to \$75.0 million of its Common Shares pursuant to the Sale Agreement under the Registration Statement. As of the date hereof, the Company has sold an aggregate of \$40.7 million of Common Shares under the March 2021 Prospectus Supplement. Immediately following the filing of the October 2021 Prospectus Supplement, the Company will have an aggregate of \$109.3 million of remaining capacity under the Prospectus Supplements.

The Common Shares are registered pursuant to the Registration Statement, and offerings for the Common Shares will be made only by means of the Prospectus Supplements, as applicable. This Current Report on Form 8-K shall not constitute an offer to sell or the solicitation of an offer to buy the Common Shares nor shall there be any sale of the Common Shares in any state or jurisdiction in which such offer, solicitation or sale would be unlawful prior to registration or qualification under the securities laws of any such state or other jurisdiction.

The legal opinion of Farris LLP relating to the legality of the issuance and sale of the Common Shares pursuant to the October 2021 Prospectus Supplement is attached as Exhibit 5.1 to this Current Report on Form 8-K and is incorporated by reference herein.

### Updated Corporate Presentation

On October 8, 2021, the Company posted an updated corporate presentation on its website at [www.arbutusbio.com](http://www.arbutusbio.com). A copy of the presentation is filed herewith as Exhibit 99.1 and is incorporated by reference herein.

### Updated Cash Runway

During the three months ended September 30, 2021, the Company sold an aggregate of 11,869,217 Common Shares, resulting in net proceeds of approximately \$44.9 million, under the prospectus supplement filed with the SEC on August 7, 2020 and the March 2021 Prospectus Supplement. The Company believes that its existing cash resources will be sufficient to fund its operations into the second quarter of 2023.

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## Forward-Looking Statements and Information

This current report on Form 8-K contains forward-looking statements within the meaning of the Section 27A of the Securities Act of 1933 and Section 21E of the Securities Exchange Act of 1934, and forward-looking information within the meaning of Canadian securities laws (collectively, "forward-looking statements"). Forward-looking statements in this current report on Form 8-K include statements about the Company's belief that its existing cash resources will be sufficient to fund its operations into the second quarter of 2023. There are known and unknown risk factors which could cause Arbutus' actual results, performance or achievements to be materially different from any future results, performance or achievements expressed or implied by the forward-looking statements contained herein. Known risk factors include, among others: anticipated pre-clinical studies 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 product candidate; Arbutus may elect to change its strategy regarding its product candidates and clinical development activities; Arbutus may not receive the necessary regulatory approvals for the clinical development of Arbutus' products; economic and market conditions may worsen; Arbutus and its collaborators may never realize the expected benefits of the collaborations; market shifts may require a change in strategic focus; and the ongoing COVID-19 pandemic could significantly disrupt Arbutus' clinical development programs. A more complete discussion of the risks and uncertainties facing Arbutus appears in Arbutus' Annual Report on Form 10-K, Arbutus' Quarterly Reports on Form 10-Q and Arbutus' continuous and periodic disclosure filings, which are available at [www.sedar.com](http://www.sedar.com) and at [www.sec.gov](http://www.sec.gov). All forward-looking statements herein are qualified in their entirety by this cautionary statement, and Arbutus disclaims any obligation to revise or update any such forward-looking statements or to publicly announce the result of any revisions to any of the forward-looking statements contained herein to reflect future results, events or developments, except as required by law.

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**Item 9.01. Financial Statements and Exhibits.**

**(d) Exhibits.**

<b>Exhibit Number</b>	<b>Description</b>
<a href="#">5.1</a>	<a href="#">Opinion of Farris LLP.</a>
<a href="#">23.1</a>	<a href="#">Consent of Farris LLP (included in Exhibit 5.1).</a>
<a href="#">99.1</a>	<a href="#">Corporate Presentation dated October 2021.</a>
104	Cover page interactive data file (formatted as inline XBRL).

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**SIGNATURE**

Pursuant to the requirements of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned hereunto duly authorized.

**Arbutus Biopharma Corporation**

Date: October 8, 2021

By: /s/ David C. Hastings  
Name: David C. Hastings  
Title: Chief Financial Officer

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October 8, 2021

Board of Directors  
Arbutus Biopharma Corporation  
701 Veterans Circle  
Warminster, PA 18974

Dear Sirs/Mesdames:

**Re: Arbutus Biopharma Corporation (the “Corporation”)**

We are Canadian counsel to the Corporation, a British Columbia, Canada company, and have been requested to provide this opinion in connection with the Corporation's issuance of up to \$75,000,000 of the Corporation's common shares, no par value (the “**Common Shares**”), from time to time and at various prices in an “at-the-market” offering pursuant to that certain Open Market Sale Agreement<sup>SM</sup>, dated December 20, 2018 (as amended, the “**Sale Agreement**”), by and between the Corporation and Jefferies LLC (“**Jefferies**”), as amended by that certain Amendment No. 1 to the Sale Agreement, dated December 20, 2019, and that certain Amendment No. 2 to the Sale Agreement, dated August 7, 2020, and that certain Amendment No. 3 to the Sale Agreement, dated March 4, 2021 (the “**Third Amendment**”), by and between the Corporation and Jefferies. The Common Shares are being offered pursuant to the Corporation's registration statement on Form S-3 (File No. 333-248467), filed with the U.S. Securities and Exchange Commission under the Securities Act of 1933, as amended (the “**Securities Act**”) on August 28, 2020 (the “**Registration Statement**”), the accompanying prospectus dated October 22, 2020 (the “**Base Prospectus**”) that forms a part thereof and a prospectus supplement dated October 8, 2021, relating to the issuance and sale by the Corporation of Common Shares under the Sale Agreement (the “**Prospectus Supplement**” and together with the Base Prospectus, the “**Prospectus**”).

This opinion letter is furnished to you at your request to enable you to fulfill the requirements of Item 601(b)(5) of Regulation S-K, 17 C.F.R. § 229.601(b)(5), in connection with the Registration Statement.

For purposes of this opinion letter, we have examined copies of such agreements, instruments and documents as we have deemed an appropriate basis on which to render the opinions hereinafter expressed. In our examination of the aforesaid documents, we have assumed the genuineness of all signatures, the legal capacity of all natural persons, the accuracy and completeness of all documents submitted to us, the authenticity of all original documents, and the conformity to authentic original documents of all documents submitted to us as copies (including pdfs). As to all matters of fact, we have relied on the representations and statements of fact made in the documents so reviewed, and we have not independently established the facts so relied on. This opinion letter is given, and all statements herein are made, in the context of the foregoing.

