# UNITED STATES
# SECURITIES AND EXCHANGE COMMISSION
# Washington, D.C. 20549

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# FORM 8-K

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## CURRENT REPORT

**Pursuant to Section 13 or 15(d)**
**of the Securities Exchange Act of 1934**

**Date of Report (Date of earliest event reported): March 2, 2023**

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

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| **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)

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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 March 2, 2023, Arbutus Biopharma Corporation (the "Company") issued a press release announcing its financial results for the fourth quarter and year ended December 31, 2022 and certain other information. A copy of the press release is furnished herewith as Exhibit 99.1 and is incorporated by reference herein.

**Item 8.01. Other Events.**

On March 2, 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 March 2, 2023 |
| 99.2 | Corporate Presentation dated March 2, 2023 |
| 104 | Cover Page Interactive Data File (embedded within the Inline XBRL document) |

**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: March 2, 2023

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

# Arbutus Reports Fourth Quarter and Year End 2022 Financial Results and Corporate Update

**Significant progress made advancing proprietary programs in chronic HBV and Coronavirus**

**AB-729 data from multiple Phase 2a combination clinical trials expected in 2023**

**Initial Phase 1 data for oral PD-L1, AB-101, and oral RNA Destabilizer, AB-161, expected in the second half of 2023**

**Initiate Phase 1 clinical trial for oral $M^{pro}$ coronavirus candidate, AB-343, expected in the second half of 2023**

**Strengthened financial position – cash runway into Q4 2024**

**Conference Call and Webcast Today at 8:45 AM ET**

WARMINSTER, Pa., March 02, 2023 (GLOBE NEWSWIRE) -- Arbutus Biopharma Corporation (Nasdaq: ABUS), a clinical-stage biopharmaceutical company leveraging its extensive virology expertise to develop novel therapeutics that target specific viral diseases, today reported fourth quarter and year end 2022 financial results and provided a corporate update.

"In 2022 we focused on three key initiatives: exploring several combination therapies with AB-729, our RNAi therapeutic, as a potential cornerstone agent in a functional cure for hepatitis B virus; advancing our preclinical HBV compounds AB-101, our oral PD-L1 inhibitor, and AB-161, our oral RNA destabilizer; and identifying a clinical candidate that inhibits the SARS-CoV-2 nsp5 main protease," said William Collier, Arbutus' President and Chief Executive Officer. "With promising AB-729 data in-hand and plans to initiate phase 1 clinical trials with AB-101, AB-161 and our newly nominated pan-coronavirus $M^{pro}$ compound, AB-343, we achieved our 2022 corporate objectives and are now well-positioned to further execute on these strategic initiatives to deliver multiple clinical milestones this year. The need for a functional cure for patients with cHBV and alternatives to treat COVID-19 and future coronavirus outbreaks remains urgent, and we look forward to advancing our pipeline to address these large global market opportunities."

**Pipeline Updates and Key Milestones**

**AB-729 (RNAi Therapeutic)**

- In the first half of 2023, we anticipate announcing additional off-treatment data from those patients in our Phase 1b clinical trial, AB-729-001, who have discontinued both AB-729 and nucleos(t)ide analogue (NA) therapy. Recently, one of the patients has met the protocol-defined HBV DNA criteria to restart their NA therapy. We are continuing to follow the seven patients who remain off-treatment.
- To assess AB-729 as a potential cornerstone agent in a functional cure for cHBV, we are conducting a Phase 2a clinical trial, AB-729-201, evaluating 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 cHBV infection. 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 first half of 2023.
- We are conducting a Phase 2a clinical trial, AB-729-202, evaluating AB-729, NA therapy and Vaccitech's antigen-specific immunotherapeutic, VTP-300. We have recently amended the clinical trial to include an additional arm with an approved PD-1 inhibitor, nivolumab (Opdivo®). Upon regulatory approval of the amendment, 20 patients will receive AB-729 (60mg every 8 weeks) plus NA therapy for 24 weeks, followed by VTP-300 plus a low dose of nivolumab in conjunction with the booster dose(s) only while remaining on their NA therapy. At week 48, all patients will be evaluated for eligibility to discontinue NA therapy and will be followed for an additional 24-48 weeks. We expect to dose the first patient in the amended arm in the first half of 2023 and announce preliminary data from patients who receive AB-729, NA and VTP-300 in the second half of 2023.
- Through our collaboration with Assembly Biosciences Inc., (Assembly), we are conducting a Phase 2a proof-of-concept clinical trial evaluating AB-729 in combination with Assembly's first-generation HBV core inhibitor, vebicorvir (VBR) and NA therapy. Preliminary data from sixty-five patients in the trial showed that the addition of VBR did not positively or negatively impact the reduction of HBsAg in the triple arm combination. Accordingly, we have mutually agreed to discontinue the clinical trial following completion of the final, on-treatment visit at week 48.

