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): May 4, 2023

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

British Columbia, Canada	**001-34949**	**98-0597776**
(State or Other Jurisdiction of Incorporation)	(Commission File Number)	(I.R.S. Employer Identification No.)

701 Veterans Circle
Warminster, Pennsylvania 18974
(Address of Principal Executive Offices) (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 communications 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 communications pursuant to Rule 14d-2(b) under the Exchange Act (17 CFR 240.14d-2(b))
☐ Pre-commencement communications 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 2.02. Results of Operations and Financial Condition.

On May 4, 2023, Arbutus Biopharma Corporation (the "Company") issued a press release announcing its financial results for the first quarter ended March 31, 2023 and certain other information. A copy of the press release is furnished as Exhibit 99.1 hereto and is incorporated by reference herein.

Item 8.01. Other Events.

On May 4, 2023, the Company posted an updated corporate presentation on its website at www.arbutusbio.com. A copy of the presentation is filed herewith as Exhibit 99.2 and is incorporated by reference herein.

Item 9.01. Financial Statements and Exhibits.

(d) Exhibits.

Exhibit Number	Description
99.1	Press release dated May 4, 2023
99.2	Corporate Presentation dated May 4 2023
104	Cover page interactive data file (formatted as inline XBRL).

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: May 4, 2023

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

Arbutus Reports First Quarter 2023 Financial Results and Corporate Update

Additional AB-729 off-treatment data highlighted in an oral presentation at the Global Hepatitis Summit 2023

Dosed first subject in Phase 1 clinical trial with oral RNA Destabilizer, AB-161

Filed patent infringement lawsuit against Pfizer and BioNTech seeking compensation for use of unlicensed patented technologies in COVID-19 mRNA-LNP vaccines

Strong financial position – cash runway extends into the first quarter of 2025

Conference Call and Webcast Today at 8:45 AM ET

WARMINSTER, Pa., May 04, 2023 (GLOBE NEWSWIRE) -- Arbutus Biopharma Corporation (Nasdaq: ABUS) ("Arbutus" or the "Company"), a clinical-stage biopharmaceutical company leveraging its extensive virology expertise to develop novel therapeutics that target specific viral diseases, today reported first quarter 2023 financial results and provided a corporate update.

"In the first quarter of 2023, we made meaningful progress advancing our pipeline of HBV and coronavirus assets to address large global market opportunities," said William Collier, Arbutus' President and Chief Executive Officer. "We reported data from our lead HBV-focused RNAi therapeutic, AB-729, showing low levels of HBsAg and HBV DNA in most patients persisting for at least a year and a half after their last dose of AB-729. In addition, we dosed the first healthy subject in our Phase 1 clinical trial with AB-161, our oral RNA destabilizer, for which we expect data in the second half of this year. We continue to advance our coronavirus programs and expect to initiate a Phase 1 clinical trial with our M^{pro} inhibitor candidate, AB-343, as well as IND-enabling studies for an nsp12 inhibitor candidate in the second half of this year."

Pipeline Updates and Key Milestones

AB-729 (RNAi Therapeutic)

- At the Global Hepatitis Summit in April, we reported in an oral presentation additional off-treatment data from the patients in our Phase 1b clinical trial (AB-729-001) who have discontinued both AB-729 and nucleos(t)ide analogue (NA) therapy. These seven remaining patients continue to maintain low HBV DNA levels off all therapy, and HBsAg levels remain below baseline (-0.8 to -1.6 log_{10}) up to one and a half years after the last dose of AB-729.
- We are continuing to evaluate the safety and tolerability of AB-729 in combination with ongoing NA therapy and short courses of PEG-IFNα-2a (IFN) in 43 patients with chronic hepatitis B virus (cHBV) infection in a Phase 2a clinical trial (AB-729-201). Preliminary data from the lead-in phase of the trial further validated AB-729's capacity to reduce HBsAg. We expect to announce preliminary data from patients receiving the combination of AB-729, NA therapy and IFN in the second quarter of 2023.
- We are continuing to evaluate AB-729, NA therapy and Vaccitech's HBV antigen-specific immunotherapeutic, VTP-300, in a Phase 2a clinical trial (AB-729-202). Once enrollment is complete in the initial portion of this trial, we will begin enrolling 20 patients in an additional arm of the trial. These patients will receive AB-729 (60mg every 8 weeks) plus NA therapy for 24 weeks, followed by VTP-300 plus one to two low doses of nivolumab (Opdivo®). We expect preliminary data from patients who receive AB-729, NA therapy and VTP-300 in the second half of 2023, and we expect to dose the first patient in the additional arm receiving AB-729, NA therapy, VTP-300 and nivolumab in the second quarter of 2023.

AB-161 (Oral RNA destabilizer)

- In March, we dosed the first healthy subject in our Phase 1 clinical trial with AB-161. The single-ascending dose data is expected in the second half of 2023. AB-161 is our next-generation oral HBV-specific RNA destabilizer, which is being developed as part of a potential all-oral treatment regimen to functionally cure HBV.
- At the Global Hepatitis Summit in April, we presented preclinical data showing that AB-161 provides robust anti-HBV activity including suppression of HBV RNA and HBsAg production *in vitro* and *in vivo*. The differentiated anti-HBV mode of action of AB-161 compared to other classes of HBV inhibitors, suggest that AB-161 may be an important component in combination to provide a functional cure for cHBV.

AB-101 (Oral PD-L1 Inhibitor)

- In April, we received verbal communication from the U.S. Food and Drug Administration (FDA) that the AB-101 Investigational New Drug (IND) application has been placed on clinical hold. For purposes of clarity, the Phase 1 clinical trial had not been initiated and we had not dosed any patients with AB-101. The FDA indicated they will provide an official clinical hold letter to Arbutus within 30 days of the verbal communication. Based on this communication, we no longer intend to report initial data from the single-ascending dose portion of a Phase 1 clinical trial in the second half of 2023. We are developing AB-101, our oral PD-L1 inhibitor, to reawaken and boost the immune system of patients with cHBV. Preclinical data generated thus far indicates that AB-101 is highly potent and mediates activation and reinvigoration of HBV-specific T-cells from cHBV patients.

COVID-19 and Pan-Coronavirus Programs

- At the 36th International Conference on Antiviral Research in March, we presented pre-clinical data for AB-343, our lead coronavirus drug candidate that inhibits the main protease (M^{pro}). The antiviral potency, selectivity and favorable pharmacokinetic data support the further development of AB-343 as a potential ritonavir-free oral treatment for COVID-19 and other human coronaviruses. We are currently conducting IND-enabling studies with AB-343, and on completion, we expect to initiate a Phase 1 clinical trial in the second half of 2023.

- We are continuing to direct our research efforts to identifying an nsp12 viral polymerase clinical candidate. Such a candidate could potentially be combined with AB-343 to achieve better patient treatment outcomes and for use in prophylactic settings. We expect to nominate an nsp12 clinical candidate and initiate IND-enabling studies in the second half of 2023.

