Advancing Life-Changing Therapies for Patients with Serious Diseases

May 2026

Cautionary Note Regarding Forward-Looking Statements

The information in this presentation contains forward-looking statements that are subject to certain risks and uncertainties that could cause actual results to materially differ. These risks and uncertainties include: Assembly Bio's ability to realize the potential benefits of its collaboration with Gilead Sciences, Inc. (Gilead), including all financial aspects of the collaboration and equity investments; Assembly Bio's ability to initiate and complete clinical studies involving its therapeutic product candidates, including studies contemplated by Assembly Bio's collaboration with Gilead, in the currently anticipated timeframes or at all; safety and efficacy data from clinical or nonclinical studies may not warrant further development of Assembly Bio's product candidates; clinical and nonclinical data may not differentiate Assembly Bio's product candidates from other companies' candidates; Assembly Bio's ability to maintain financial resources and secure additional funding necessary to continue its research activities, clinical studies, and other business operations; potential effects of changes in government regulation; results of nonclinical studies may not be representative of disease behavior in a clinical setting and may not be predictive of the outcomes of clinical studies; and other risks identified from time to time in Assembly Bio's reports filed with the U.S. Securities and Exchange Commission (the SEC). You are urged to consider statements that include the words may, will, would, could, should, might, believes, hopes, estimates, projects, potential, expects, plans, anticipates, intends, continues, forecast, designed, goal or the negative of those words or other comparable words to be uncertain and forward-looking. Assembly Bio intends such forward-looking statements to be covered by the safe harbor provisions contained in Section 27A of the Securities Act of 1933, as amended, and Section 21E of the Securities Exchange Act of 1934, as amended. More information about Assembly Bio's risks and uncertainties are more fully detailed under the heading "Risk Factors" in Assembly Bio's filings with the SEC, including its most recent Annual Report on Form 10-K, Quarterly Reports on Form 10-Q and Current Reports on Form 8-K. Except as required by law, Assembly Bio assumes no obligation to update publicly any forward-looking statements, whether as a result of new information, future events or otherwise.

Assembly Bio
Pipeline, People & Partner: Setting the Stage for Success

4 CLINICAL STAGE INVESTIGATIONAL THERAPIES

- Focused on areas with high unmet medical need and significant market opportunity
- Rapid advancement of portfolio towards multiple clinical readouts

EXPERIENCED LEADERSHIP AND R&D ORGANIZATION

- R&D team with over 15 approved drugs in viral and liver diseases

INDUSTRY LEADING PARTNER IN GILEAD

- Collaboration brings together the teams' expertise in virology and provides assets, funding, and an established partner for late-stage development and commercialization

Developing Differentiated Approaches for Treating Serious Diseases

Program	Indication	Mechanism	Preclinical	IND/CTA enabling	Phase 1	Phase 2	Partner
ABI-6250	Hepatitis D	NTCP inhibitor					Gilead opt-in rights
	PBC and PSC						
ABI-7272	Transplant associated herpesviruses	NNPI					Gilead opt-in rights
Undisclosed	Research programs against multiple targets						Gilead opt-in rights

Partner Directed

ABI-5366	Recurrent genital herpes	Long acting HPI					GILEAD
ABI-1179							

Exploring Partnering Opportunities

ABI-4334	Hepatitis B	Next-generation CAM					

PBC: Primary Biliary Cholangitis; PSC: Primary Sclerosing Cholangitis; NTCP: Sodium taurocholate cotransporting polypeptide; CAM: Capsid assembly modulator; NNPI: Non-nucleoside polymerase inhibitor; HPI: Helicase-primase inhibitor

Projected Clinical Milestones and Data Readouts

LIVER DISEASES

Phase 2 initiation expected **4Q 2026**

Data expected **4Q 2027**

ABI-6250

HDV
NTCP inhibitor

ABI-6250

PBC/PSC
NTCP inhibitor

Phase 2 initiation expected **1Q 2027**

Data expected **1H 2028**

RECURRENT GENITAL HERPES

ABI-5366 / ABI-1179

HSV
Long-acting helicase-primase inhibitors

Positive Phase 1b data demonstrated strong antiviral activity

Advancing under collaboration with Gilead
Clinical development plan from Gilead expected **mid-2026**

