Arbutus BIOPHARMA

Arbutus's HBV Combination Therapy Approach

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L.I.F.E.R. Meeting | November 11, 2016

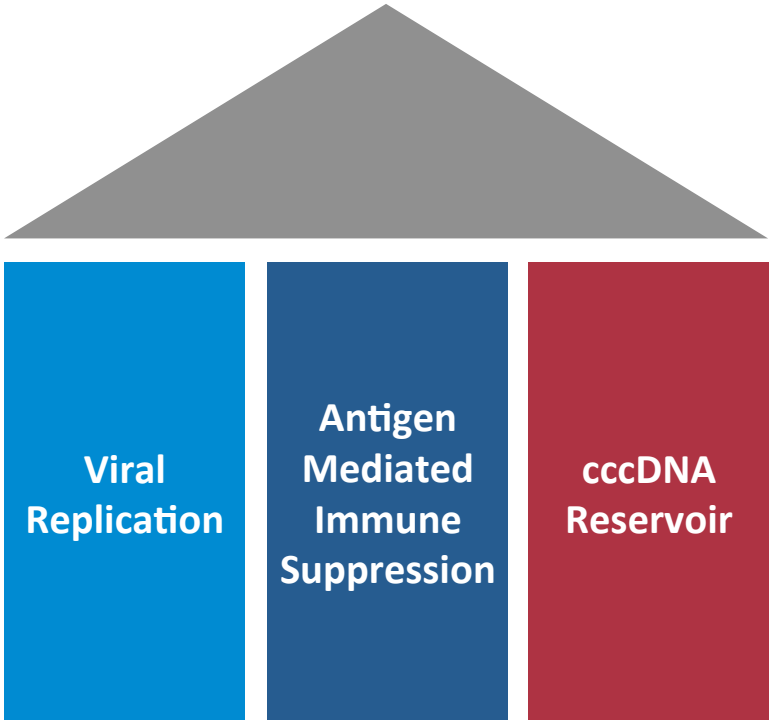
Forward Looking Statements

This presentation contains forward-looking statements within the meaning of 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 presentation include statements about, among others: meeting a significant unmet medical need and market opportunity; developing a curative regimen for HBV; accomplishing the objectives of ARB-1467; HBsAg reduction data from the Phase II trial expected in 2H16; IND (or equivalent) filing for the Core Protein/Capsid Formation Inhibitor Program in 2H16; IND (or equivalent) filing for ARB-1740 in 2H16; the development of HBV products in 2016, with projected milestones; current cash funding the company into late 2018; and non-dilutive financing potential from non-HBV assets and LNP licensing.

With respect to the forward-looking statements contained in this presentation, Arbutus has made numerous assumptions regarding, among other things: stability of economic and market conditions; the effectiveness and commercial viability of the company's products. While Arbutus considers these assumptions to be reasonable, these assumptions are inherently subject to significant business, economic, competitive, market and social uncertainties and contingencies. Forward-looking statements herein involve known and unknown risks, uncertainties and other factors that may cause the actual results, events or developments to be materially different from any future results, events or developments expressed or implied by such forward-looking statements. Such factors include, among others: the company's product pipeline may not prove to be effective or commercially beneficial; and economic and capital market conditions may worsen. A more complete discussion of the risks and uncertainties facing Arbutus appears in Arbutus' Annual Report on Form 10-K and Arbutus' continuous disclosure filings which are available at www.sec.gov and at www.sedar.com. Arbutus disclaims any obligation to update any 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.

Goal: Drug Combinations to Increase Cure Rates

- Development of combinations targeting complementary mechanisms of action
- Broad set of assets under one roof
  - Wedded to the strategy rather than a particular asset or mechanism
  - Early identification of potential synergies
  - Cost and time efficiencies
- Goal is to increase cure rates with finite dosing duration



Arbutus HBV Pipeline

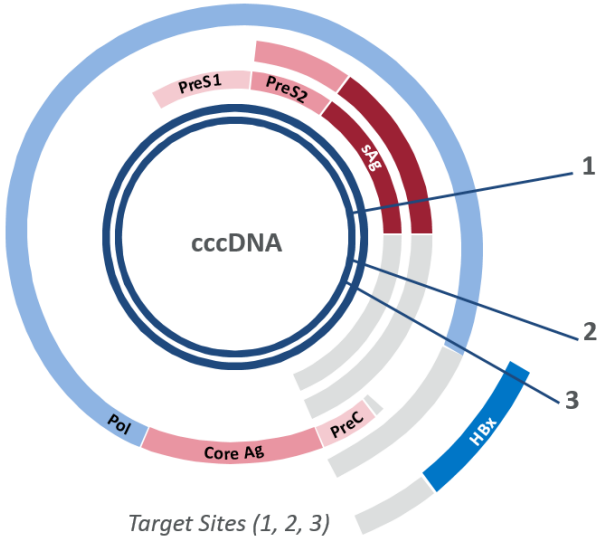
Candidate	Stage of Development: IND Enabling / Phase I / Phase II	Next Milestone
ARB-1467 *RNAi 1.0*		**4Q16**: Additional multidose HBsAg reduction data
ARB-1740 *RNAi 2.0*		**2H16**: File IND (or equivalent)
AB-423 *Core Protein/Capsid Inhibitor*		**2H16**: File IND (or equivalent)

Research programs include:

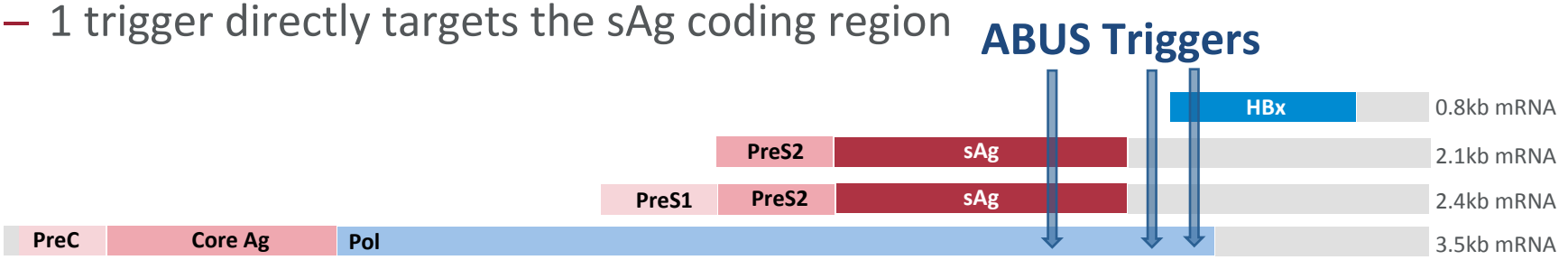
- Next generation capsid inhibitors
- Oral s-antigen (HBsAg) inhibitors
- GalNAc delivered RNAi agents
- cccDNA targeting agents
- Checkpoint inhibitors