Financial Results

Cash, Cash Equivalents and Investments

As of March 31, 2023, we had cash, cash equivalents and investments in marketable securities of $178.5 million compared to $184.3 million as of December 31, 2022. During the three months ended March 31, 2023, we used $27.3 million in operating activities, which was partially offset by $19.9 million of net proceeds from the issuance of common shares under our "at-the-market" offering program. Based on AB-101's IND being placed on clinical hold by the FDA and a resulting shift in the timing of our AB-101 Phase 1 clinical trial, we are reducing our 2023 cash burn guidance from between $95 to $100 million to between $90 to $95 million. We believe our cash runway will be sufficient to fund our operations into the first quarter of 2025.

Revenue

Total revenue was $6.7 million for the three months ended March 31, 2023 compared to $12.6 million for the same period in 2022. The decrease of $5.9 million was due primarily to less revenue recognition from our license agreement with Qilu compared to last year based on employee labor hours expended by us to perform our manufacturing obligations under the license agreement.

Operating Expenses

Research and development expenses were $18.3 million for the three months ended March 31, 2023 compared to $18.5 million for the same period in 2022. The decrease of $0.2 million was due primarily to a decrease in expenses for our AB-836 Phase 1a/1b clinical trial, which was discontinued in the fourth quarter of 2022, partially offset by an increase in expenses for our coronavirus program and other early-stage development programs.

Net Loss

For the three months ended March 31, 2023, our net loss was $16.3 million, or a loss of $0.10 per basic and diluted common share, as compared to a net loss of $15.8 million, or a loss of $0.11 per basic and diluted common share, for the three months ended March 31, 2022. Net loss for the three months ended March 31, 2022 included $4.4 million of income tax expense for withholding taxes paid to the Chinese taxing authority by Qilu on our behalf in connection with the upfront license fee Qilu paid us.

Outstanding Shares

As of March 31, 2023, we had approximately 165.1 million common shares issued and outstanding, as well as approximately 19.7 million stock options and unvested restricted stock units outstanding. Roivant Sciences Ltd. owned approximately 23% of our outstanding common shares as of March 31, 2023.

UNAUDITED CONDENSED CONSOLIDATED STATEMENTS OF LOSS
(in thousands, except share and per share data)

	Three Months Ended March 31,	
	2023	**2022**
Revenue		
Collaborations and licenses	$ 5,509	$ 11,218
Non-cash royalty revenue	1,178	1,363
Total revenue	6,687	12,581
Operating expenses		
Research and development	18,275	18,462
General and administrative	5,552	4,892
Change in fair value of contingent consideration	273	201
Total operating expenses	24,100	23,555
Loss from operations	(17,413)	(10,974)
Other income (loss)		
Interest income	1,268	159
Interest expense	(198)	(506)
Foreign exchange gain	4	—
Total other income (loss)	1,074	(347)
Loss before income taxes	(16,339)	(11,321)
Income tax expense	—	(4,444)
Net loss	$ (16,339)	$ (15,765)
Net loss per common share		
Basic and diluted	$ (0.10)	$ (0.11)
Weighted average number of common shares		
Basic and diluted	161,643,404	148,428,326

UNAUDITED CONDENSED CONSOLIDATED BALANCE SHEETS
(in thousands)

	March 31, 2023	December 31, 2022
Cash, cash equivalents and marketable securities, current	$ 146,728	$ 146,913
Accounts receivable and other current assets	6,126	4,226
Total current assets	152,854	151,139
Property and equipment, net of accumulated depreciation	4,853	5,070
Investments in marketable securities, non-current	31,790	37,363
Right of use asset	1,665	1,744
Other non-current assets	62	103
Total assets	$ 191,224	$ 195,419
Accounts payable and accrued liabilities	$ 9,653	$ 16,029
Deferred license revenue, current	15,055	16,456
Lease liability, current	446	372
Total current liabilities	25,154	32,857
Liability related to sale of future royalties	9,384	10,365
Deferred license revenue, non-current	3,296	5,999
Contingent consideration	7,804	7,531
Lease liability, non-current	1,671	1,815
Total stockholders' equity	143,915	136,852
Total liabilities and stockholders' equity	$ 191,224	$ 195,419

UNAUDITED CONDENSED CONSOLIDATED STATEMENTS OF CASH FLOWS
(in thousands)

	Three Months Ended March 31,	
	2023	2022
Net loss	$ (16,339)	$ (15,765)
Non-cash items	1,372	1,642
Change in deferred license revenue	(4,104)	38,840
Other changes in working capital	(8,230)	(4,098)
Net cash (used in) provided by operating activities	(27,301)	20,619
Net cash provided by (used in) investing activities	16,678	(60,056)
Issuance of common shares pursuant to Share Purchase Agreement	—	10,973
Issuance of common shares pursuant to the Open Market Sale Agreement	19,862	268
Cash provided by other financing activities	555	244
Net cash provided by financing activities	20,417	11,485
Effect of foreign exchange rate changes on cash and cash equivalents	4	-
Increase (decrease) in cash and cash equivalents	9,798	(27,952)
Cash and cash equivalents, beginning of period	30,776	109,282
Cash and cash equivalents, end of period	40,574	81,330
Investments in marketable securities	137,944	153,500
Cash, cash equivalents and marketable securities, end of period	$ 178,518	$ 234,830

Conference Call and Webcast Today

Arbutus will hold a conference call and webcast today, Thursday, May 4, 2023, at 8:45 AM Eastern Time to provide a corporate update. To dial-in for the conference call by phone, please register using the following link: Registration Link. A live webcast of the conference call can be accessed through the Investors section of Arbutus' website at www.arbutusbio.com.

An archived webcast will be available on the Arbutus website after the event.

About AB-729

AB-729 is an RNA interference (RNAi) therapeutic specifically designed to reduce all HBV viral proteins and antigens including hepatitis B surface antigen which is thought to be a key prerequisite to enable reawakening of a patient's immune system to respond to the virus. AB-729 targets hepatocytes using Arbutus' novel covalently conjugated N-Acetylgalactosamine (GalNAc) delivery technology enabling subcutaneous delivery. Clinical data generated thus far has shown single- and multi-doses of AB-729 to be generally safe and well-tolerated, while also providing meaningful reductions in hepatitis B surface antigen and hepatitis B DNA. AB-729 is currently in multiple Phase 2a clinical trials.

About AB-101

AB-101 is our lead oral PD-L1 inhibitor candidate that we believe will allow for controlled checkpoint blockade and enable oral dosing, while minimizing the systemic safety issues typically seen with checkpoint antibody therapies. Immune checkpoints such as PD-1/PD-L1 play an important role in the induction and maintenance of immune tolerance and in T-cell activation. Preclinical data generated thus far indicates that AB-101 mediates activation and reinvigoration of HBV-specific T-cells from cHBV patients. We believe AB-101, when used in combination with other approved and investigational agents, could potentially lead to a functional cure in HBV chronically infected patients. We are also exploring oncology applications for our internal PD-L1 portfolio.