- Assembly Bio to decide on 40% profit share in lieu of U.S. milestones / royalties

Cash Runway: ~$227M cash position[1] supports operations into 2028

1. Cash, cash equivalents and marketable securities as of March 31, 2026
HSV: Herpes simplex virus; HDV: Hepatitis D virus; PBC: Primary Biliary Cholangitis; PSC: Primary Sclerosing Cholangitis; NTCP: Sodium taurocholate cotransporting polypeptide

Gilead Collaboration

OVERVIEW

- Long-term collaboration with Gilead entered into in October 2023
- Brings together two teams' knowledge and expertise in antiviral research, clinical development and commercialization
- Gilead holds option rights on all programs at end of Phase 1 or Phase 2
- Assembly Bio may advance internally or partner externally programs upon Gilead opt-out

OPTION STRUCTURE

- Assembly Bio primarily responsible for R&D before opt-in
- Upon opt-in, Gilead leads all development and commercialization at its cost
- Global milestones and royalties or 40% U.S. profit/cost share option and ex-U.S. milestones and royalties

ECONOMICS

- $100M upfront received (~$85M cash / ~$15M equity)
- ~$20M additional equity received at a premium
- ≥ $45M opt-in fee per program (depends on stage at opt-in)
- Eligible for up to ~$330M milestones per program
- Royalties: high single-digits to high-teens (depends on stage at opt-in), assuming no profit/cost share election
- Potential for $75M collaboration extension payments in 2026, 2028, and 2030

GILEAD
Creating Possible

ABI-5366 and ABI-1179

Long-Acting HSV Helicase-Primase Inhibitors (HPIs) for Recurrent Genital Herpes

ABI-5366 and ABI-1179 – Phase 1b completed dosing and follow up

HPI program licensed to Gilead with Phase 2 initiation anticipated in 2026

Genital Herpes is a Serious Condition that Impacts Millions of Individuals in the US/EU

MILLIONS AFFECTED IN US/EU5

4M+
recurrent (3+/yr) genital herpes [1,2]

8M+
diagnosed with genital herpes[3]

60M+
people living with HSV-2[4,5]

SERIOUS HEALTH IMPACTS

PROLONGED PAIN AND SYMPTOMS
Painful lesions, lymphadenopathy and urinary problems that can persist 2-3 weeks[6]

FREQUENT RECURRENCES
Most people with an initial symptomatic genital HSV-2 infection experience frequent recurrences (3-15 times in a year)[1,2]

PSYCHOSOCIAL IMPACT
Significant impairment to quality of life through anxiety, concerns about transmission, depression, and social stigma[7]

INCREASED RISK OF HIV ACQUISITION
30% of incident HIV infections acquired via sexual transmission attributable to HSV-2 infection[8]

1 .Benedetti et al. 1994 ; 2. Benedetti et al. 1999; 3.Fanfair et al. Sex Transm Dis. 2013; 4. McQuillan et al. NCHS Data Brief. 2018;
5. Alareeki et al. The Lancet Regional Health, 2022; 6. Corey et al Amer. Coll. Phys. 1983; 7. Catotti et al. Sex Transm. Dis. 1993; 8. Looker et al Lancet Inf Dis. 2020

HSV-2: herpes simplex virus type 2,
cause of majority of recurrent genital herpes cases

Recurrent Genital Herpes: Urgent Need for Innovative Therapies

CURRENT STANDARD OF CARE

- Daily chronic suppressive therapy with viral polymerase inhibitors (e.g., acyclovir, valacyclovir)
- No new therapies approved since 1995[1]
- Wide treatment pattern variability seen in claims data[4]

LIMITED EFFICACY

Only 1/3 with frequent outbreaks achieve recurrence prevention[1]

HIGH TRANSMISSION

Less than 50% transmission reduction[2]

HIGH PILL BURDEN

Lifelong daily treatment: Up to 1 gram, 1-3x/day [1,3]