ARB-1467 Targets Multiple HBV Genomic Sites

- Unique **3-trigger design** targets all HBV transcripts and prevents production of all antigens
- Target sites are regions of high conservation in HBV viral genomes
- Advantages of ARB-1467:
  - Increased potency and reduced viral resistance
  - Coverage extension to 99.8% of HBV genotypes
  - 1 trigger directly targets the sAg coding region



Target Sites (1, 2, 3)



ARB-1467 Phase II Data Highlights

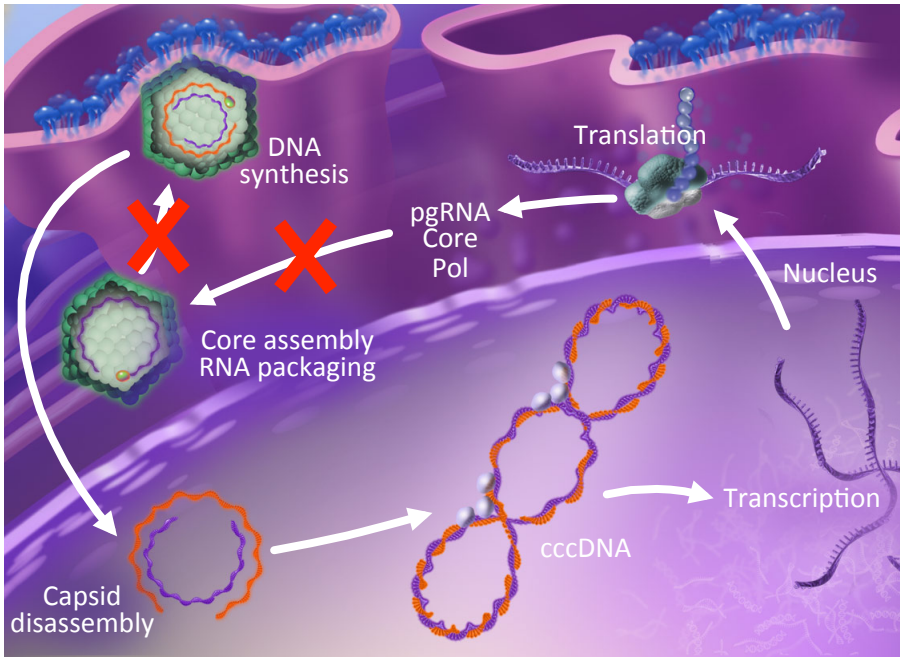
- Significant reductions in serum HBsAg levels
- Multi-dose results show a step-wise, additive reduction in HBsAg
  - Reductions of greater than 0.5 $\log_{10}$ in 5/6 patients (after 3 monthly doses)
- Potential for achieving greater reductions with continued dosing
- Treatment has been generally well-tolerated
  - Cohort 3 is fully enrolled
- First instance of multi-dose data for an RNAi candidate in chronically infected HBV patients

Core Protein/Capsid Formation Inhibitor Program

- Capsid protein encapsidates pregenomic RNA and viral polymerase
- Replenishes host nucleus with rcDNA to generate cccDNA
- Critical in the generation of new infectious virions

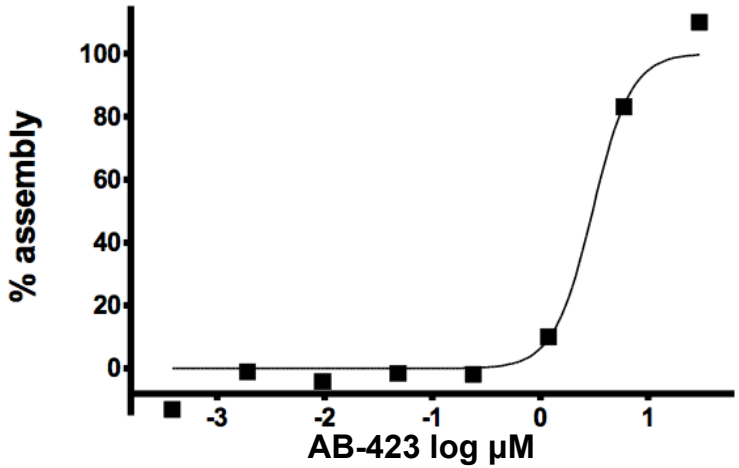
Capsid assembly disruption:

- Primary blocks DNA replication
- Inhibits replenishment of cccDNA of new infectious particles



AB-423 is a Potent Inhibitor of HBV Replication *In Vitro*

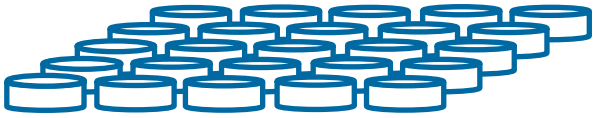
Potency	EC_{50}	EC_{90}	CC_{50}	Endpoint
DESHAe82 (µM)	0.25	1.17	>10	eAg/ELISA
AML12-HBV10 (µM)	0.15	ND	>10	rcDNA/Dot Blot
AML12-HBV10 (µM)	0.28	1.96	>10	rcDNA/bDNA
HepDE19 (µM)	0.34	0.63	>10	rcDNA/bDNA



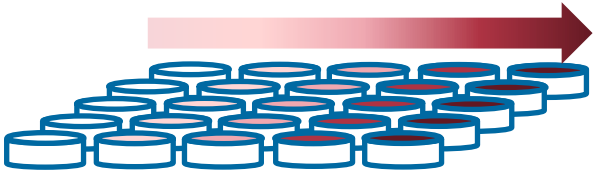
AB-423 misdirects capsid assembly in a biochemical assay. In a biochemical capsid assembly assay, AB-423 misdirects capsid assembly with an IC_{50} value of 3 µM.