**AB-101 (Oral PD-L1 Inhibitor)**

- To reawaken and boost the immune system of patients with cHBV, we are developing AB-101, our oral PD-L1 inhibitor. 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. We expect to initiate a Phase 1 healthy subject clinical trial with AB-101 in the first half of 2023 with data from the single-ascending dose portion of this trial expected in the second half of 2023.

**AB-161 (Oral RNA destabilizer)**

- AB-161 is our next-generation oral HBV specific RNA destabilizer, which is being developed to create an all-oral treatment regimen to functionally cure HBV. Preclinical data generated thus far shows that AB-161 is effective as a once-daily dose in reducing HBsAg in an HBV mouse model. We expect to initiate a Phase 1 healthy subject clinical trial with AB-161 in the first half of 2023 with single-ascending dose data expected in the second half of 2023.

**COVID-19 and Pan-Coronavirus Programs**

- We have nominated, AB-343 as our lead coronavirus drug candidate that inhibits the main protease ($M^{pro}$). In pre-clinical research conducted thus far, 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 expect to complete IND-enabling studies and initiate a Phase 1 clinical trial with AB-343 in the second half of 2023.
- Our research efforts directed to identifying an nsp12 viral polymerase clinical candidate are continuing. 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 a nsp12 clinical candidate and initiate IND-enabling studies in the second half of 2023.

**Financial Results**

**Cash, Cash Equivalents and Investments**

As of December 31, 2022, we had cash, cash equivalents and investments in marketable securities of $184.3 million as compared to $191.0 million as of December 31, 2021.

During the year ended December 31, 2022, we received a $40.0 million (net of withholding taxes) upfront payment from Qilu Pharmaceutical Co., Ltd. ("Qilu") related to a technology transfer and license agreement for AB-729 in greater China, $15.0 million of gross proceeds from Qilu's equity investment in us and $20.3 million of net proceeds from the issuance of common shares under Arbutus's "at-the-market" offering program. These cash inflows were partially offset by $79.4 million of cash used in operations. We expect a net cash burn between $95 to $100 million in 2023 and believe our cash runway will be sufficient to fund our operations into the fourth quarter of 2024.

**Revenue**

Total revenue was $39.0 million for the year ended December 31, 2022 compared to $11.0 million for the same period in 2021. The increase of $28.0 million was due primarily to $26.0 million of revenue recognition from our license agreement with Qilu based on employee labor hours expended by us during 2022 to perform our manufacturing obligations under the license agreement.

**Operating Expenses**

Research and development expenses were $84.4 million for the year ended December 31, 2022 compared to $65.5 million for the same period in 2021. The increase of $18.9 million was due primarily to an increase in expenses related to our multiple ongoing AB-729 Phase 2a clinical trials, an increase in expenses for our early-stage development programs, including AB-101 and AB-161, and an increase in compensation costs due to hiring several new employees for our research and development team in early 2022, partially offset by a decrease in expenses for our AB-836 Phase 1a/1b clinical trial, which we discontinued during the fourth quarter of 2022.

**Net Loss**

For the year ended December 31, 2022, our net loss attributable to common shares was $69.5 million, or a loss of $0.46 per basic and diluted common share, as compared to a net loss of $88.4 million, or a loss of $0.83 per basic and diluted common share, for the year ended December 31, 2021. Net loss attributable to common shares for the year ended December 31, 2021 included $12.1 million of non-cash expense for the accrual of coupon on our convertible preferred shares, which converted into 22.8 million common shares in October 2021.

**Outstanding Shares**

As of December 31, 2022, we had approximately 157.5 million common shares issued and outstanding, as well as approximately 15.5 million stock options outstanding. Roivant Sciences Ltd. owned approximately 25% of our outstanding common shares as of December 31, 2022.