About AB-161

AB-161 is our next generation oral small molecule RNA destabilizer, specifically designed to target the liver. Mechanistically, RNA destabilizers target the host proteins PAPD5/7, which are involved in regulating the stability of HBV RNA transcripts. In doing so, RNA destabilizers lead to the selective degradation of HBV RNAs, thus reducing HBsAg levels and inhibiting viral replication. To provide a proprietary all-oral treatment regimen for patients with cHBV, we believe inclusion of a small molecule RNA destabilizer is key.

About AB-343

AB-343 is our lead coronavirus drug candidate that inhibits the SARS-CoV-2 main protease (M^{pro}), a validated target for the treatment of COVID-19 and potential future coronavirus outbreaks. In our pre-clinical research conducted to date, AB-343 has shown pan-coronavirus antiviral activity, no reduction in potency against known SARS-CoV-2 variants, robust activity against SARS-CoV-2 M^{pro} resistant strains, and a favorable drug-drug interaction profile with no need for ritonavir boosting. We see an opportunity to pursue a potential combination therapeutic strategy focusing on M^{pro} and nsp12 viral polymerase targets to reduce hospitalizations, achieve better patient treatment outcomes and provide pre-exposure prophylactic therapy.

About HBV

Hepatitis B is a potentially life-threatening liver infection caused by the hepatitis B virus (HBV). HBV can cause chronic infection which leads to a higher risk of death from cirrhosis and liver cancer. Chronic HBV infection represents a significant unmet medical need. The World Health Organization estimates that over 290 million people worldwide suffer from chronic HBV infection, while other estimates indicate that approximately 2.4 million people in the United States suffer from chronic HBV infection. Approximately 820,000 people die every year from complications related to chronic HBV infection despite the availability of effective vaccines and current treatment options.

About Coronaviruses

Coronaviruses are a large family of viruses that range from the common cold to more severe diseases such as severe acute respiratory syndrome (SARS), Middle East respiratory syndrome (MERS), and COVID-19. COVID-19 has caused approximately 7.2 million deaths globally according to an analysis by the Institute for Health Metrics and Evaluation (IHME). As we strive to identify and develop new antiviral small molecules to treat COVID-19 and future coronavirus outbreaks, we have focused our research efforts on two essential targets critical for replication across all coronaviruses – nsp5 protease and nsp12 polymerase.

About Arbutus

Arbutus Biopharma Corporation (Nasdaq: ABUS) is a clinical-stage biopharmaceutical company leveraging its extensive virology expertise to develop novel therapeutics that target specific viral diseases. Our current focus areas include Hepatitis B virus (HBV), SARS-CoV-2, and other coronaviruses. To address HBV, we are developing a RNAi therapeutic, an oral PD-L1 inhibitor, and an oral RNA destabilizer to potentially identify a combination regimen with the aim of providing a functional cure for patients with chronic HBV by suppressing viral replication, reducing surface antigen and reawakening the immune system. We believe our lead compound, AB-729, is the only RNAi therapeutic with evidence of immune re-awakening. AB-729 is currently being evaluated in multiple phase 2 clinical trials. We also have an ongoing drug discovery and development program directed to identifying novel, orally active agents for treating coronaviruses, (including SARS-CoV-2), for which we have nominated a compound and have begun IND-enabling pre-clinical studies. In addition, we are also exploring oncology applications for our internal PD-L1 portfolio. For more information, visit www.arbutusbio.com.

Forward-Looking Statements and Information

This press release 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 press release include statements about our future development plans for our product candidates; the expected cost, timing and results of our clinical development plans and clinical trials with respect to our product candidates; our expectations with respect to the release of data from our clinical trials and the expected timing thereof; our expectations and goals for our collaborations with third parties and any potential benefits related thereto; the potential for our product candidates to achieve success in clinical trials; and our expected financial condition, including our anticipated net cash burn, the anticipated duration of cash runways and timing regarding needs for additional capital.

With respect to the forward-looking statements contained in this press release, Arbutus has made numerous assumptions regarding, among other things: the effectiveness and timeliness of preclinical studies and clinical trials, and the usefulness of the data; the timeliness 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 and patent litigation matters.

Additionally, 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; uncertainties associated with litigation generally and patent litigation specifically; 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 and at 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.

Contact Information

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Arbutus BIOPHARMA

Corporate Presentation

NASDAQ: ABUS

www.arbutusbio.com

May 4, 2023

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 for the anticipated durations; the expected cost, timing and results of Arbutus' clinical development plans and clinical trials, including its clinical collaborations with third parties; the potential for Arbutus' product candidates to achieve their desired or anticipated outcomes; Arbutus' expectations regarding the timing and clinical development of Arbutus' product candidates, including its articulated clinical objectives; the timeline to a combination cure for HBV; Arbutus' coronavirus strategy; Arbutus' expectations regarding its technology licensed to third parties; the expected timing and payments associated with strategic and/or licensing agreements; the patent infringement lawsuit against Moderna; and other statements relating to Arbutus' 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 pre-clinical studies and clinical trials, and the usefulness of the data; the timeliness 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 and patent litigation matters. 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; uncertainties associated with litigation generally and patent litigation specifically; 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 Arbutus' 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 and at 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.

Our Strategy

Leverage the proven track record of success established with our team's expertise in understanding and treating viral infections by discovering and developing a broad, differentiated pipeline of therapies targeting chronic HBV, COVID-19, and future coronavirus outbreaks.

Develop a **combination therapy that includes antivirals and immunologics** to provide a finite duration treatment for people with cHBV that results in >20% functional cure rate.

Develop **novel oral pan-coronavirus antivirals targeting essential viral proteins** with the goal of reducing hospitalizations and providing pre-exposure prophylactic therapy.

Arbutus BIOPHARMA

HBV: Hepatitis B Virus | **cHBV:** chronic HBV

Investment Highlights

 **Indications with significant unmet medical need & large market opportunities**	 **Team with virology expertise and proven track record**	 **Broad portfolio of internally discovered assets with distinct MOAs**	 **Lead HBV compound – AB-729 RNAi therapeutic in multiple Phase 2a combination clinical trials**	 **Strong financial position**	 **Patented LNP technology**
Focused on developing functional cure for HBV and oral pan-coronavirus therapeutics	Discovered, developed & commercialized multiple drugs	RNAi therapeutic PD-L1 inhibitor RNA destabilizer M^{pro} inhibitor Nsp12 polymerase inhibitor	Data shows AB-729 is generally safe and well-tolerated and has shown meaningful suppression of HBsAg while on- or off-treatment	Cash runway into Q1 2025	Receiving licensing royalties arising from Alnylam's Onpattro® and seeking damages for Moderna & Pfizer/BioNTech COVID-19 vaccine sales