In Vitro Studies

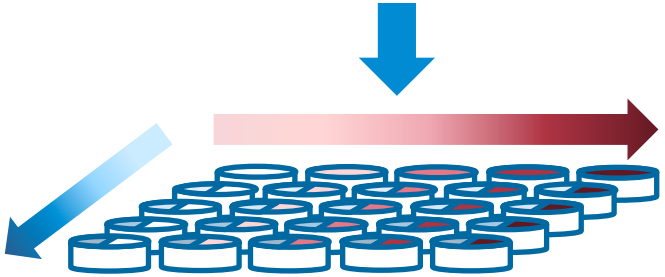
Evaluation of the Effect of 2 compounds on HBV



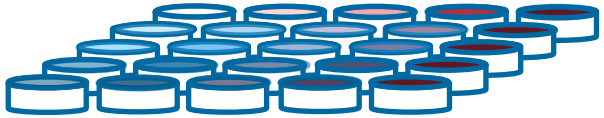
96-well plate containing cells infected by HBV or expressing HBV reporter



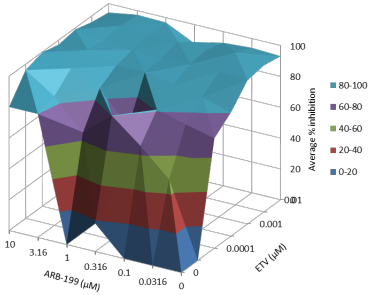
Add concentration range for 1st compound

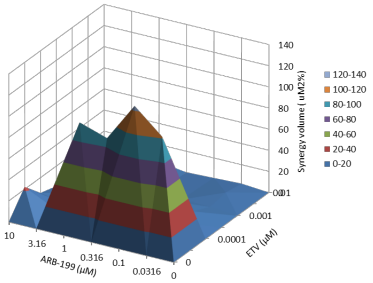


Add concentration range for 2nd compound



Test activity of the 2 compounds together





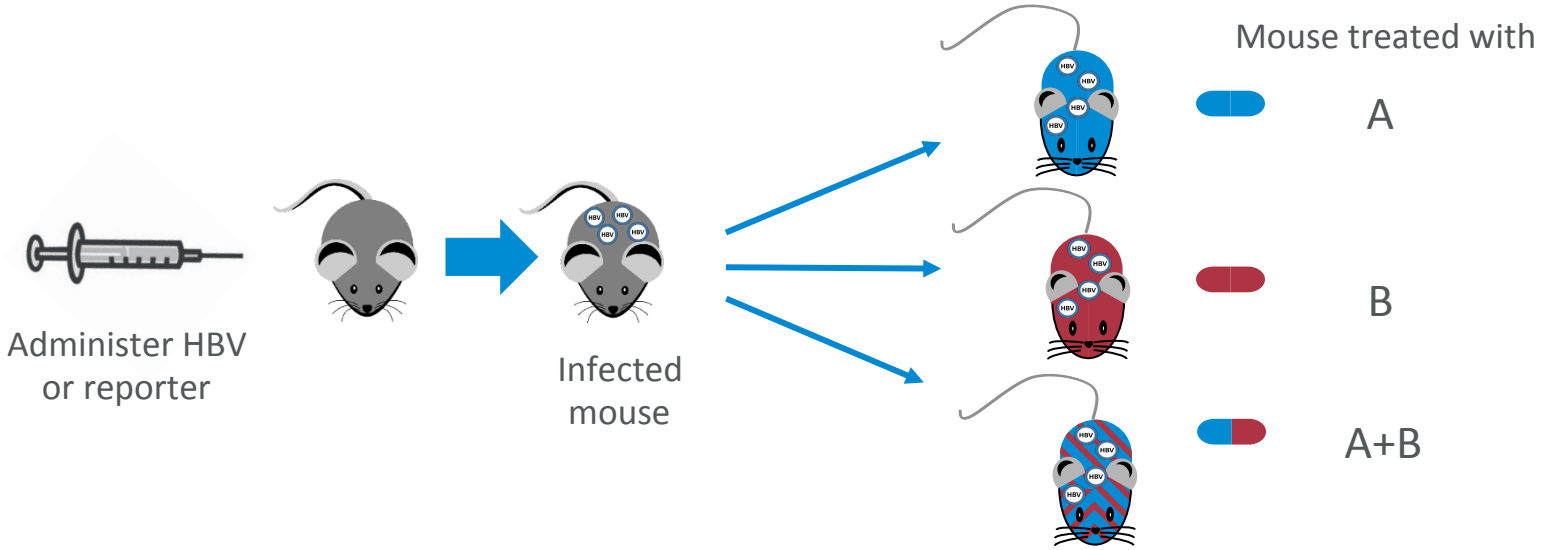
- Greater than additive effects seen at lowest ETV + ARB-199
- Total Synergy volume at 99.99 % CI = 554.53 (log 138.63)
- Total Antagonism volume = -31.19

Outcomes:

- Compounds work against each other: Antagonism
- Compounds don't interfere with each other: Additive
- Compounds enhance each other: Synergy

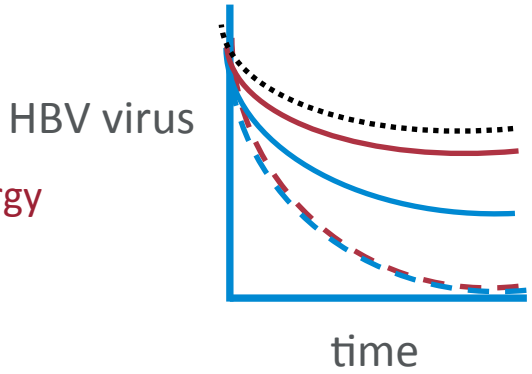
Preclinical Combination Studies

In vivo evaluation of the effect of 2 compounds on HBV



Potential Outcomes:

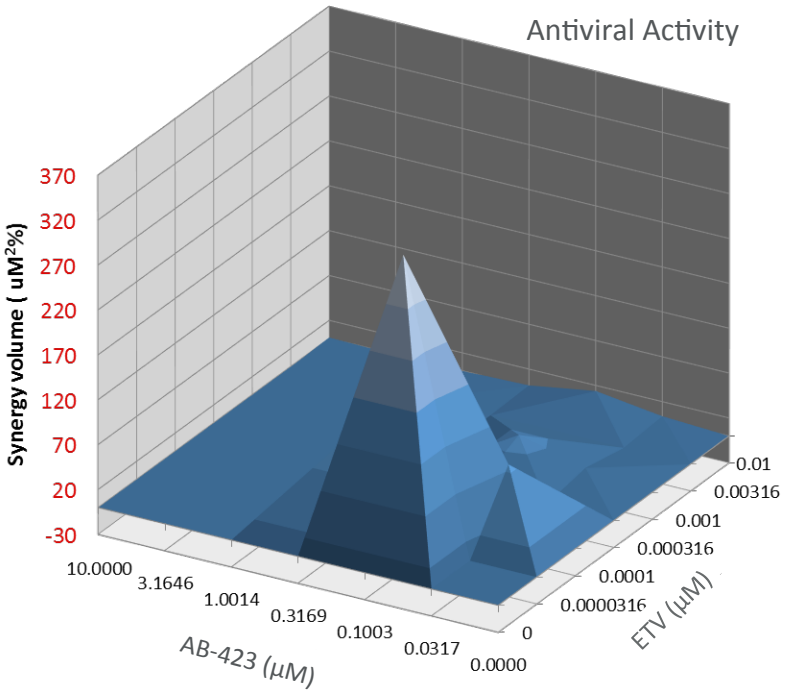
- Compounds work against each other: antagonism
- Compounds don't interfere with each other: additive or synergy

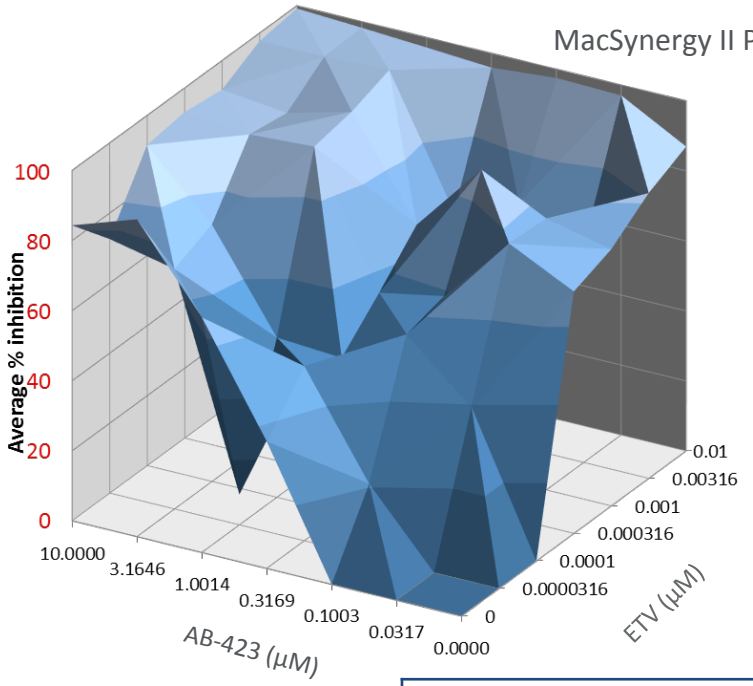


Note: Fewer test conditions can be examined in animals than in cell culture

In Vitro Combination Studies

Capsid Assembly Inhibitor AB-423 with Entecavir (ETV)





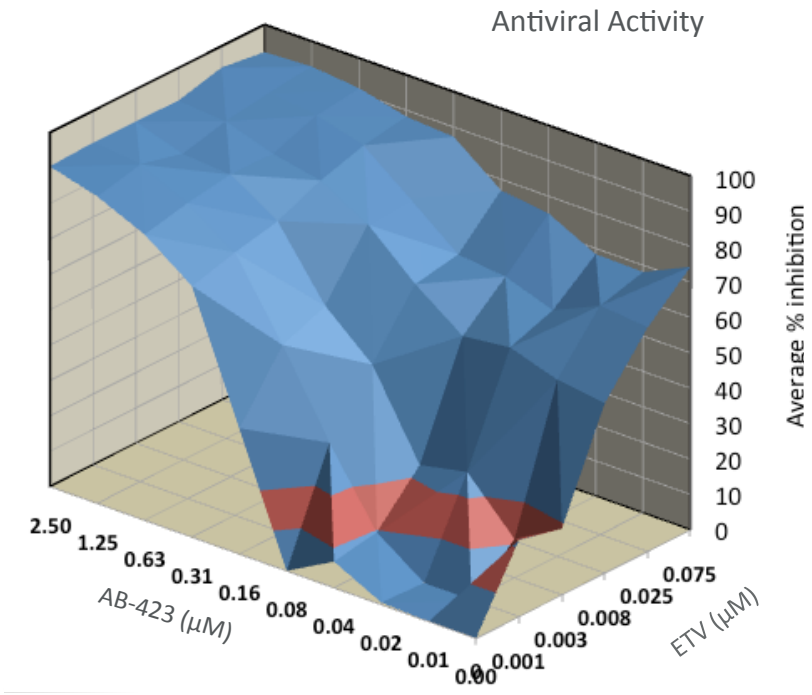
cccDNA Synthesis and Expression by qRT-PCR assay