TREATMENT VARIABILITY

Many seeking care may not receive suppressive therapy consistently [4]

ABI-5366 and ABI-1179: INNOVATIVE POTENTIAL

- **Superior efficacy**
  Targeting superior efficacy to SOC; much greater potency demonstrated preclinically
- **Long-acting**
  Evaluating weekly (and for ABI-5366, the potential for monthly) oral dosing, with the goal of improving efficacy, adherence, and clinical outcomes
- **>$2 billion**
  Market opportunity for recurrent genital herpes for profile of weekly dosing with superior efficacy to SOC

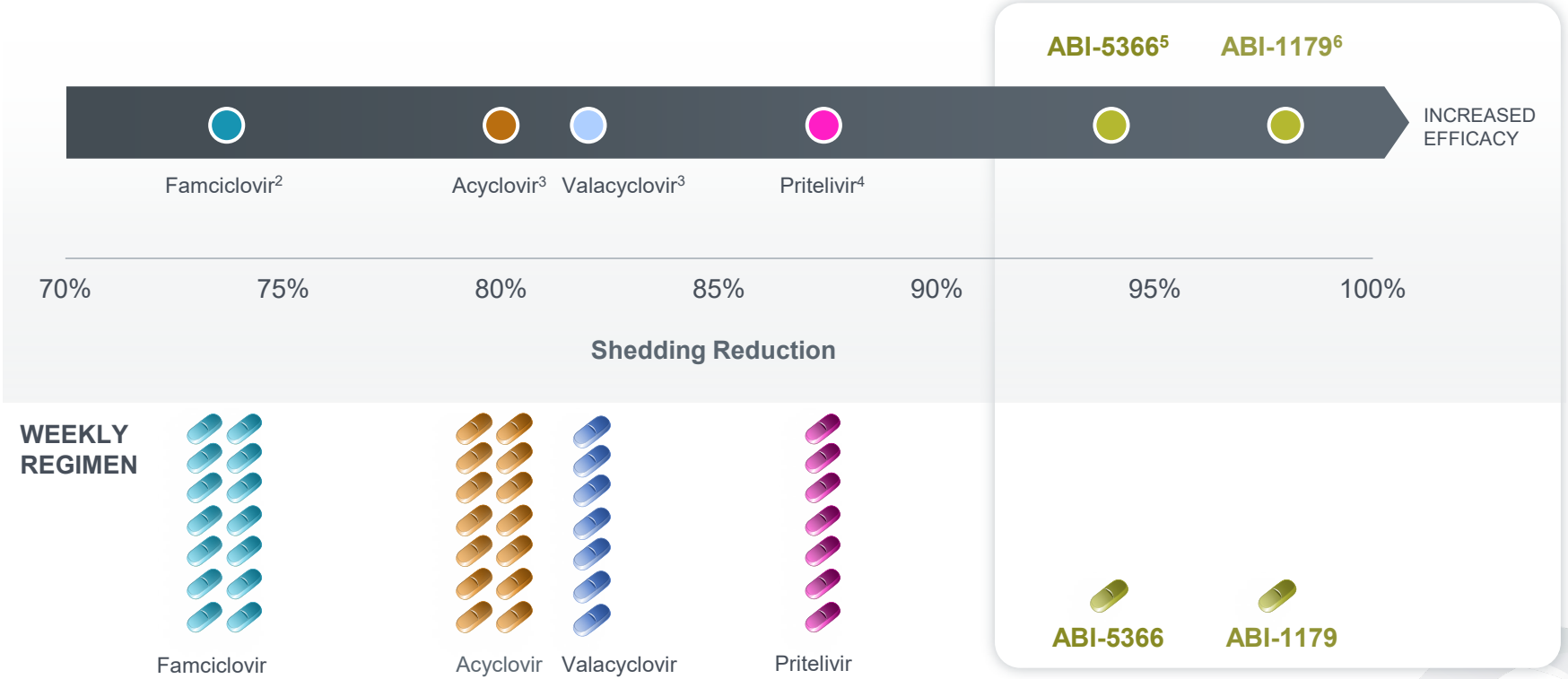
Additional opportunities: Transmission prevention, patients currently treated episodically, oro-facial herpes, injectable formulations