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

| | Year ended December 31, | |
|---|---|---|
| | **2022** | **2021** |
| **Revenue** | | |
| Collaborations and licenses | $ 31,366 | $ 4,880 |
| Non-cash royalty revenue | 7,653 | 6,108 |
| **Total revenue** | 39,019 | 10,988 |
| **Operating expenses** | | |
| Research and development | 84,408 | 65,502 |
| General and administrative | 17,834 | 17,136 |
| Change in fair value of contingent consideration | 2,233 | 1,872 |
| **Total operating expenses** | 104,475 | 84,510 |
| **Loss from operations** | (65,456) | (73,522) |
| **Other income (loss)** | | |
| Interest income | 2,192 | 127 |
| Interest expense | (1,726) | (2,857) |
| Foreign exchange (losses) gains | (22) | 5 |
| Total other income (loss) | 444 | (2,725) |
| **Loss before income taxes** | (65,012) | (76,247) |
| Income tax expense | (4,444) | — |
| **Net loss** | (69,456) | (76,247) |
| **Items applicable to preferred shares** | | |
| Dividend accretion of convertible preferred shares | — | (12,139) |
| **Net loss attributable to common shares** | $ (69,456) | $ (88,386) |
| **Net loss per common share** | | |
| Basic and diluted | $ (0.46) | $ (0.83) |
| **Weighted average number of common shares** | | |
| Basic and diluted | 150,939,337 | 106,242,452 |

**UNAUDITED CONDENSED CONSOLIDATED BALANCE SHEETS**

**(in thousands)**

| | December 31, 2022 | December 31, 2021 |
|---|---|---|
| Cash, cash equivalents and marketable securities, current | $ 146,913 | $ 155,317 |
| Accounts receivable and other current assets | 4,226 | 5,344 |
| **Total current assets** | 151,139 | 160,661 |
| Property and equipment, net of accumulated depreciation | 5,070 | 5,983 |
| Investments in marketable securities, non-current | 37,363 | 35,688 |
| Right of use asset | 1,744 | 2,092 |
| Other non-current assets | 103 | 61 |
| **Total assets** | $ 195,419 | $ 204,485 |
| Accounts payable and accrued liabilities | $ 16,029 | $ 10,838 |
| Deferred license revenue, current | 16,456 | — |
| Lease liability, current | 372 | 383 |
| **Total current liabilities** | 32,857 | 11,221 |
| Liability related to sale of future royalties | 10,365 | 16,296 |
| Deferred license revenue, non-current | 5,999 | — |
| Contingent consideration | 7,531 | 5,298 |
| Lease liability, non-current | 1,815 | 2,231 |
| Total stockholders' equity | 136,852 | 169,439 |
| **Total liabilities and stockholders' equity** | $ 195,419 | $ 204,485 |

**UNAUDITED CONDENSED CONSOLIDATED STATEMENTS OF CASH FLOW**
**(in thousands)**

| | Twelve Months Ended December 31, | |
|---|---|---|
| | 2022 | 2021 |
| Net loss | $ (69,456) | $ (76,247) |
| Non-cash items | 4,857 | 7,790 |
| Change in deferred license revenue | 22,455 | — |
| Other changes in working capital | 6,788 | 925 |
| **Net cash used in operating activities** | (35,356) | (67,532) |
| **Net cash used in investing activities** | (74,942) | (12,678) |
| Issuance of common shares pursuant to Share Purchase Agreement | 10,973 | — |
| Issuance of common shares pursuant to the Open Market Sales Agreement | 20,324 | 134,665 |
| Cash provided by other financing activities | 517 | 2,571 |
| **Net cash provided by financing activities** | 31,814 | 137,236 |
| Effect of foreign exchange rate changes on cash and cash equivalents | (22) | 5 |
| **(Decrease) increase in cash and cash equivalents** | (78,506) | 57,031 |
| Cash and cash equivalents, beginning of period | 109,282 | 52,251 |
| **Cash and cash equivalents, end of period** | 30,776 | 109,282 |
| Investments in marketable securities | 153,500 | 81,723 |
| **Cash, cash equivalents and marketable securities, end of period** | $ 184,276 | $ 191,005 |

**Conference Call and Webcast Today**

Arbutus will hold a conference call and webcast today, Thursday, March 2, 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 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 robust pan-coronavirus antiviral activity, no reduction in potency against known SARS-CoV-2 variants, and $M^{pro}$ 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**

**Investors and Media**

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Arbutus BIOPHARMA

# Corporate Presentation

NASDAQ: ABUS

www.arbutusbio.com

March 2, 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<br>PD-L1 inhibitor<br>RNA destabilizer<br>$M^{pro}$ inhibitor<br>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 Q4 2024 | Receiving licensing royalties arising from Alnylam's Onpattro® and seeking damages for Moderna-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