Arbutus BIOPHARMA

MOA: Mechanism of Action | **PD-L1:** Programmed death-ligand 1 | **M^{pro}:** Main protease
NSP12: Non-structural protein | **HBsAg:** Hepatitis B surface antigen

Broad Pipeline

Arbutus BIOPHARMA

NA: Nucleoside Analogue

HBV Overview

Cause & Symptoms

- Life-threatening liver infection caused by hepatitis B virus (HBV)
- Transmitted through body fluids and from mother to child
- Long-term chronic infection (cHBV) leads to higher risk of cirrhosis and/or liver cancer

Diagnosis

- HBsAg detection
- Additional biomarkers necessary to determine stage of disease

Treatments

- NA therapy – lifelong daily therapy, aimed at reducing HBV DNA and risk of cirrhosis and/or HCC
- Peg-IFNα – administered weekly; poorly tolerated
- <5% of patients achieve functional cure

Rationale

- Need for finite and more efficacious HBV treatments that further improve long-term outcomes and increase functional cure rate
- Combination therapy with different MOAs will be required to reduce HBsAg, suppress HBV DNA, and boost immune system

Sources for all data on slide:

1 Hepatitis B Fact Sheet, WHO https://www.who.int/news-room/fact-sheets/detail/hepatitis-b ; Hep B Foundation link https://www.hepb.org/what-is-hepatitis-b/what-is-hepb/facts-and-figures/ ; Kowdley et al. Hepatology (2012) Prevalence of Chronic Hepatitis B Among Foreign-Born Persons Living in the US by Country of Origin

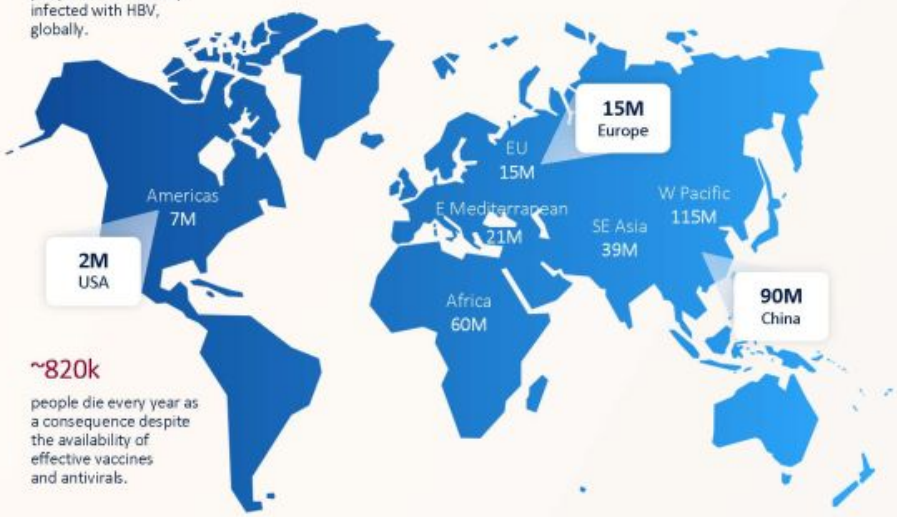
2 Pegasys, PEG-Intron, Baraclude and Viread Package Inserts

Arbutus BIOPHARMA

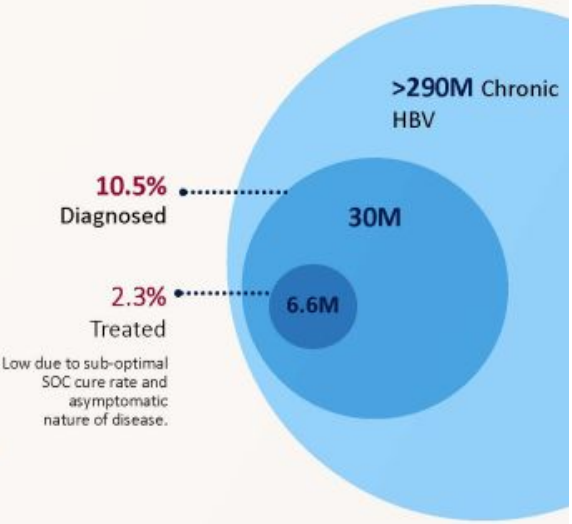
HBsAg: HBV Surface Antigen | **HCC:** Hepatocellular carcinoma

HBV Presents a Significant Unmet Medical Need

>290M
people are chronically infected with HBV, globally.



~820k
people die every year as a consequence despite the availability of effective vaccines and antivirals.



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

Arbutus BIOPHARMA

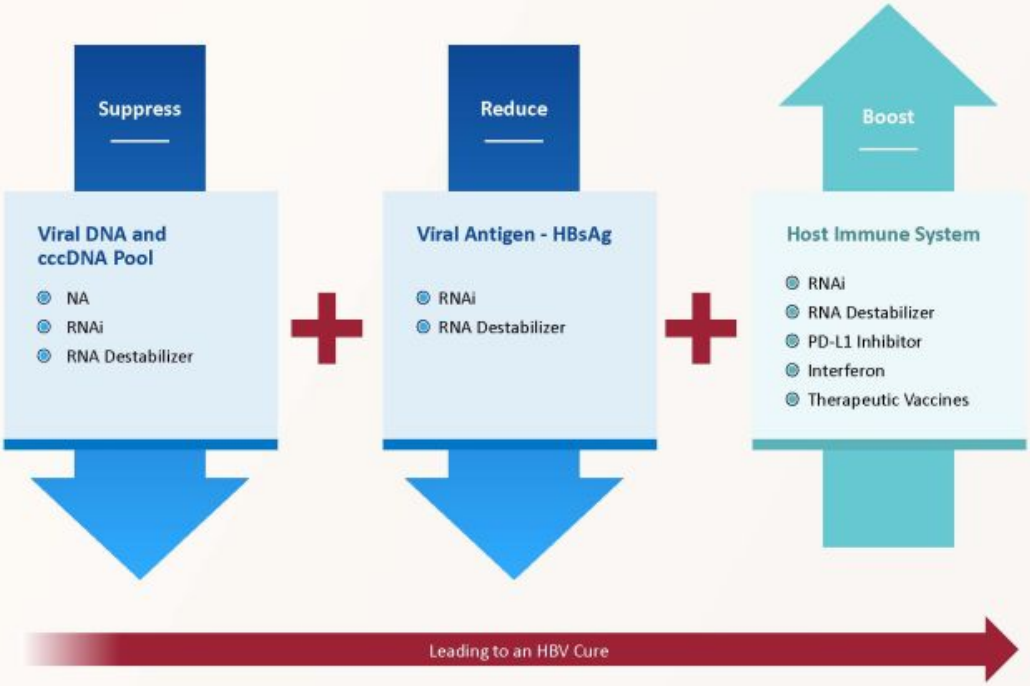
SOC: Standard of Care

Sources: https://www.who.int/news-room/fact-sheets/detail/hepatitis-b
https://www.hepb.org/what-is-hepatitis-b/what-is-hepb/facts-and-figures/