**FARRIS LLP**

25th Floor - 700 W Georgia Street Vancouver, BC Canada V7Y 1B3  
Tel 604 684 9151 farris.com

This opinion letter is based as to matters of law solely on the laws of the Province of British Columbia and the laws of Canada applicable therein. We express no opinion herein as to any other statutes, rules or regulations.

Based upon, subject to and limited by the foregoing, we are of the opinion that following (i) execution and delivery by the Corporation of the Third Amendment, (ii) issuance of the Common Shares pursuant to the terms of the Sale Agreement, and (iii) receipt by the Corporation of the consideration for the Common Shares specified in the resolutions of the Board of Directors or a committee thereof, the Common Shares will be validly issued, fully paid, and nonassessable.

This opinion letter has been prepared for use in connection with the filing by the Corporation of a Current Report on Form 8-K on the date hereof relating to the offer and sale of the Common Shares, which Form 8-K will be incorporated by reference into the Registration Statement, and speaks as of the date hereof. We express no opinion as to the effect of future laws or judicial decisions on the subject matter hereof, nor do we undertake any duty to modify this opinion to reflect subsequent facts or developments concerning the Corporation or developments in the law occurring after the date hereof.

We hereby consent to the filing of this opinion letter as Exhibit 5.1 to the Corporation's Current Report on Form 8-K filed on the date hereof and to the reference to this firm under the caption "Legal Matters" in the Prospectus. In giving this consent, we do not thereby admit that we are an "expert" within the meaning of the Securities Act.

Yours truly,

/s/ FARRIS LLP

FARRIS LLP

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# Corporate Presentation

October 2021

NASDAQ: ABUS

[www.arbutusbio.com](http://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 market opportunity for HBV; Arbutus' ability to meet a significant unmet medical need; the sufficiency of Arbutus' cash and cash equivalents to extend into the second quarter of 2023; the potential for AB-729 to be a well-tolerated low dose treatment for HBV with a minimum of injections; the potential for AB-836 to be low dose with a greater therapeutic window and to address known capsid resistant variants T33N and I105T; the potential for AB-836 to be once daily dosing; Arbutus' expectations regarding the timing and clinical development of Arbutus' product candidates including its 2021 key clinical objectives with respect to AB-729 and AB-836 and its clinical collaborations with Assembly Biosciences, Antios Therapeutics and Vaccitech; the timeline to a combination cure for HBV; Arbutus' coronavirus strategy; Arbutus' expectations regarding its technology licensed to Genevant; and other statements relating to our future operations, future financial performance, future financial condition, prospects or other future events.

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 studies and clinical trials, and the usefulness of the data; the usefulness of regulatory approvals; 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 including uncertainties and contingencies related to the ongoing COVID-19 pandemic. 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; changes in Arbutus' strategy regarding its product candidates and clinical development activities; Arbutus may not receive the necessary regulatory approvals for the clinical development of Arbutus' products; economic and market conditions may worsen; market shifts may require a change in strategic focus; the parties may never realize the expected benefits of the collaborations; and the ongoing COVID-19 pandemic could significantly disrupt our clinical development programs. A more complete discussion of the risks and uncertainties facing Arbutus appears in Arbutus' Annual Report on Form 10-K, Quarterly Report on Form 10-Q and Arbutus' periodic disclosure filings which are available at [www.sec.gov](http://www.sec.gov) and at [www.sedar.com](http://www.sedar.com). All forward-looking statements herein are qualified in their entirety by this cautionary statement, and Arbutus disclaims any obligation to revise or update any such forward-looking statements or to publicly announce the result of any revisions to any of the forward-looking statements contained herein to reflect future results, events or developments, except as required by law.

# Investment Highlights

Therapeutic focus – curing chronic Hepatitis B Virus (HBV) Infection

Significant  
Unmet  
Medical  
Need in HBV

Global HBV prevalence double that of HCV, **potential for larger market opportunity**

Goal of HBV  
Functional  
Cure

Undetectable HBV DNA and HBsAg delivered through finite duration treatment with a **combination of drugs with different modes of action**

Broad  
HBV  
Portfolio

HBV assets include:  
**RNAi**  
**Capsid Inhibitors**  
**PD-L1**  
**HBV RNA Destabilizers**

Coronavirus  
Research  
Initiative

Focused on direct acting antivirals targeting the **viral polymerase and protease**

Team with  
Antiviral  
Expertise &  
Proven Track  
Record

Applying knowledge gained from HIV and HCV success to **HBV and Coronaviruses**

16%  
Ownership in  
Genevant

Rights to potential future royalties and sublicense revenues for **LNP Technology**