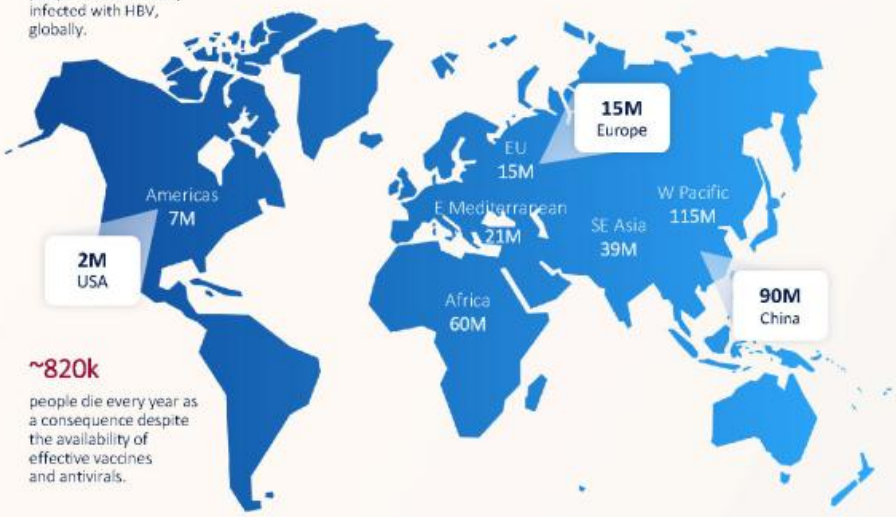
Arbutus BIOPHARMA

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

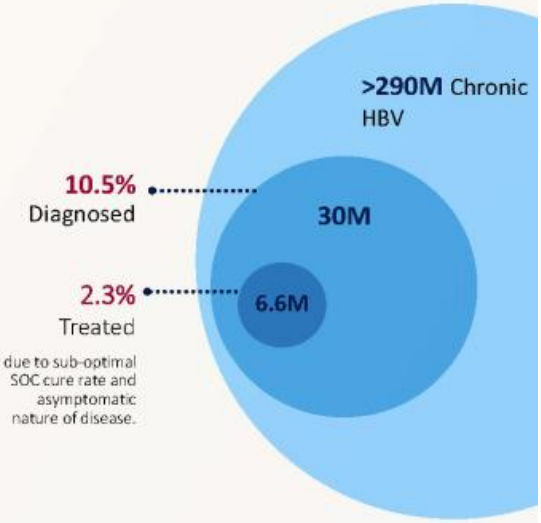
 

# HBV Presents a Significant Unmet Medical Need

**>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.

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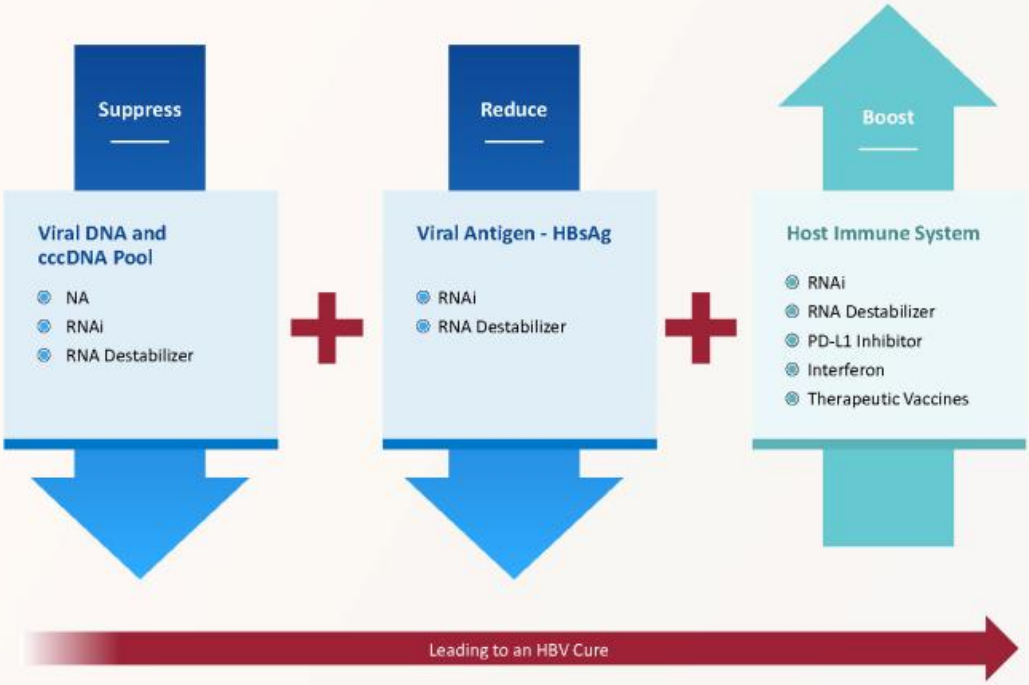
SOC: Standard of Care

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.