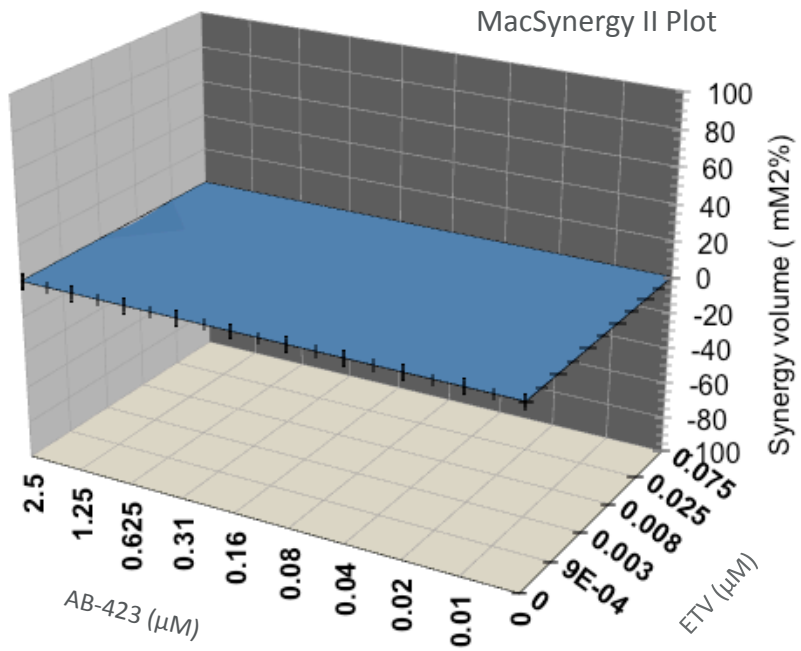
- Synergistic Interaction
- No Antagonism
- MacSynergyII Analysis
- EC50 values comparable to historical values

SYNERGY PLOT (99.9%)	
Bonferroni Adj.	96%
SYNERGY	**679.15**
log volume	169.58
ANTAGONISM	**0**
log volume	0

In Vitro Combination Studies

Capsid Assembly Inhibitor AB-423 with Entecavir (ETV)





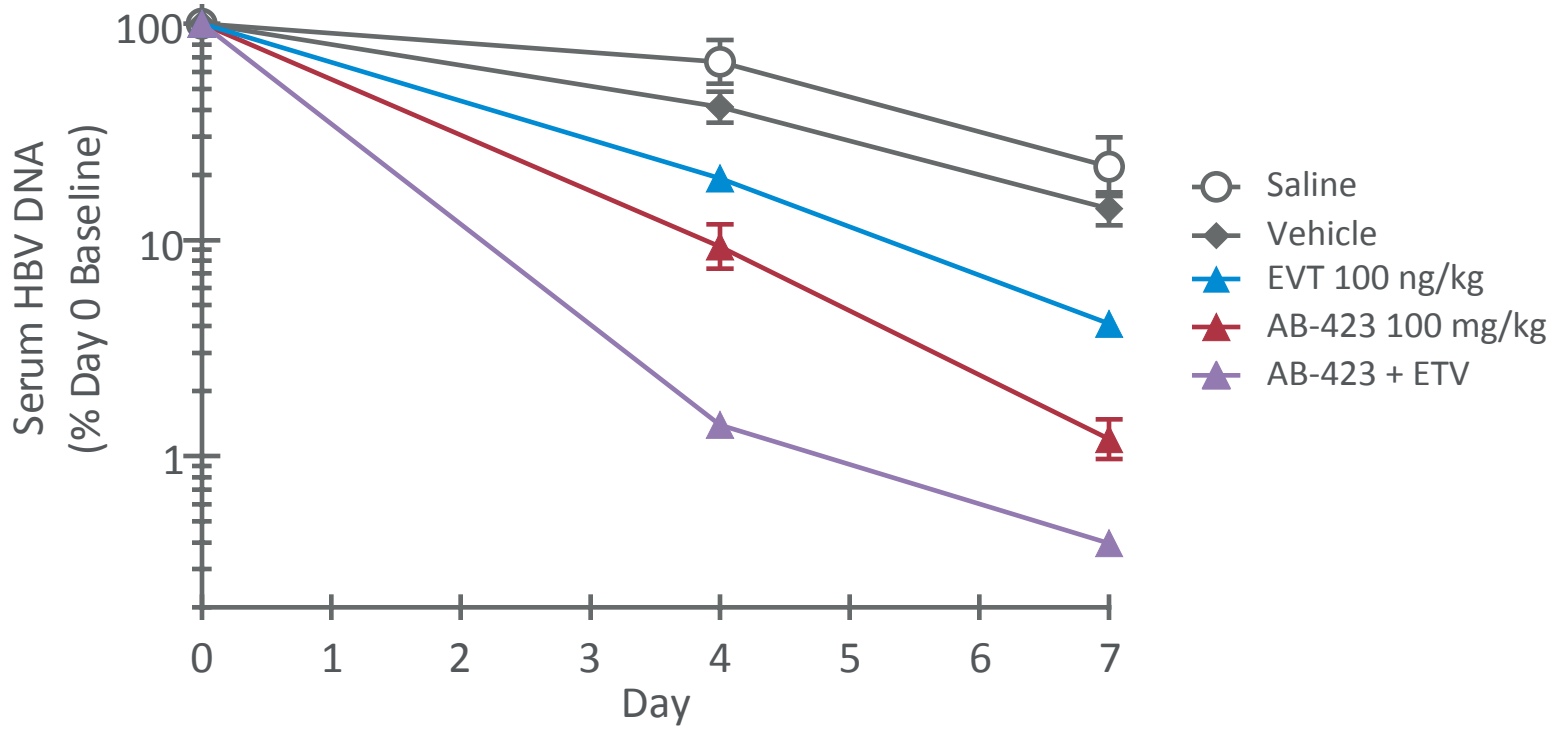
HBV rcDNA Synthesis by bDNA assay

- Additive Interaction
- No Antagonism
- MacSynergyII Analysis
- EC50 values comparable to historical values
- No cytotoxicity detected by Cell TiterGlo assay in combination

SYNERGY PLOT (99.9%)	
Bonferroni Adj.	96%
SYNERGY	**0**
log volume	0
ANTAGONISM	**-1.29**
log volume	-0.19

In Vivo Preclinical Combo of AB-423 with NUC

- Antiviral effects of AB-423 alone or in combination with Entecavir (EVT) in the HDI mouse model