# Proven Leadership Team

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



**William H. Collier**

President and CEO



**Michael J. Sofia, PhD**

Chief Scientific Officer



**Gaston Picchio, PhD**

Chief Development Officer



**David C. Hastings**

Chief Financial Officer



**Elizabeth Howard, PhD, JD**

EVP, General Counsel and Chief Compliance Officer



**Michael J. McElhaugh**

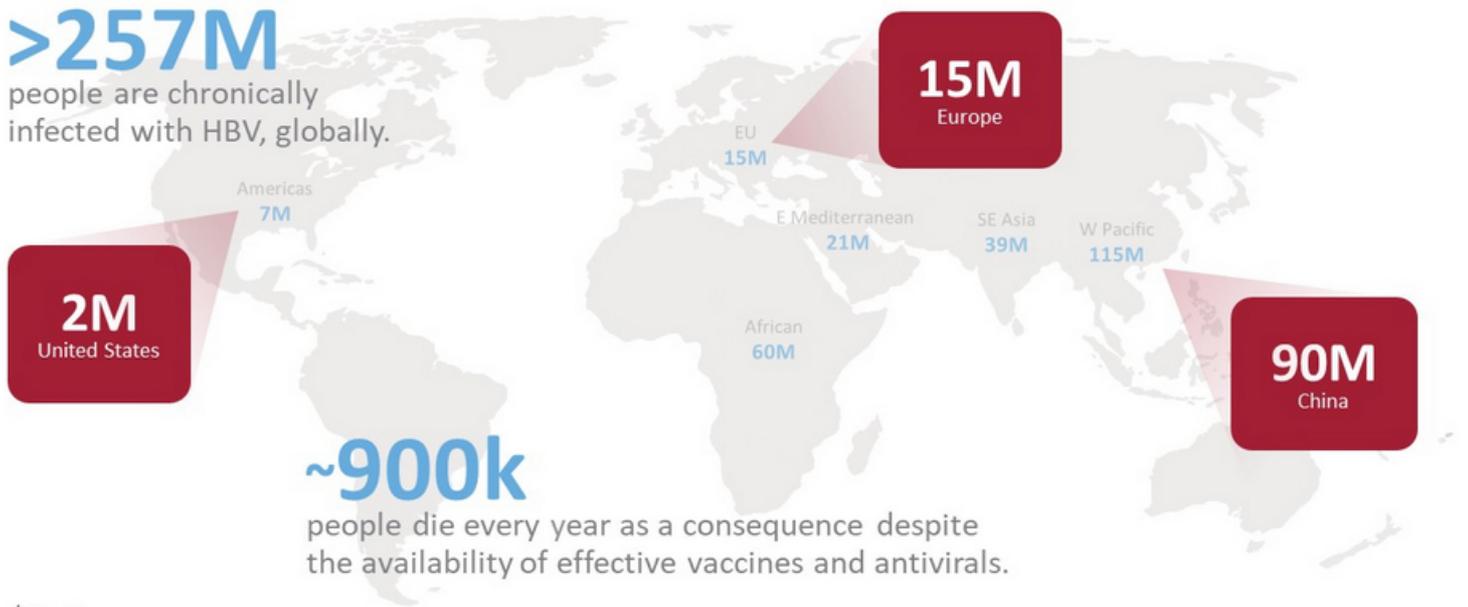
Chief Business Officer



# HBV Presents a Significant Unmet Medical Need

**>257M**

people are chronically infected with HBV, globally.



**~900k**

people die every year as a consequence despite the availability of effective vaccines and antivirals.

# 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 after end-of-treatment\* is rare.

\*undetectable HBsAg and HBV DNA 6 months after end-of-treatment accepted as a functional cure.



## STANDARD OF CARE THERAPIES FOR CHRONIC HBV

	PegIFN	Entecavir	Tenofovir	New HBV Therapies
Dosing Duration	48-weeks	Chronic	Chronic	rate of Undetectable HBV DNA <b>+</b>
HBV DNA Undetectable (<60-80 IU/ml)	7-19%	67-90%	76-93%	rate of HBsAg Loss <b>=</b>
<b>HBsAg Loss</b>	<b>~3-7%</b>	<b>~1-2%</b>	<b>~1-3%</b>	<b>HIGHER CURES RATES</b>

Achievable **HBV Cure Rates** with Current SOC

SOC: Standard Of Care | HBsAg: HBV Surface Antigen | PegIFN: Pegylated Interferon  
 Source: EASL HBV Clinical Practice Guidelines, 2017 - Pegasys, PEG-Intron, Baraclude and Viread Package Inserts

# Compelling Growth Opportunity in the **HBV Market**

**257M**  
chronic HBV

**27M**

**4.5M**

10.5% Diagnosed

1.8% Treated

Low due to sub-optimal SOC cure rate and asymptomatic nature of disease.

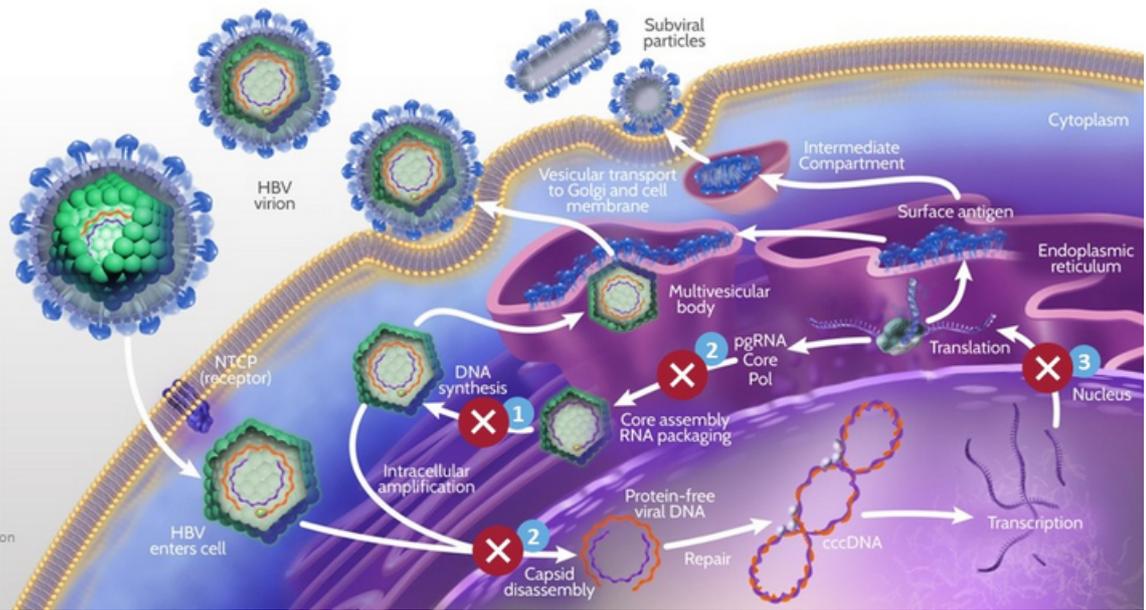
## An HBV curative regimen

would substantially increase **diagnosis** and **treatment** rates to unlock significant **market growth opportunities.**