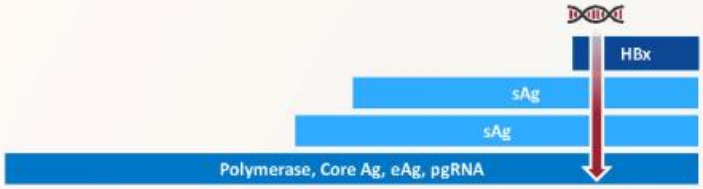

 

AB-729

# 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**

| Nominal 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 (IU/mL) | 3.51 (0.20) | 3.53 (0.17) | 3.36 (0.23) | 3.37 (0.28) | 3.23 (0.14) | 3.14 (0.14) |
| Week 48 | -1.89 (0.18) | -1.90 (0.14) | 1.91[#] (0.32) | -1.80* (0.41) | -2.57[#] (0.61) | -2.15 (0.34) |
| | | | | | | |
| Week 24 Post Last Dose | -1.54 (0.19) | -1.48* (0.24) | -1.67* (0.40) | -1.52* (0.40) | -2.31[#] (0.78) | -1.59 (0.31) |

Data shown as mean (SE) $log_{10}$ IU/mL; 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; #N=5

- Mean declines in HBsAg on treatment and post treatment continue to be comparable across cohorts
- Results to date from a dedicated HBeAg+ cohort (Cohort K) further support preliminary observations suggesting that baseline HBeAg status has no negative effect on response
- Sustained HBsAg suppression up to 24 weeks post last dose

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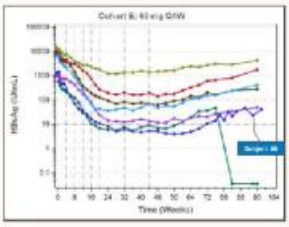
Data presented at EASL 2022 and AASLD 2022

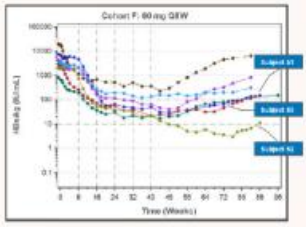
# AB-729-001: Robust & Sustained HBsAg Declines While On- or Off-Treatment with AB-729