3-Pronged Approach to Therapeutic Success

- **Suppress** HBV DNA
- **Reduce** viral antigens
- **Boost** host immune response

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

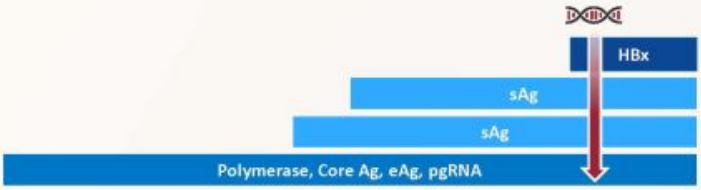


AB-729

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 other agents
- Actively targets the liver
- Active against cccDNA derived and integrated HBsAg transcripts
- Clean profile in long term preclinical safety studies



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AB-729-001 Phase 1a/1b Clinical Trial

Part 1 & 2:

Single-ascending dose

AB-729 monotherapy conclusions:

- Robust HBsAg declines across all cohorts
- HBV DNA declines in HBV DNA+ patients

Part 3: Multiple Ascending Dose in cHBV Patients

- E: 60mg Q4W HBV DNA-
- F: 60mg Q8W HBV DNA-
- G: 90mg Q8W + TDF HBV DNA+
- I: 90mg Q8W HBV DNA-
- J: 90mg Q12W HBV DNA-
- K: 90mg Q8W HBV DNA-, HBeAg+ only

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HBeAg: HBV E antigen | **TDF:** tenofovir disoproxil fumarate

Data presented at EASL 2022

Robust HBsAg Declines Irrespective of Dose, Dosing Schedule, HBeAg or HBV DNA Status

Mean (SE) Baseline and Δ log_{10} HBsAg by Visit

Visit	HBV DNA-					HBV DNA+
	Cohort E (N=7)	Cohort F (N=7)	Cohort I (N=6)	Cohort J (N=7)	Cohort K (N=7)	Cohort G (N=7)
Baseline	3.51 (0.20)	3.53 (0.17)	3.36 (0.23)	3.37 (0.28)	3.23 (0.14)	3.14 (0.14)
Treatment Week 12	-1.10 (0.15)	-1.02 (0.11)	-1.30 (0.19)	-1.06 (0.31)	-1.63 (0.39)	-1.56 (0.32)
Treatment Week 24	-1.84 (0.16)	-1.57 (0.09)	-1.79 (0.22)	-1.56 (0.25)	-1.99 (0.35)	-1.82 (0.29)
Treatment Week 48	-1.89 (0.18)	-1.90 (0.14)	-1.91 (0.32)	-1.80 (0.41)	-2.57 (0.61)	-2.05 (0.31)
Follow Up Week 12	-1.74 (0.20)	-1.59 (0.23)	-1.42 (0.26)	-1.52 (0.40)	-2.38 (0.75)	-1.50 (0.13)
Follow Up Week 24	-1.43 (0.18)	-1.26 (0.21)	-1.37 (0.39)	-1.49 (0.35)	-1.82 (0.63)	-1.53 (0.29)
Follow Up Week 48	-1.55 (0.56)	-1.01 (0.24)	-0.88 (0.33)	-1.04 (0.20)	-1.86 (0.70)	-1.10 (0.27)

Data shown as mean (SE) log_{10} IU/mL; minimum of 5 subjects/timepoint. Last AB-729 dose Cohort E: Week 44, Cohorts F, I, G, K: Week 40, Cohort J: Week 36; HBsAg Assay LLOQ = 0.07 IU/mL; *N=6; [a]N=5

- All Cohorts achieved at least a -1.8 log_{10} decline in mean HBsAg at the end of the treatment period (Week 48)
- Mean HBsAg levels remained below baseline values at Follow Up Week 48
- There were no significant differences in mean HBsAg declines between the 60 mg and 90 mg doses or between different dosing intervals

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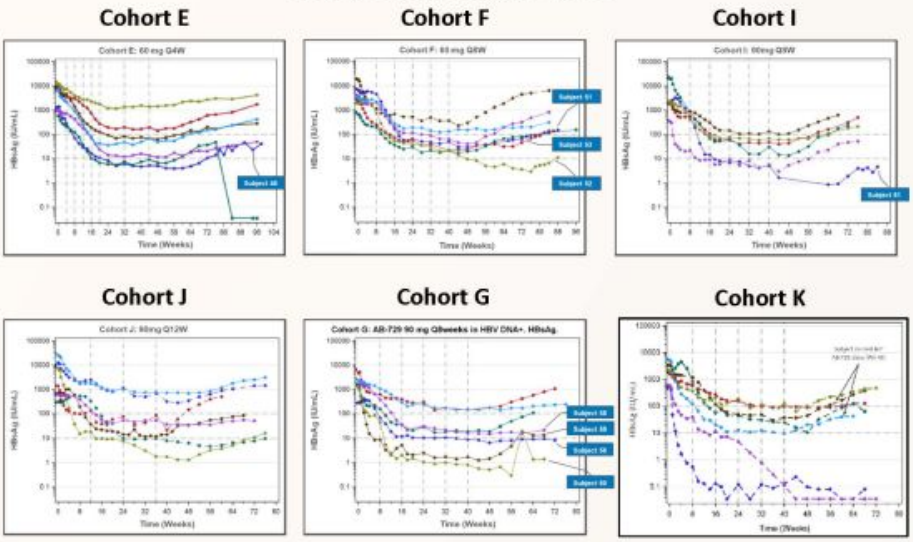
Data presented at Global Hepatitis Summit 2023

AB-729-001: Robust & Sustained HBsAg Declines While On- or Off-Treatment with AB-729

Change in HBsAg vs time



- 33 of 41 patients had HBsAg < 100 IU/mL at some point during the trial
- 1 patient in Cohort E (baseline HBsAg = 583.5 IU/mL) who qualified but declined to participate in NA discontinuation seroconverted at Week 84 (HBsAg < LLOQ and HBsAb = 189 IU/mL at last visit); liver enzymes remained within normal limits.
- 2 patients in Cohort K reached HBsAg<LLOQ on multiple visits with detectable HBsAb levels