# HBV Lifecycle Illustrates Key Points for Intervention

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

1. Nucleoside Analogue
2. Capsid Inhibitor
3. RNAi & RNA Destabilizer

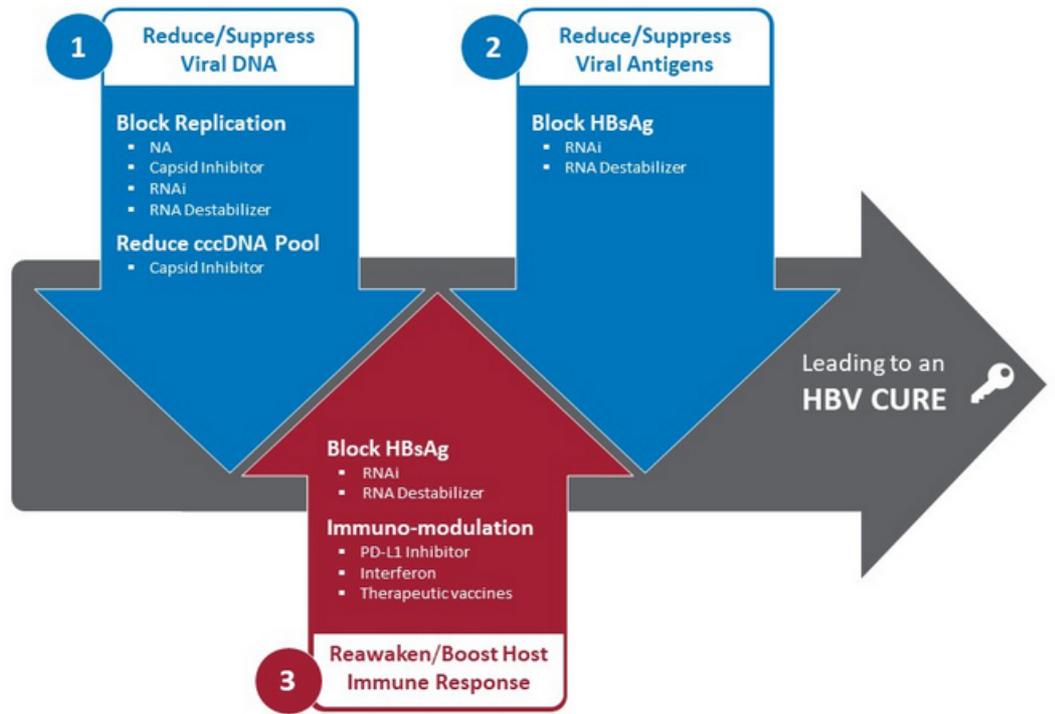


# Keys to Therapeutic Success

Suppress HBV DNA and viral antigens

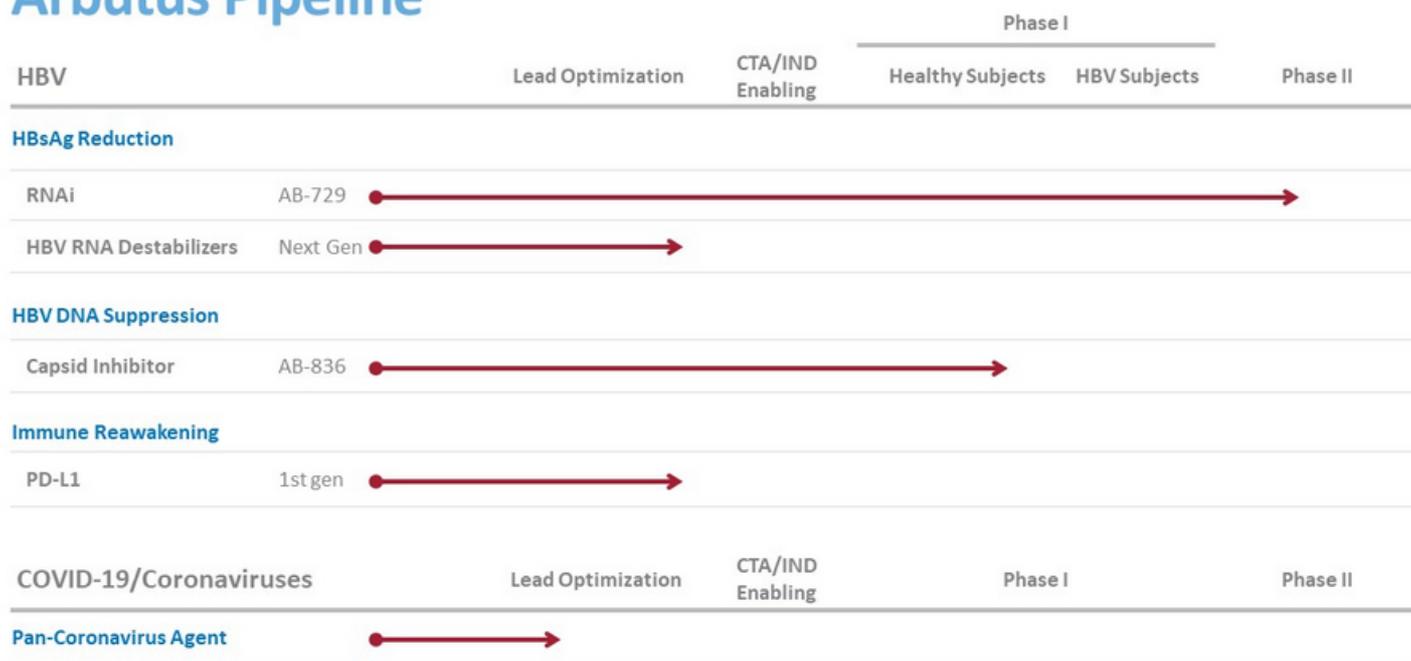
Reawaken host immune response

Therapeutic success will require a combination of agents with complementary MOAs



MOA: Mechanism of Action | NA: Nucleoside Analogue | HBsAg: HBV Surface Antigen

# Arbutus Pipeline



# AB-729

## RNAi Therapeutic

Proprietary GalNAc-conjugate delivery technology provides liver targeting and enables **subcutaneous dosing**



Single trigger RNAi agent targeting all HBV transcripts

Inhibits HBV replication and lowers all HBV antigens

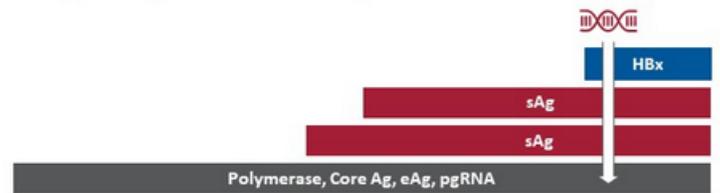
Pan-genotypic activity across HBV genotypes