**Change in HBsAg vs time**

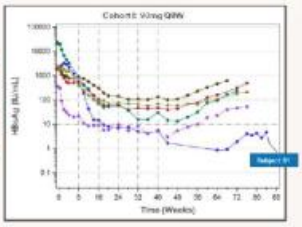
**Cohort E**



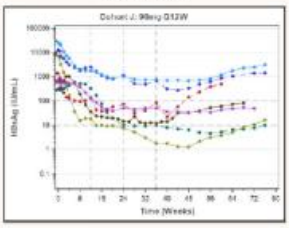
**Cohort F**



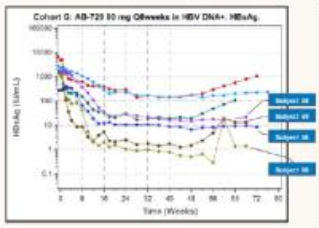
**Cohort I**



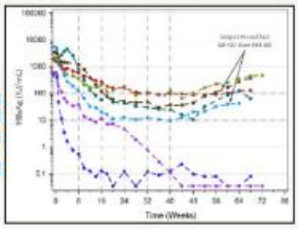
**Cohort J**



**Cohort G**



**Cohort K**



- 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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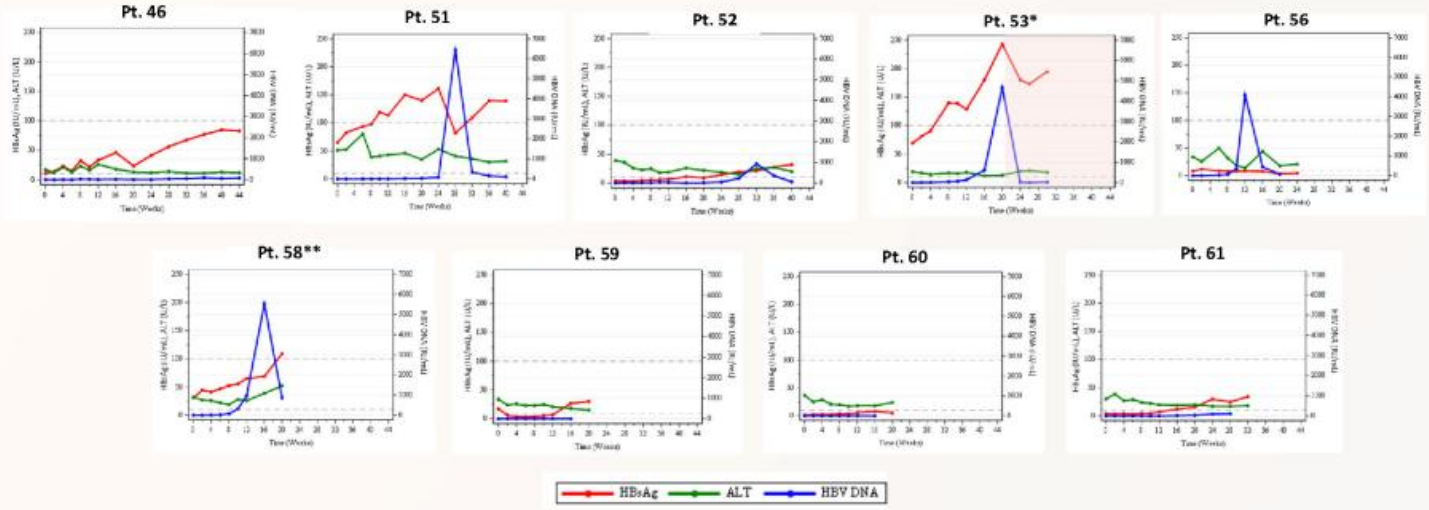
Data presented at EASL 2022 and AASLD 2022

# AB-729-001: AB-729 Shows Meaningful Suppression of HBV Biomarkers in cHBV Patients While Off-Treatment




- HBV DNA has transiently increased in some patients and subsequently decreased with no intervention

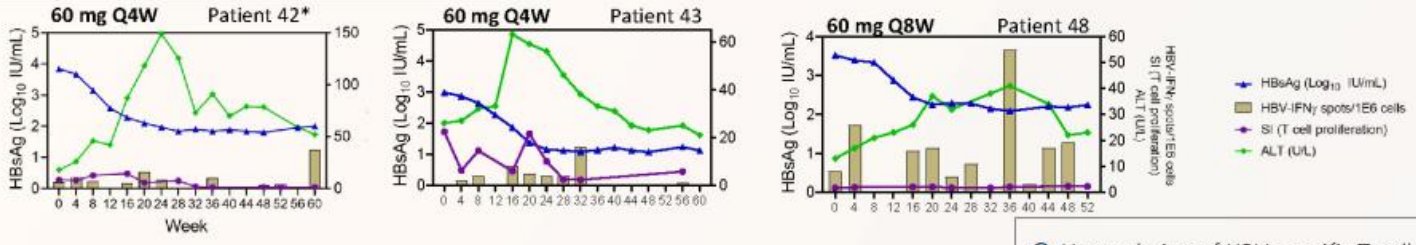
* Patient 53 restarted NA therapy at Investigator's request after the NA d/c FU W20 visit (pink shaded area).

Data presented at AASLD 2022 ** Patient 58 restarted therapy after the NA d/c FU W36 visit.

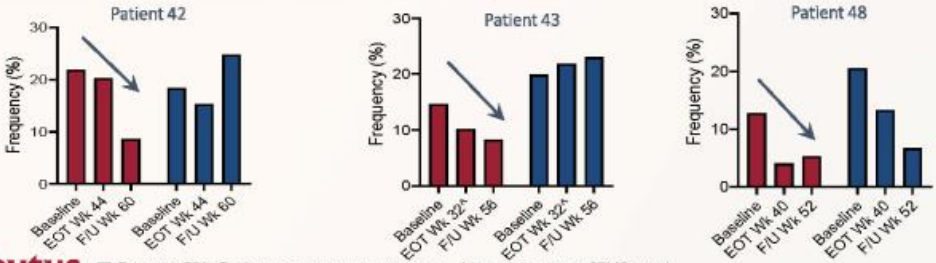
 

# AB-729-001: Treatment with AB-729 Reactivates HBV Specific Immunity in Some Patients

## 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

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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**