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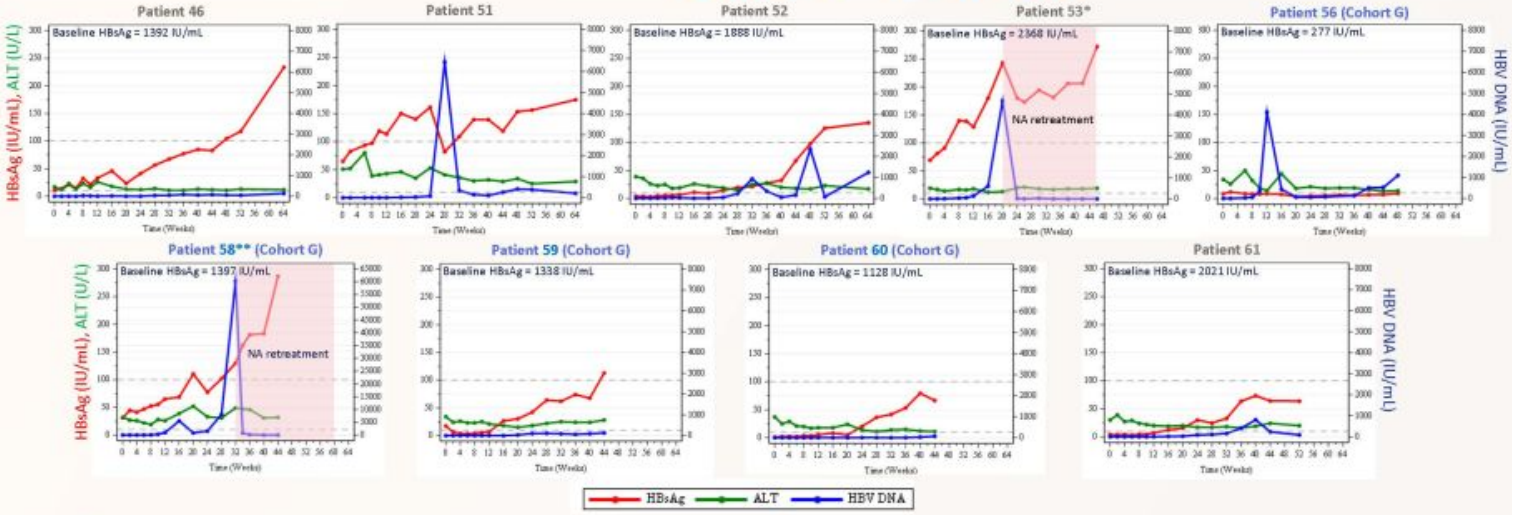
Data presented at EASL 2022 and AASLD 2022

AB-729-001: AB-729 Shows Low Levels of HBV Biomarkers Persisting in cHBV Patients While Off-Treatment



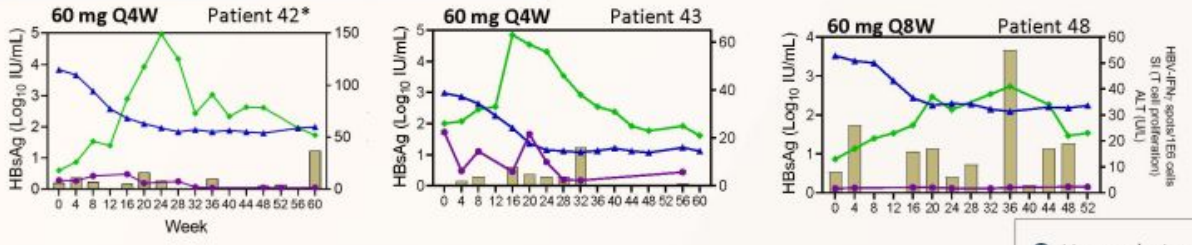
- 7 of 9 (78%) subjects remain off NA therapy for 44-64 weeks and all completed AB-729 treatment over 1½ years ago
- Most subjects have maintained low HBV DNA levels off treatment
- HBsAg remains between -0.8 and -1.6 $\log_{10}$ IU/mL below baseline values
- NA discontinuation post-AB-729 treatment appears well tolerated with no ALT flares

Arbutus BIOPHARMA Data presented at GHS 2023

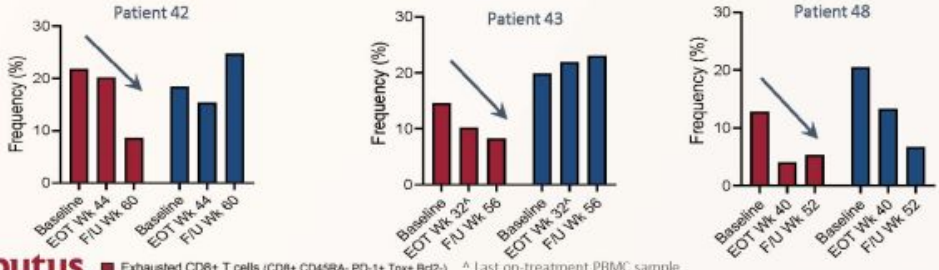
* Patient 53 restarted NA therapy at Investigator's request after the NA d/c FU W20 visit (pink shaded area).
** Patient 58 restarted therapy after the NA d/c FU W36 visit (pink shaded area).

AB-729-001: Treatment with AB-729 Reactivates HBV Specific Immunity in Some Patients

AB-729 Increased HBV-Specific T-Cell Activation



AB-729 Decreased Exhausted T-Cells



- Upregulation of HBV-specific T-cell activation markers observed in all 7 patients assessed to date
- Two profiles of HBV-specific T cell IFN-γ responses observed
  - Elevation between Wk 16-28 which coincides with nadir of HBsAg reduction
  - *Elevation after AB-729 dosing completed, between Wk 48-60

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Exhausted CD8+ T cells (CD8+ CD45RA- PD-1+ Tox+ Bcl2-)

Effector CD8+ T cells (CD8+ CD45RA- PD-1+ Tox- Bcl2+)

^ Last on-treatment PBMC sample available prior to last dose at Wk 44

Data presented at EASL 2022

AB-729-001 Safety Summary

- AB-729 is generally safe and well-tolerated after repeat dosing for up to 48 weeks
- No treatment-related SAEs or discontinuations due to AEs
- No treatment-related Grade 3 or 4 AEs
- No treatment-related Grade 3 or 4 laboratory abnormalities
  - Grade 1 and Grade 2 ALT elevations have improved or stabilized with continued treatment
- Injection site AEs were all Grade 1 (erythema, pain, bruising)
- No clinically meaningful changes in ECGs or vital signs
- After NA treatment discontinuation, no ALT flares have been observed

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SAE: Serious Adverse Event | AE: Adverse Event

AB-729-001 Clinical Trial Key Takeaways

AB-729 provided robust and comparable HBsAg declines regardless of dose, dosing interval, HBeAg or DNA status

Discontinuation of both AB-729 and NA-therapy results in sustained reduction in HBsAg and HBV DNA in 7 of 9 patients

AB-729 results in HBV-specific T-cell immune restoration and decrease of exhausted T-cells in some patients

AB-729 was generally safe and well-tolerated after completing dosing in 41 patients