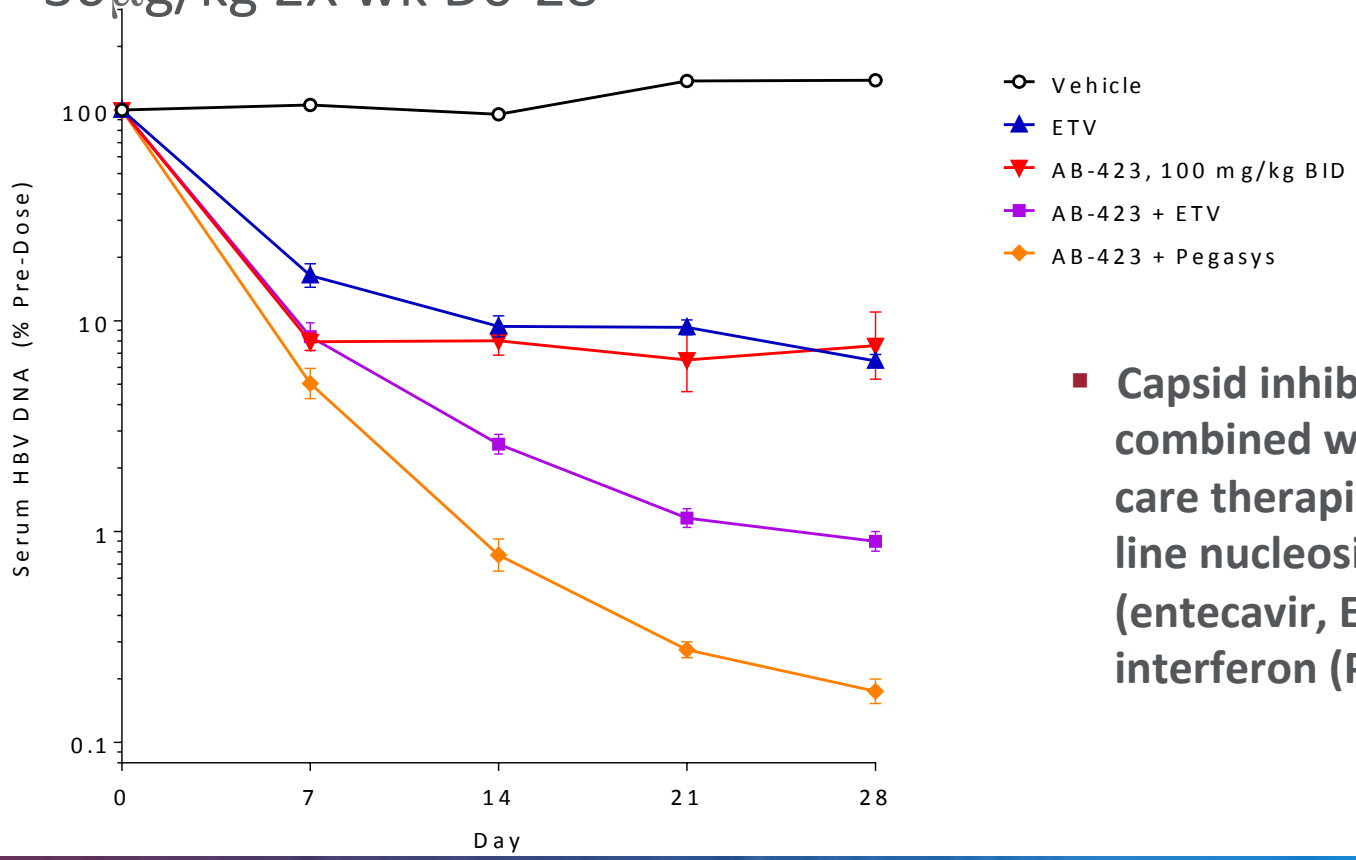


Poster Presented at EASL 2016

In Vivo Combination Studies

Capsid Assembly Inhibitor AB-423 with ETV or INF

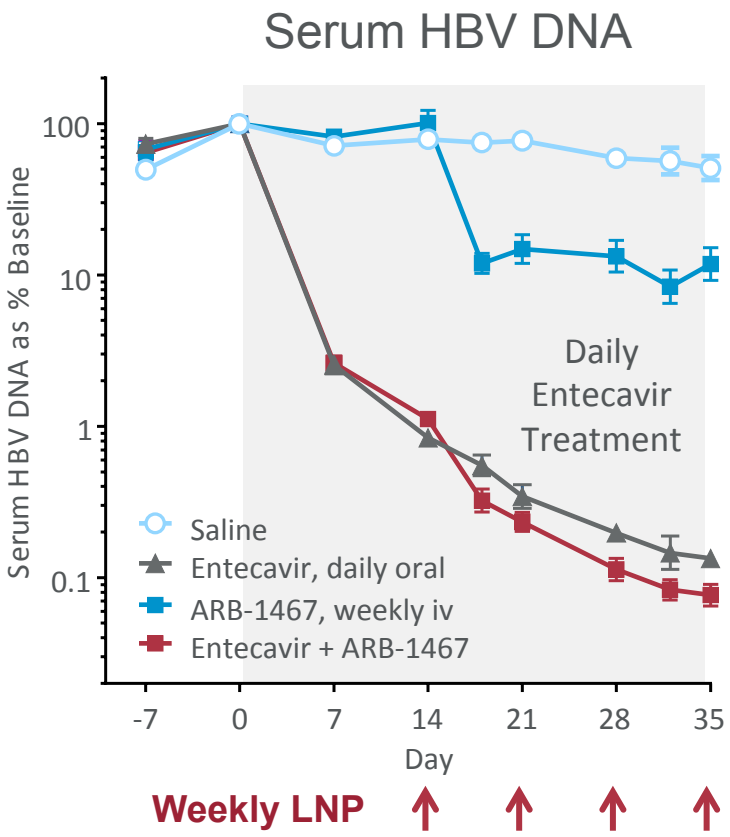
- PXB humanized liver mouse model
- AB-423 at 100 mg/kg BID on Days 0-28, ETV given QD D0-28, IFN 30μg/kg 2X wk D0-28