- ~75% (26 of 34) patients had HBsAg levels <100 at some point during the trial
- 50% (16 of 32) patients maintained HBsAg <100 IU/mL for 24 weeks after stopping AB-729 treatment

**Discontinuation of both AB-729 and NA-therapy results in a sustained reduction in HBsAg**

- No evidence of virologic or biochemical relapse detected in 9 patients who discontinued all therapy from 12 to 44 weeks. No patient met protocol-defined criteria to restart NA-therapy as of date data was presented.*

**AB-729 continues to result in HBV-specific T-cell immune restoration and decrease of exhausted T-cells**

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

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* Data presented at AASLD 2022

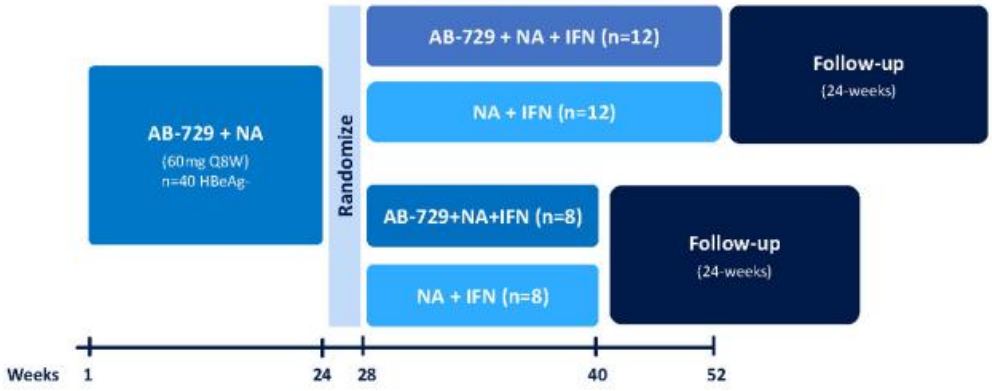
 

**AB-729-201:**

# 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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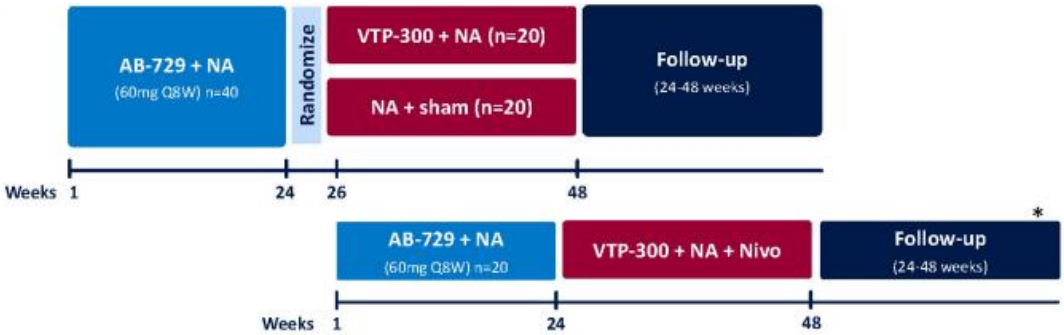


**Primary objective:** evaluate safety and reactogenicity of AB-729 followed by VTP-300 or placebo

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**

* awaiting regulatory approval

 

## 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

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### 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-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*

**AB-101 is advancing into Phase 1 clinical trial in 1H 2023**

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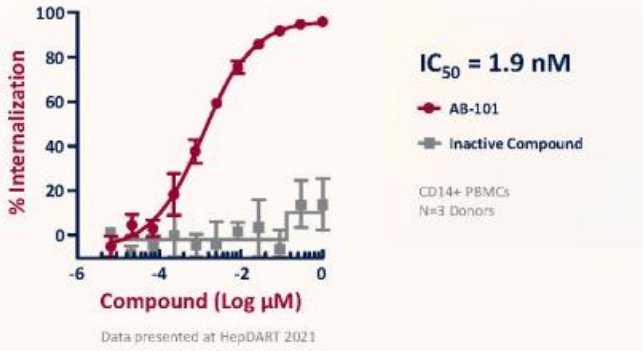
**PD-1:** Programmed death ligand protein | **Abs:** Antibodies

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

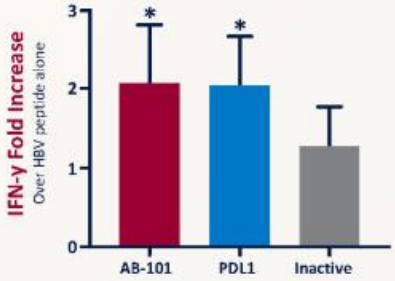
**AB-101 is highly potent with demonstrated activity against PD-L1 in cells from chronic HBV patients**