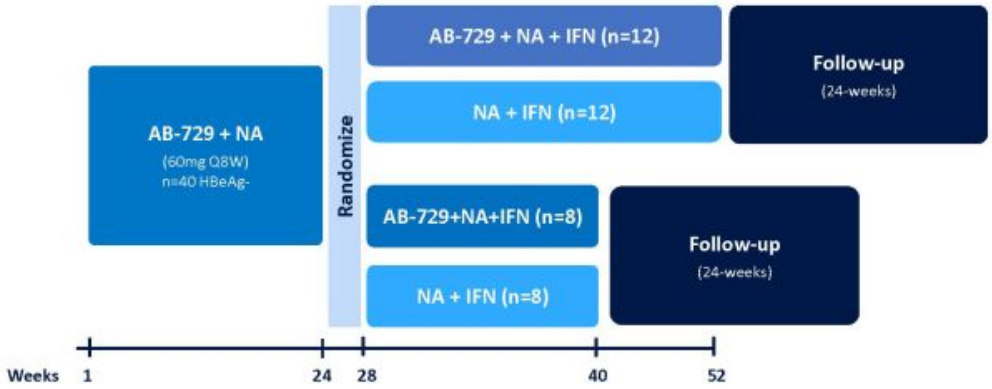
* Data previously presented

AB-729-201:

Phase 2a POC Clinical Trial

AB-729 in combination with **ongoing NA therapy and short courses of Peg-IFNα-2a in cHBV patients**

Enrollment complete. Additional preliminary data including IFN data expected in 1H '23



Multi-center, open-label Phase 2a

Primary objective: evaluate safety and tolerability of AB-729 in combination with Peg-IFNa-2a in patients with NA-suppressed cHBV

Preliminary results: First 15 patients who reached week 16 (two doses of AB-729), the mean HBsAg decline was 1.51 log

After 24-weeks follow-up, patients may elect to stop NA therapy. Those patients that stop NA therapy will be followed for an additional 48 weeks.

POC: Proof of Concept

AB-729-202:

Phase 2a POC Clinical Trial

vaccitech

POC Phase 2a clinical trial evaluating AB-729 in combination with Vaccitech's immunotherapeutic, VTP-300, and a NA

Preliminary data expected in 2H '23

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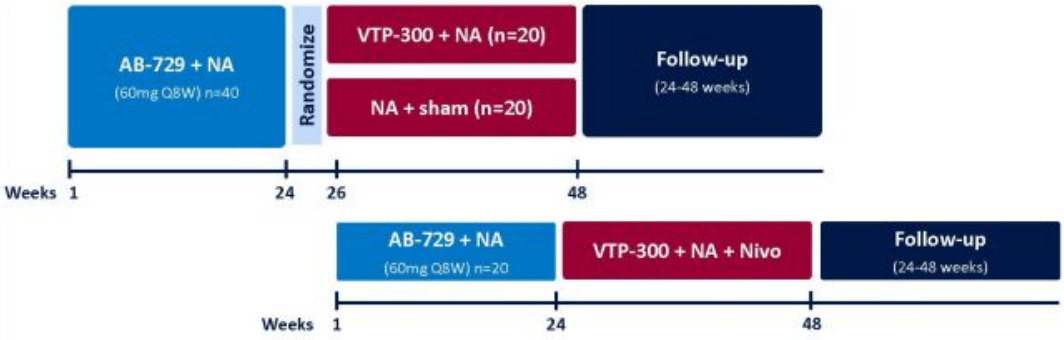

Primary objective: evaluate safety and reactogenicity of AB-729 followed by VTP-300 or placebo

At week 48 all participants who are eligible to discontinue NA therapy will be followed for 48-weeks

Expand the clinical trial to include an additional arm with nivolumab (Opdivo®), and dose first patient in this arm in the first half of 2023

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

AB-729

Strategic Collaboration

QILU PHARMACEUTICAL

Exclusive Licensing* and Strategic Partnership

Develop, manufacture and commercialize AB-729 in mainland China, Hong Kong, Macau and Taiwan

*ABUS retains the non-exclusive right to develop and manufacture in the Qilu territory for exploiting AB-729 in the rest of the world

Arbutus BIOPHARMA

Deal economics for Arbutus:

$40M	Upfront payment (received in 2022)
$15M	Equity investment (received in 2022)
Up to $245M	Commercialization and milestone payments
Double-digit up to low twenties %	Tiered royalties on annual sales

Qilu Pharmaceutical:

One of the leading pharmaceutical companies in China, provides development, manufacturing, and commercialization expertise to this partnership

AB-161: Next Generation Oral RNA Destabilizer

Safety

Next generation small molecule overcomes peripheral neuropathy non-clinical safety findings with first generation molecule

Novelty

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

Convenience

Potential for an **oral HBsAg reducing agent** and all oral combination therapy

AB-161 is currently in a Phase 1 clinical trial

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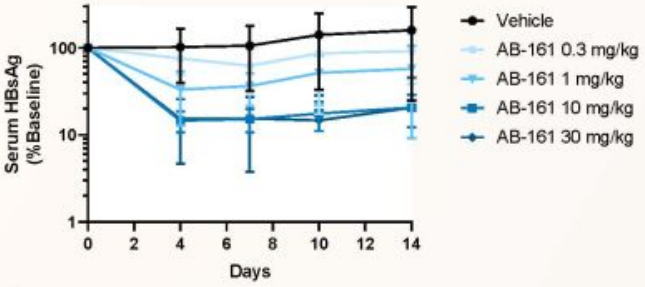
AB-161 Reduces HBsAg in AAV-HBV Mouse Model

Compound concentration in liver drives efficacy

- AB-161 effective as a once-daily dose in AAV-HBV mouse model (0.3, 1, 10, 30 mg/kg QD)
  - Dose-dependent reduction of HBsAg, also observed with BID dosing (0.3 and 1 mg/kg BID)
- HBsAg reduction achieved when fraction unbound C_{24h} > EC_{90} in liver

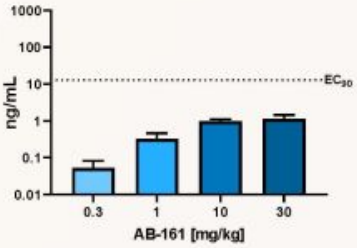
AAV-HBV mouse

AB-161 QD for 14 days

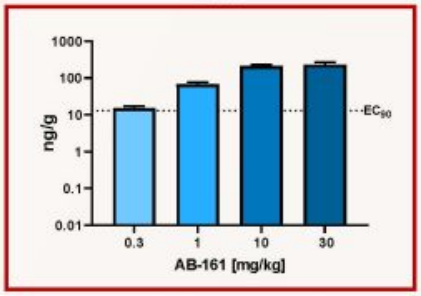


Fraction Unbound Concentrations (C_{24h})

$[AB-161]_{free}$: plasma



$[AB-161]_{free}$: liver



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Data presented at Discovery on Target Conference, October 2022

AB-101: Oral PD-L1 Inhibitor for HBV Immune Reactivation

Rationale

- HBV immune tolerance is a critical driver of cHBV infection
- PD-1:PD-L1 checkpoint axis plays a key role in immune tolerization in cHBV
- PD-L1 expression upregulated during HBV infection
- PD-1 upregulated on HBV-specific T- and B-cells
- Inhibition associated with HBsAg loss in some cHBV patients