Demonstrated complementarity with capsid inhibitors

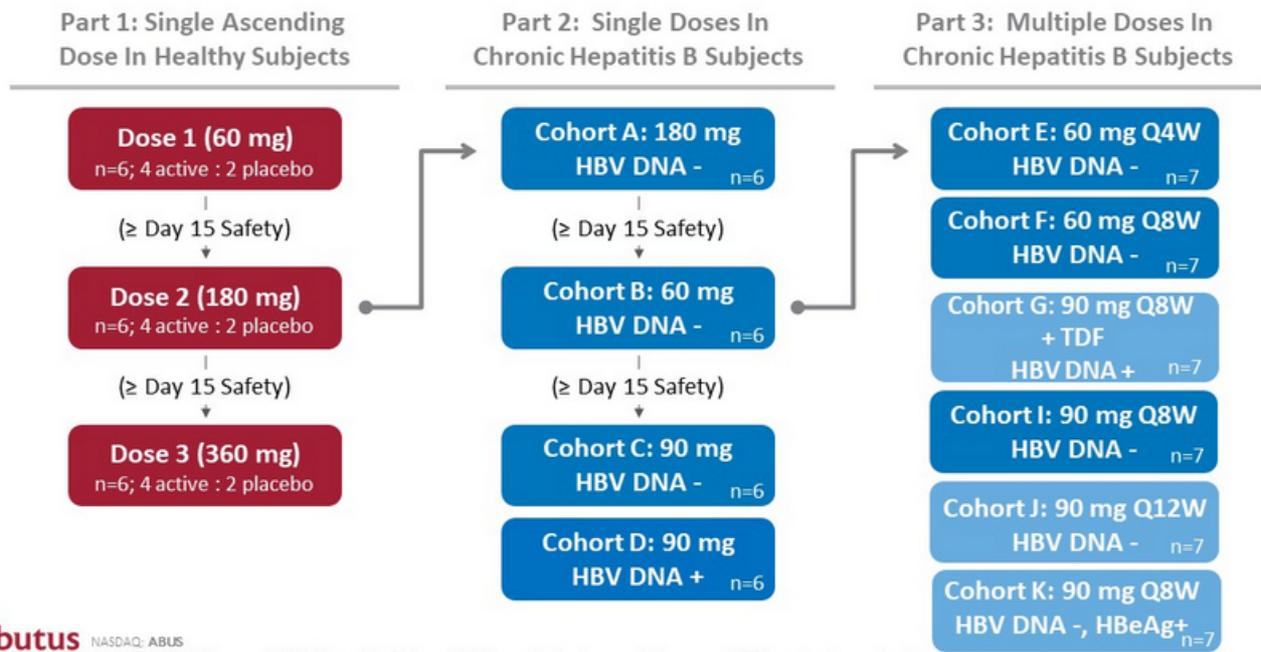
Actively targets the liver

Active against cccDNA derived and integrated HBsAg transcripts

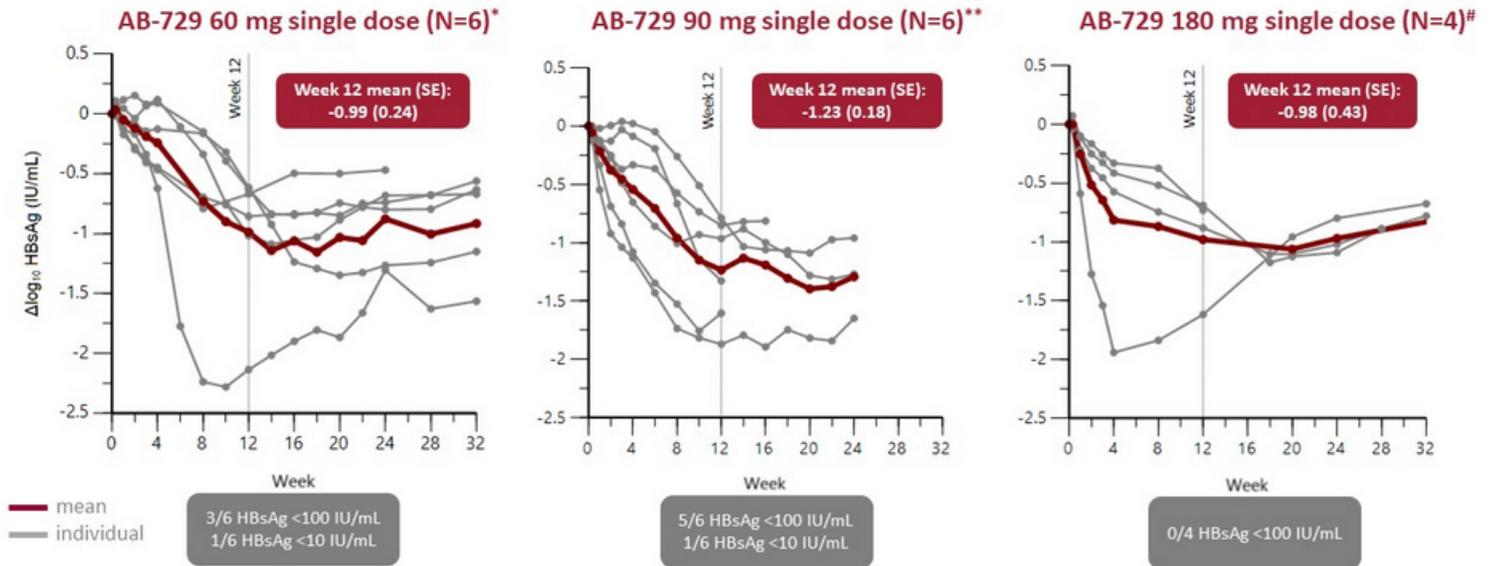
Clean profile in long term preclinical safety studies



# AB-729-001 Study



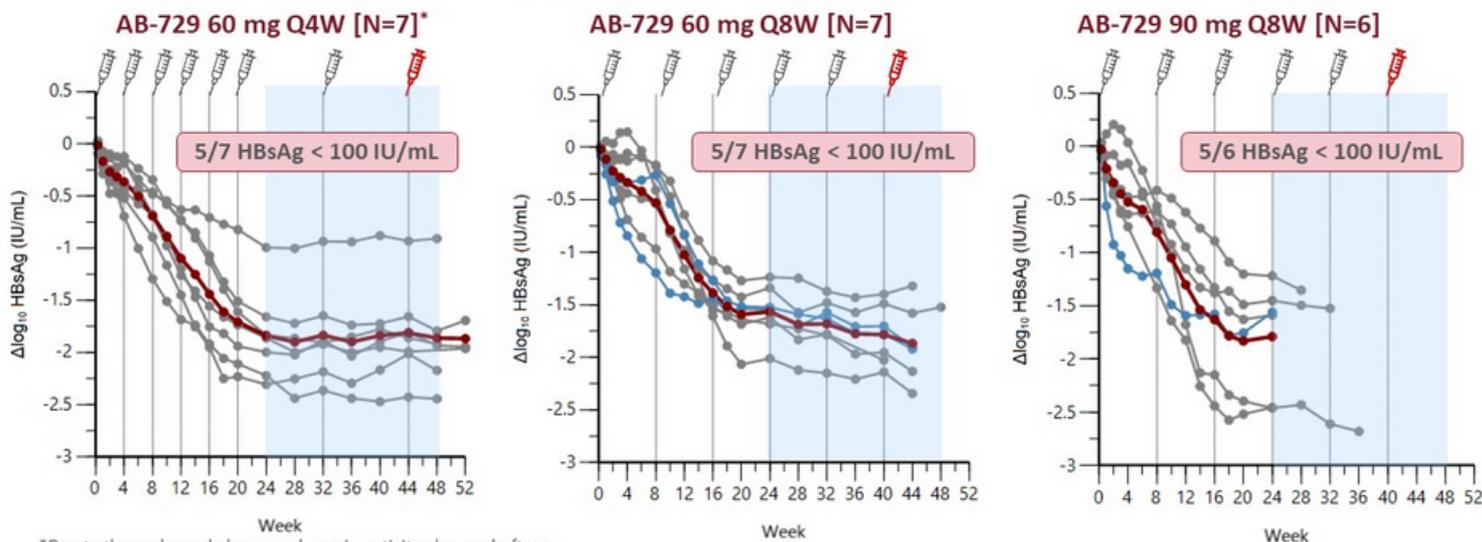
# Single Doses of AB-729 Result in Comparable Mean HBsAg Declines at Week 12 Followed by a Sustained Plateau Phase