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

**PBMC:** Peripheral Blood Mononuclear Cells

# AB-161: Next Generation Oral RNA Destabilizer

### Safety

**Next generation small molecule** anticipated to circumvent 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 advancing into Phase 1 clinical trial in 1H 2023**

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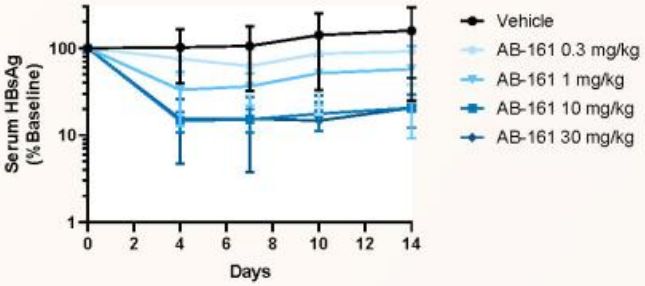
# AB-161 Reduces HBsAg in AAV-HBV Mouse Model

## 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

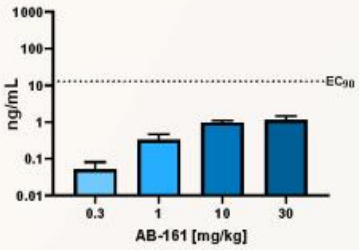
**AAV-HBV mouse**

AB-161 QD for 14 days

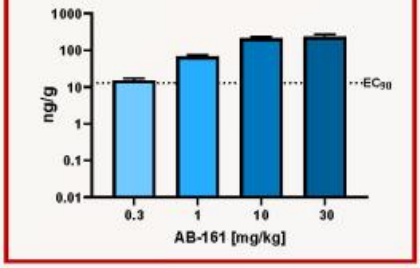



**Fraction Unbound Concentrations ($C_{24h}$)**

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




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

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Data presented at Discovery on Target Conference, October 2022

 

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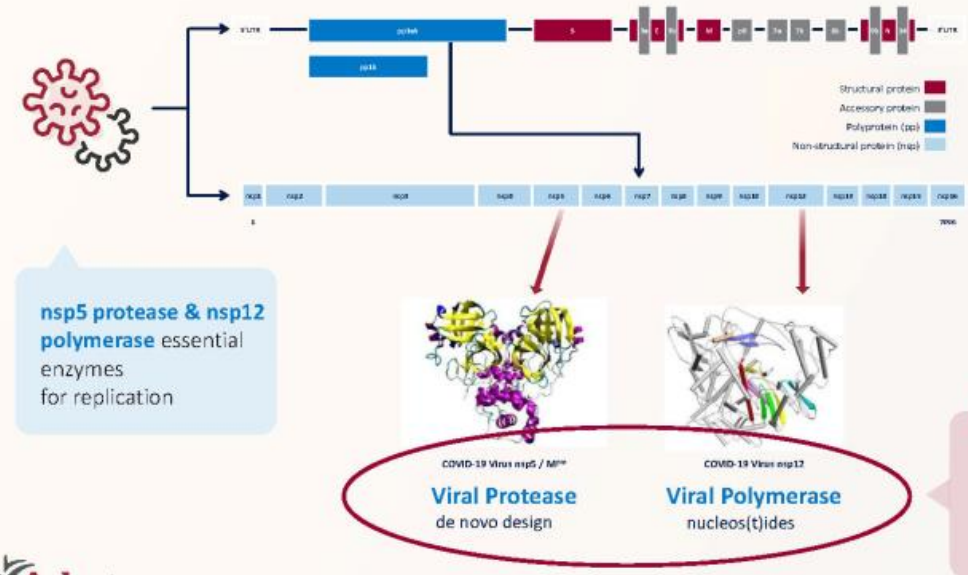
[1] https://www.healthdata.org/special-analysis/estimation-excess-mortality-due-covid-19-and-scalars-reported-covid-19-deaths

# 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
REACH RIGHT FASTER

**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
- Advance $M^{pro}$ clinical candidate, AB-343, into IND-enabling studies in 1H 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 $184M as of December 31, 2022, cash runway into Q4 2024; 2023 net cash burn of between $95 and $100M

| 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-101: Initial data from Phase 1 single-ascending dose portion of trial in healthy subjects | 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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