Small-Molecule Inhibitor Approach

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

AB-101

- Blocks PD-L1/PD-1 interaction at sub-nM concentrations
- Activates HBV-specific immune responses in T-cells from cHBV patients in vitro
- Novel MOA identified
- Demonstrates a robust checkpoint mediated *in vivo* effect
- Improves HBV-specific T- and B-cell responses *ex vivo*

IND application placed on clinical hold by FDA prior to trial initiation

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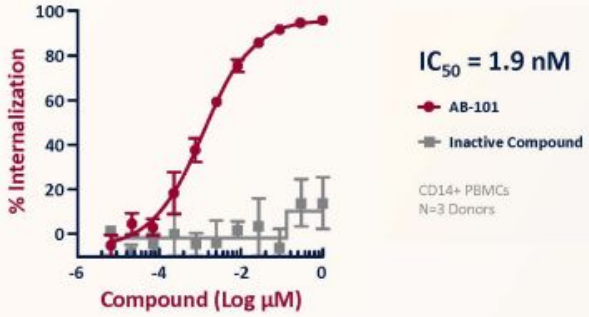
PD-1: Programmed death ligand protein | **Abs:** Antibodies

AB-101: Small-Molecule Oral PD-L1 Inhibitor for HBV

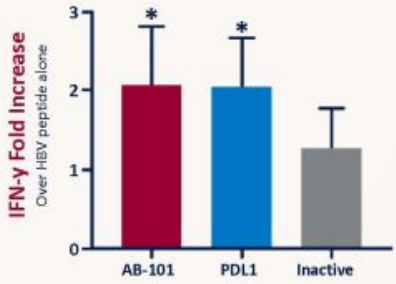
AB-101 is highly potent with demonstrated activity against PD-L1 in cells from chronic HBV patients

AB-101 reduces PD-L1 on the surface of human primary myeloid cells



Data presented at HepDART 2021

AB-101 reinvigorates HBV-specific cHBV patient T-cells



PBMCs
N= cells from 9 cHBV patients
*p<0.05

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PBMC: Peripheral Blood Mononuclear Cells

Coronavirus Program Overview

Cause & Symptoms

- Coronavirus Infections, such as COVID-19 caused by SARS-CoV-2
- Spreads through breathing out droplets and small particles that contain the virus
- Older adults and people with severe underlying conditions at higher risk of developing serious complications
- Virus continues to mutate with variant strains developing

Population

- ~6.9M deaths globally[1]
- In US: ~80M cases; 1M deaths (as of March 2022)

Treatments

Vaccines

- Durability of effect uncertain, boosters required, limited efficacy on variant strains

Therapies

- Sub-optimal

Rationale

- Pan-coronavirus focused: need for effective and safe therapies to combat COVID-19 and future coronavirus outbreaks
- Address essential viral targets – nsp12 viral polymerase and nsp5 viral protease
- Potential for combo therapy to enhance efficacy and reduce symptomology

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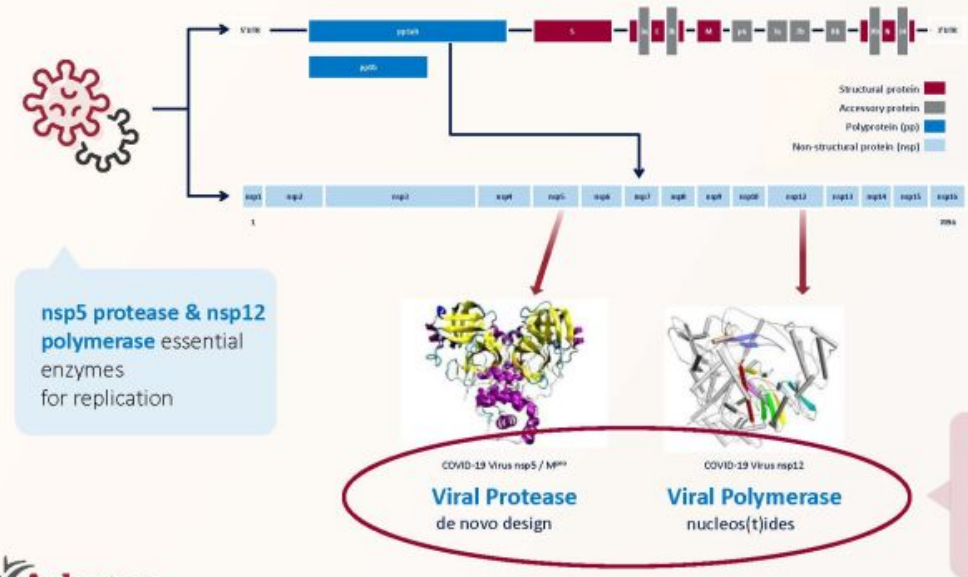
[1] https://www.healthdata.org/special-analysis/estimation-excess-mortality-due-covid-19-and-scalars-reported-covid-19-deaths

Coronavirus Strategy

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



nsp5 protease & nsp12 polymerase essential enzymes for replication

COVID-19 Virus nsp5 / M^{pro}

Viral Protease
de novo design

COVID-19 Virus nsp12

Viral Polymerase
nucleos(t)ides

X-CHEM | PROTEROS

Collaboration

- Proprietary DEL library screening and structural biology for M^{pro} inhibitor discovery
- First milestone reached; several unique compound series that inhibit nsp5 protease identified
- Advancing to lead optimization stage

Arbutus Strategy

- Pan-coronavirus focused
- Combination therapy approach
- Initiate Phase 1 clinical trial for AB-343 in 2H 2023

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AB-343: M^{PRO} Coronavirus Candidate

Activity

- Highly potent (IC_{50} < 8nM)
- Equipotent against all known COVID-19 variants
- Robust activity against M^{pro} resistant variants

Safety

- Highly selective for coronavirus M^{pro} vs human proteases
- Clean cell toxicity profile
- Off-target assessment results unremarkable

Convenience

- Preclinical PK supports ritonavir-free dosing
- No anticipated drug-drug interactions
- Data supports combination strategy

AB-343 is currently in **IND-enabling studies**

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2023 Key Milestones

Cash balance* of $179M as of March 31, 2023, cash runway into Q1 2025; 2023 net cash burn of between $90M and $95M

Milestone	Anticipated Timing 2023
AB-729: Dose first patient in the AB-729+VTP-300+Nivo arm of the ongoing Phase 2a Vaccitech trial	1H
AB-729: Preliminary IFN data from patients in the AB-729-201 clinical trial	1H
AB-729: Follow-up off-treatment data from AB-729-001 clinical trial	1H ✓
AB-729: Preliminary data from Phase 2a POC clinical trial with AB-729 + VTP-300 + NA therapy	2H
AB-161: Initial data from Phase 1 single-ascending dose clinical trial in healthy subjects	2H
AB-343, COVID M^{pro}: Initiate Phase 1 clinical trial	2H
COVID Nsp12: Nominate a clinical candidate and initiate IND-enabling studies	2H

*Consists of cash, cash equivalents and marketable securities

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Thank You

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