\*N=5 at Week 10, 14, 18, 22, 28, and 32  
\*\*N=4 at Week 14 and 16; N=3 at Weeks 18 – 24  
\*N=3 after Week 12; nominal visits ± 7 days

# Repeat dosing of AB-729 60 mg and 90 mg results in comparable HBsAg decline profiles with 75 percent of subjects reaching <100 IU/mL

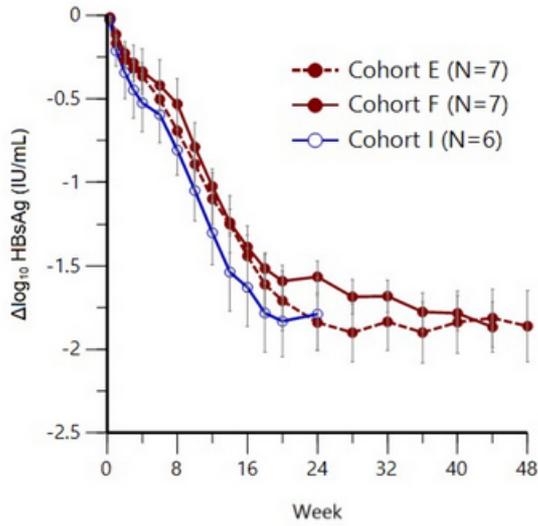
Plateau in response observed around Week 20, regardless of dose or dosing interval



\*Due to the prolonged pharmacodynamic activity observed after a single dose of AB-729 (Yuen, AASLD 2020), subjects switched to AB-729 60 mg Q12W after Week 20

- mean
  - individual HBeAg-
  - individual HBeAg+ (including HBeAg borderline in Cohort F)
  - final dose of AB-729
- shaded areas: optional 6 month treatment extension

# There are no significant differences in mean HBsAg response between AB-729 doses and dosing intervals to date



**Mean (range)  $\Delta$ HBsAg with repeat dosing of AB-729**

Visit	Cohort E AB-729 60 mg Q4W <sup>†</sup>	Cohort F AB-729 60 mg Q8W	Cohort I AB-729 90 mg Q8W	p value between Cohorts
Week 16	-1.44 (-0.71 to -1.95)	-1.39 (-1.61 to -1.08)	-1.63 (-0.89 to -2.44)	$p \geq 0.4$
Week 24	-1.84 (-0.99 to -2.31)	-1.57 (-1.24 to -2.01)	-1.79 (-1.22 to -2.46)	$p \geq 0.2$
Week 32	-1.84 (-0.94 to -2.36)	-1.68 (-1.37 to -2.15)	---	$p = 0.5$
Week 40	-1.84 (-0.88 to -2.47)	-1.78* (-1.40 to -2.14)	---	$p = 0.7$
Week 44	-1.81* (-0.93 to -2.43)	-1.87* (-1.32 to -2.34) [N=6]	---	$p = 0.8$
Week 48	-1.89* (-0.91 to -2.44)	---	---	---

<sup>†</sup> subjects switched to AB-729 60 mg Q12W after Week 20 dose

\*Data updated since EASL 2021 ILC

# AB-729 90 mg Single Dose Reduces HBsAg and HBV DNA in HBV DNA Positive CHB subjects

Figure 1. Individual and mean change from baseline HBsAg following a single dose of AB-729 90 mg in HBV DNA+ subjects

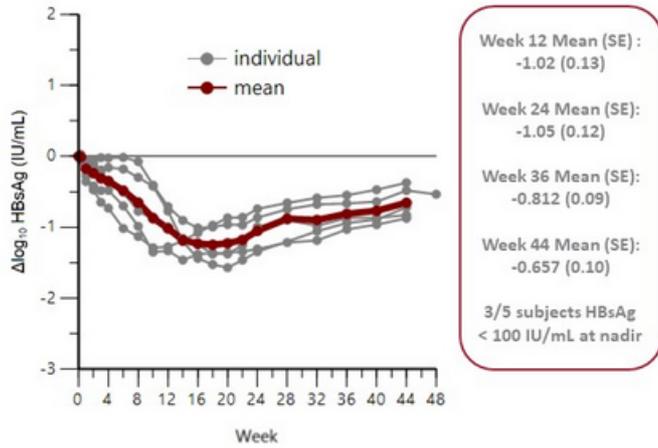
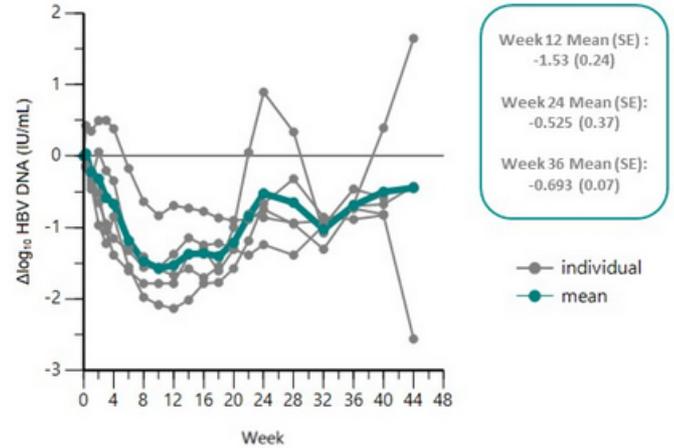


Figure 2. Individual and mean change from baseline HBV DNA following a single dose of AB-729 90 mg in HBV DNA+ subjects



# AB-729 Was Safe and Well Tolerated After Single and Repeat Doses

- No SAEs or discontinuations due to AEs
- No treatment-related Grade 3 or 4 AEs\*
- No Grade 3 or 4 laboratory abnormalities\*
  - Grade 1 and Grade 2 ALT elevations have decreased with continued treatment
- Injection site TEAEs were mild (erythema, pain, pruritis, bruising) or moderate (pain) and transient
- No clinically meaningful changes in ECGs or vital signs
- All subjects in cohort E and F consented to an additional 6 months of dosing

## Takeaways

- Clinical data supports our view that AB-729 60 mg every 8 weeks is an appropriate and convenient dose to explore in Phase 2a combination trials
- Long-term dosing with AB-729 resulted in 75 percent of subjects reaching <100 IU/mL of HBsAg, a clinically relevant threshold informing when to stop all therapies
- Preliminary data suggest that long-term suppression of HBsAg with AB-729 results in increased HBV-specific immune response
- AB-729 was safe and well tolerated through 48 weeks of dosing
- Based on these findings, we have announced and expect to initiate two proof-of-concept Phase 2a combination trials using AB-729 as the cornerstone agent in 2H/2021