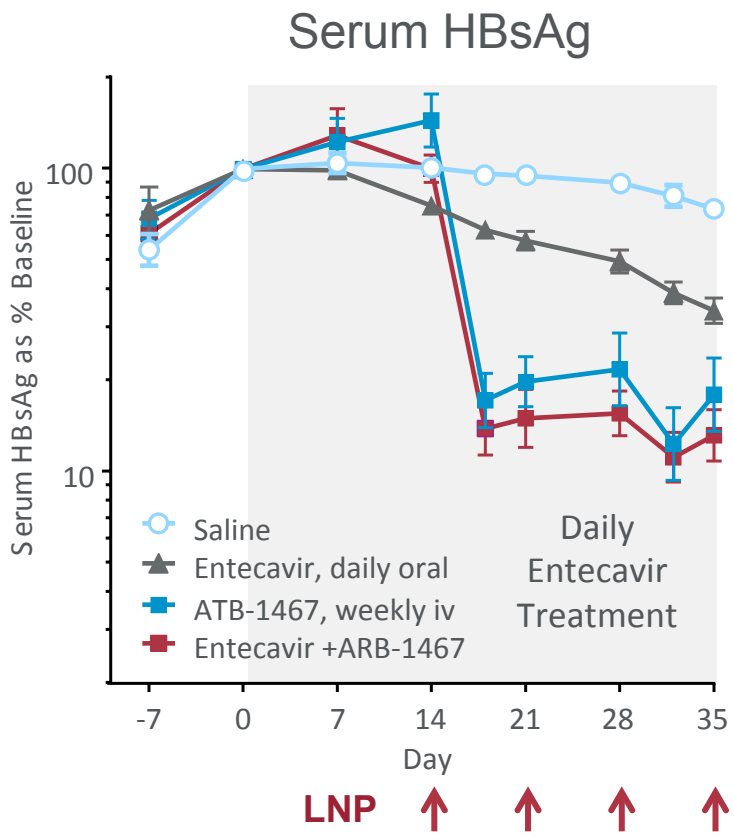


- **Capsid inhibitor AB-423 can be combined with standard-of-care therapies such as front-line nucleoside analogs (entecavir, ETV) or pegylated interferon (Pegasus)**

In Vivo Combination Studies

ARB-1467 Complements NUC Standard of Care

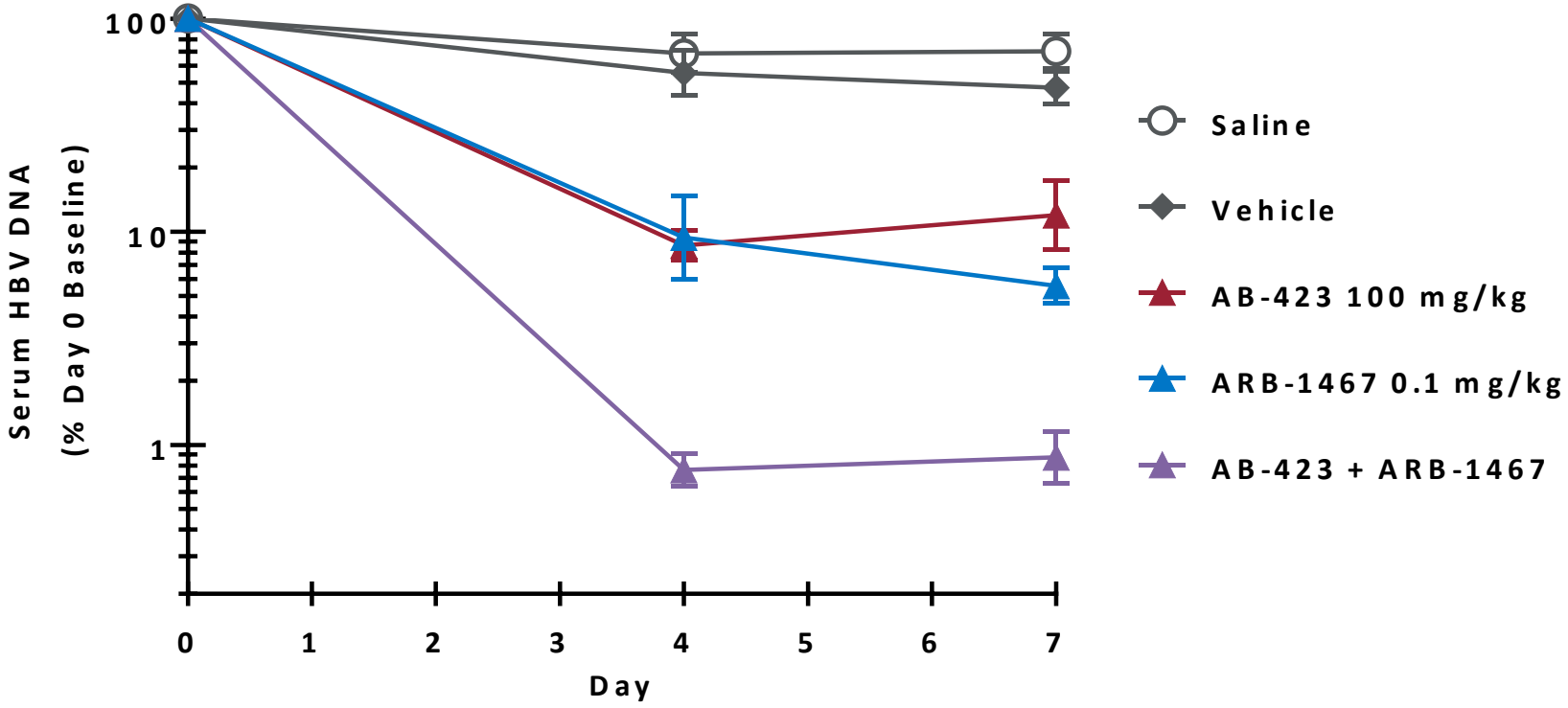




In Vivo Combination Studies

Capsid Assembly Inhibitor AB-423 with ARB-1467 (RNAi 1.0)