## IND Authorized and Three Clinical Collaborations Executed to Leverage AB-729 in Key Proof-Of-Concept Phase 2a Trials

- IND for AB-729 was authorized to initiate a Phase 2a trial in combination with ongoing NA therapy and short courses of Peg-IFN $\alpha$ -2a in chronic hepatitis B subjects
- Accomplished key strategic initiative by announcing three Phase 2a proof-of-concept clinical collaborations to accelerate key combination data read-outs
  - Assembly Biosciences, Inc. - Phase 2a initiated in the first half of 2021
  - Antios Therapeutics, Inc. - collaboration announced in June 2021, clinical trial expected to initiate in the second half of 2021
  - Vaccitech plc - collaboration announced in July 2021, clinical trial expected to initiate in early 2022

# IND Authorized for a Phase 2a POC clinical trial

AB-729 in combination with  
ongoing NA therapy and  
short courses of Peg-IFN $\alpha$ -  
in CHB subjects



The trial is expected to enroll 40 stably NA-suppressed, HBeAg negative, non-cirrhotic CHB subjects\*

After a 24-week dosing period of AB-729 (60 mg every 8 weeks (Q8W)), subjects will be randomized into one of 4 groups:

- A1: AB-729 + NA + weekly Peg-IFN $\alpha$ -2a for 24 weeks (N = 12)
- A2: NA + weekly Peg-IFN $\alpha$ -2a for 24 weeks (N = 12)
- B1: AB-729 + NA + weekly Peg-IFN $\alpha$ -2a for 12 weeks (N = 8)
- B2: NA + weekly Peg-IFN $\alpha$ -2a for 12 weeks (N = 8)

After completion of the assigned Peg-IFN $\alpha$ -2a treatment period, all subjects will remain on NA therapy for the initial 24-week follow up period, and then will discontinue NA treatment if treatment stopping criteria are met

Expected to initiate in the third quarter of 2021

\* Pending protocol finalization

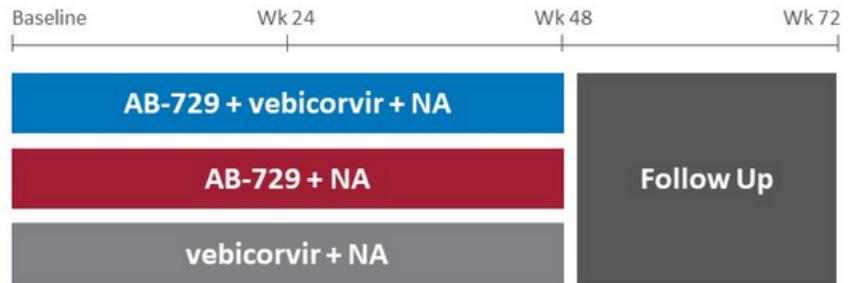
# AB-729 Clinical Collaboration



Provides accelerated AB-729 combination proof-of-concept (POC) with Assembly's capsid inhibitor and a NA



NASDAQ: ABUS  
www.arbutusbio.com



Initiated Phase 2 Clinical Trial Feb 2021

~60 virologically-suppressed subjects with chronic HBV infection

Equal sharing of expertise and costs for this POC open-label trial

No financial requirements or restrictions and no business requirements or restrictions

NA: Nucleoside Analogue | HBeAg: HBV e Antigen

# AB-729 Clinical Collaboration



## POC Phase 2a clinical trial

Evaluating AB-729 in combination with Vaccitech's immunotherapeutic, VTP-300, and a NA



Clinical trial will evaluate the safety, pharmacokinetics, immunogenicity and anti-viral activity of the triple combination of AB-729, VTP-300 and an NA compared to the double combinations of AB-729 with an NA and VTP-300 with an NA

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Expected to file CTA in the second half of 2021 and initiate in early 2022

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Full rights retained by the Companies of their respective product candidates and all costs will be split equally

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Assuming positive results parties intend to undertake a larger Phase 2b clinical trial

# AB-729 Clinical Collaboration



## POC Phase 2a clinical trial

AB-729 in combination with Antios' proprietary active site polymerase inhibitor nucleotide (ASPIN), ATI-2173, and a NA



Clinical trial will evaluate AB-729, ATI-2173 and a NA in a single cohort in the ongoing Antios Phase 2a ANTT201 clinical trial

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Expected to initiate in the second half of 2021

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Antios will be responsible for the costs and Arbutus will be responsible for supply of AB-729

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Trial cohort will include 10 subjects with chronic HBV assigned 8:2 to active drug or matching placebos; in combination with an NA

# AB-836

## Capsid Inhibitor

**In March 2021, received regulatory approval to initiate Phase 1a/1b clinical trial**

Potential for increased efficacy and enhanced resistance profile relative to earlier generation capsid inhibitors



Novel chemical series differentiated from AB-506 and other competitor compounds in the Class II capsid inhibitor space

Leverages a novel binding site within the core protein dimer-dimer interface

Improved intrinsic potency with  $EC_{50} \leq 10$  nM

Active against NA resistant variants

Potential to address known capsid resistant variants T33N and I105T

Provides the potential for low dose and wide therapeutic window

Demonstrates high liver concentrations in multiple species

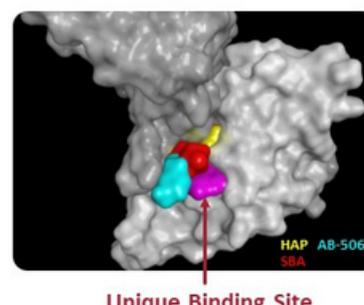
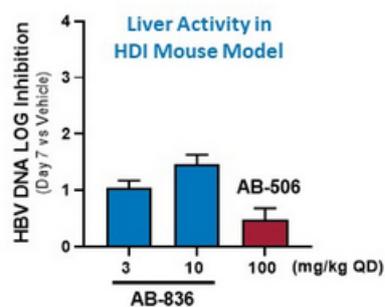
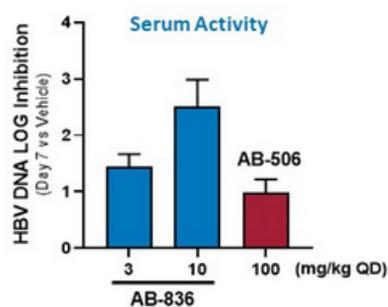
Projected to be once daily dosing