- HDI mouse model
- AB-423 at 100 mg/kg BID on Days 0-7, RNAi 1.0 given on Day 0



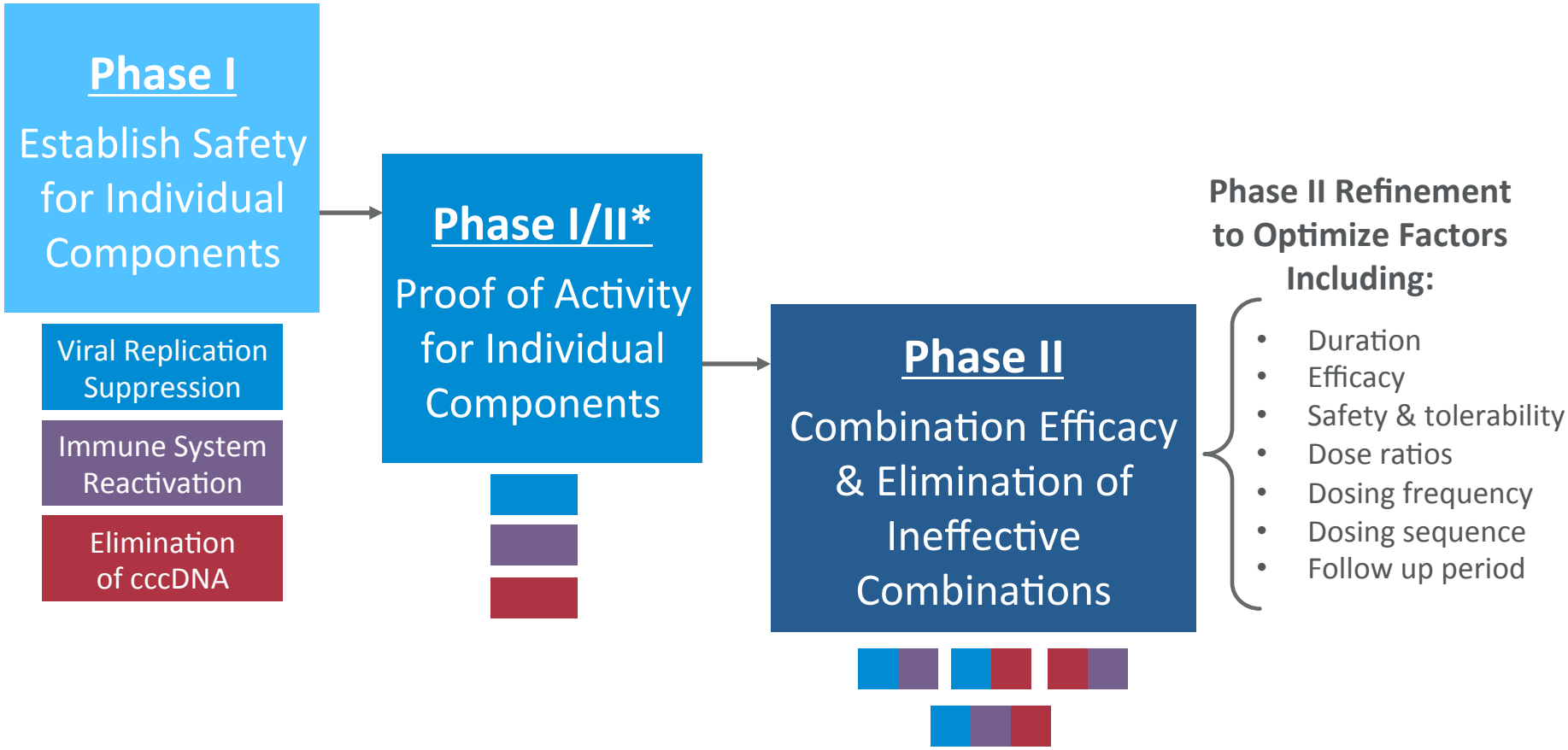
Arbutus' Preclinical Combination Studies

Combination	Marker(s)	Activity		
		Antagonism	Additivity	Synergy
AB-423 + Entecavir *Core Protein/Capsid Assembly Inhibitor + NUC*	cccDNA synthesis and expression, HBV rcDNA synthesis, and Serum HBV DNA	X	✓	✓
AB-423 + ARB-1467 *Core Protein/Capsid Assembly Inhibitor + RNAi*	cccDNA synthesis and expression, HBV rcDNA synthesis, and Serum HBV DNA	X	✓	✓
AB-423 + Interferon *Core Protein/Capsid Assembly Inhibitor + IFN*	HBV DNA	X	✓	
ARB-1467 + Entecavir *RNAi + NUC*	HBV rcDNA synthesis	X	✓	

Arbutus Preclinical Combo Results Summary

- Our drug candidates ARB-1467 (RNAi) and AB-423 (capsid) are potent and selective inhibitors of their respective targets.
- These drug candidates can be used in combination with the NUC standard of care without any antagonism of drug activity.
- When used in combination with the NUC standard of care, these drug candidates show at least additive and in some cases synergistic activity.
- Our first proprietary drug combination, RNAi plus capsid formation inhibitor, also demonstrates additive activity.
- These results support Arbutus' combination strategy.

Clinical Strategy Driven by Combination Goal



Will initially combine with existing NUC therapy

Broad & Differentiated Research Capabilities

Our Strengths:

- Discovery leadership team includes inventors of SOVALDI® , DACLATASVIR ® and CRIXIVAN®
- Strong research team consisting of >40 PhDs specialized in biology, chemistry, DMPK, formulation chemistry, *in vitro* and *in vivo* research, translational research, etc.
- Ability to do *in vitro* and *in vivo* combo studies in-house with rapid turn-around time
- CMC and GMP manufacturing capabilities

Collaboration with the Baruch S. Blumberg Institute:

- 4-year, renewable research collaboration and funding agreement (since Oct 2014)
- Exclusive rights to in-license any IP generated through relationship
- Includes identification of novel targets, new therapeutic compound series, proprietary assays, diagnostics and biomarkers
- Supplements our internal discovery efforts with 30 to 40 dedicated HBV scientists

Early access to POC combo data informs clinical combo studies

November 2016 AASLD Presentations

Presentation #232:

"Exploring Combination Therapy for Curing HBV: Preclinical Studies with Capsid Inhibitor AB-423 and a siRNA Agent, ARB-1740"

Summary: Inclusion of new agents with complementary mechanisms of action such as capsid inhibitor AB-423 and the siRNA agent, ARB-1740, alongside current standard of care drugs could provide improved efficacy in the clinic.

Presentation #233:

"The HBV Capsid inhibitor AB-423 Exhibits a Dual Mode of Action and Displays Additive/ Synergistic Effects in In Vitro Combination Studies"

Summary: AB-423 is a potent inhibitor potentially acting on two distinct stages of the HBV life cycle: pgRNA encapsidation and the formation of cccDNA.

Poster #1865:

"Development of Second Generation RNA Interference Therapy for Hepatitis B Virus Infection"

Summary: In vivo modeling of ARB-1740 has demonstrated that it is more effective than previous therapeutic agents for reduction of HBsAg and other HBV viral markers in both the peripheral blood and liver.