Pangenotypic

Combinable with other MOA agents

# AB-836: A Next Generation Capsid Inhibitor

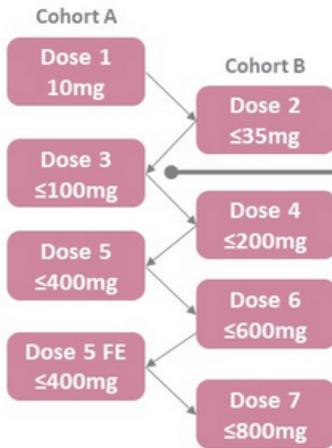
Compound	HBV DNA / 1 <sup>o</sup> Mechanism			Core I105T Mutation (EC <sub>50</sub> μM)	cccDNA Formation / 2 <sup>o</sup> Mechanism	Human Serum Shift
	HepDE19 (EC <sub>50</sub> μM)	HBV infected PHH (EC <sub>50</sub> μM)	HBV infected HepG2-NTCP-C4 (EC <sub>50</sub> μM)		HBV infected HepG2-NTCP-C4 (HBsAg EC <sub>50</sub> μM)	(FC in EC <sub>50</sub> in 40% Human Serum)
AB-506	0.077	0.032	0.101	1.26	1.430	6x
AB-836	0.010	0.002	0.012	0.118	0.196	2x



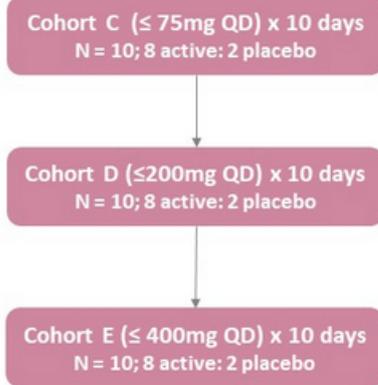
# AB-836-001 Study

## Part 1: Single Ascending Dose In Healthy Subjects

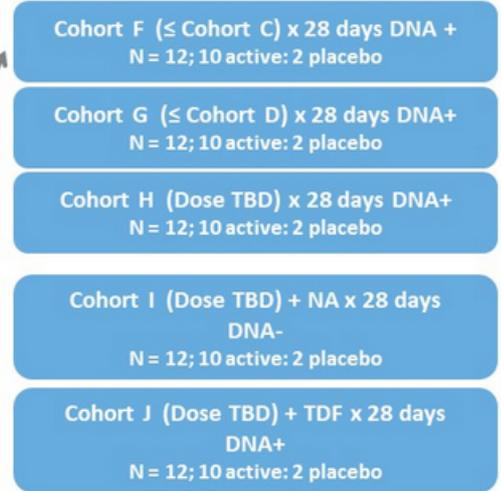
Alternating Cohorts A and B  
n=8/cohort; 6 active: 2 placebo



## Part 2: Multiple Ascending Dose in Healthy Subjects



## Part 3: Multiple Doses In Chronic Hepatitis B Subjects



# Next Gen RNA Destabilizer Program

**Offers a novel mechanism of action** to reduce HBsAg and other viral proteins and viral RNA

**Continuing active research** and development of a next generation small molecule

**We believe this approach offers potential** for an oral HBsAg reducing agent and all oral combination therapy

# PD-L1 Inhibitor Program for HBV Immune Reactivation

## Rationale

- PD-L1 expressed by liver parenchymal and non-parenchymal cells
- PD-L1 upregulated during viral hepatitis
- PD-1 upregulated on HBV-specific T- and B-cells
- Inhibition in combination with other DAAs leads to sustained viral suppression in preclinical models of HBV

## Small-Molecule Inhibitor Approach

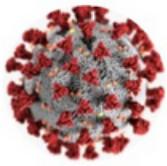
- Allows controlled checkpoint blockade
- Enables oral dosing
- Designed to reduce systemic safety issues seen with Abs

## Current Lead Candidates

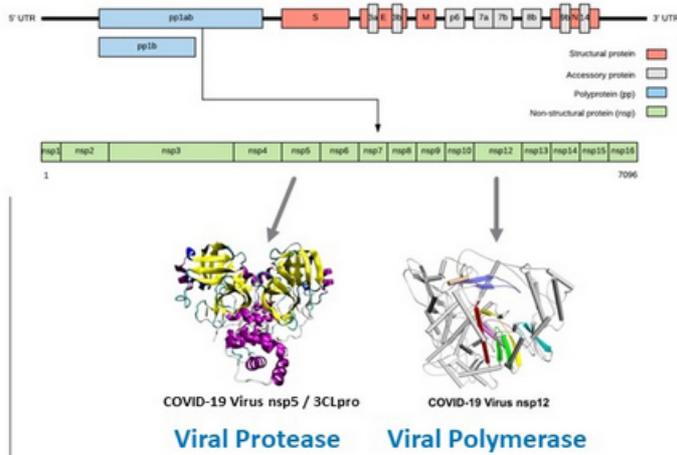
- Block PD-L1/PD1 interaction at sub-nM concentrations
- Activate HBV-specific immune responses in T-cells from CHB patients *in vitro*
- Novel MOA identified
- Demonstrate a robust checkpoint mediated *in vivo* effect

# Coronavirus Strategy

Leveraging our proven expertise and capabilities in antiviral drug discovery and development



**+RNA Virus**  
**31 kb Genome**  
**nsp5 protease & nsp12 polymerase**  
 essential enzymes for replication



## Long term commitment

### Pan-coronavirus focused

### Small Molecule Direct-Acting Antivirals

#### Directed Effort

- nsp12 Viral Polymerase - nucleos(t)ides
- nsp5 Main Viral Protease - de novo design

### X-Chem/Proteros

- Proprietary DEL library screening and structural biology for M<sup>PRO</sup> inhibitor discovery

# 2021 Key Objectives

Cash balance of \$121.3M as of June 30, 2021, \$44.9M of proceeds received under our ATM during 3Q 2021, cash runway into 2Q 2023

Objective	Anticipated Timing 2021
Additional data from AB-729 90 mg single-dose in HBV DNA positive subjects	1H ✓
Initiate a Phase 2 combination clinical trial to evaluate AB-729 in combination with Assembly Biosciences' lead core/capsid inhibitor candidate vebicorvir (VBR) and an NrtI	1H ✓
Initiate a Phase 1a/1b clinical trial of AB-836, our next-generation oral capsid inhibitor	1H ✓
Additional data from AB-729 60 mg multi-dose (4 wk / 8 wk dosing intervals)	1H / 1H ✓
Initial data from AB-729 90 mg multi-dose (8 wk / 12 wk dosing intervals)	1H ✓ / 2H
Initial data from AB-729 90 mg multi-dose (8 wk dosing interval) in HBV DNA positive subjects	2H
Initiate two Phase 2a combination clinical trials in HBV subjects; both including AB-729, with one or more approved or investigational agents	2H
Initial Phase 1a/1b data for AB-836	2H