THERE IS AN URGENT NEED FOR INNOVATIVE THERAPIES that offer improved efficacy and greater convenience

1. Valtrex (Valacyclovir) US package insert; Recurrence free for a year on treatment in patients with 6 or more annual recurrences; does not include discontinued, withdrawn, or lost in follow-up; 2. Corey, et al. NEJM, 2004; 3. Physician interviews commissioned by Assembly Bio ; 4. Liu, et al. ESCMID, 2025

SOC: Standard of Care

ABI-5366 & ABI-1179 Phase 1b Efficacy:
Comparisons to Historical Placebo-Controlled Phase 1b Studies[1]

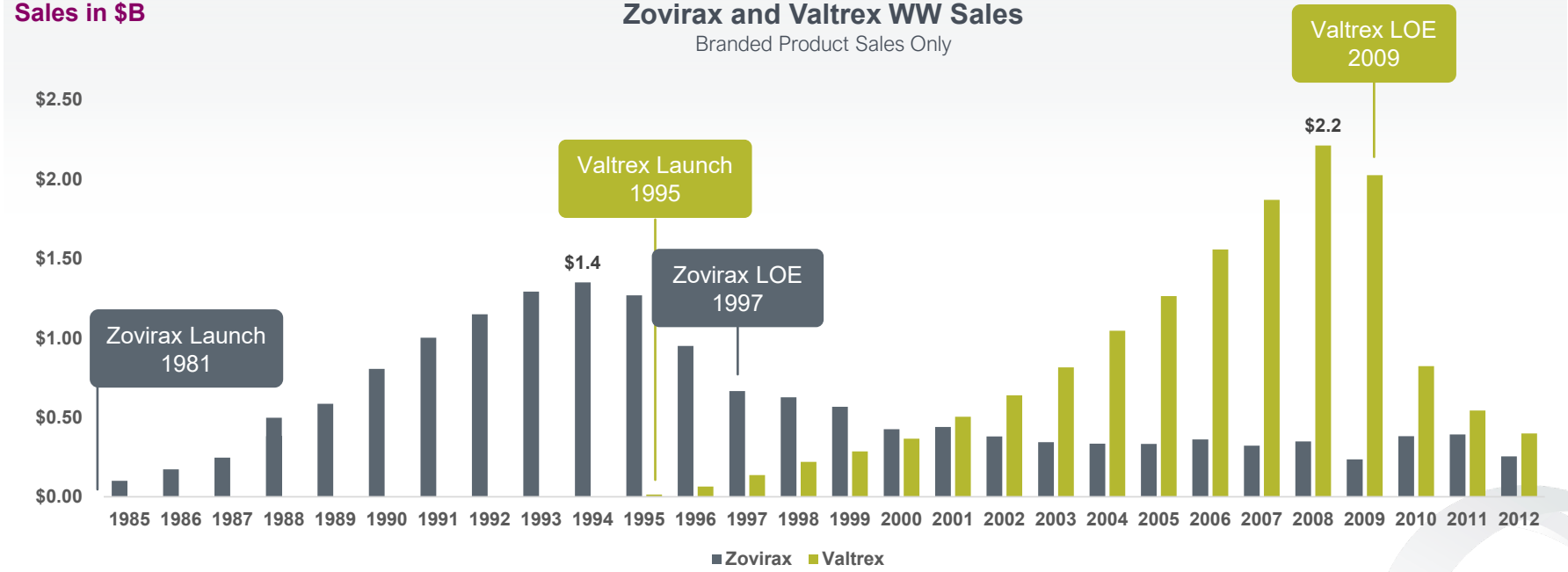


Note: Length of evaluation of studies differs by compound. Famciclovir=14 days, Acyclovir/Valacyclovir=42 days, Pritelivir/ABI-5366/ABI-1179=28 days

1. Not head-to-head studies; 2. Leone P et al. Sexually Transmitted Diseases, 34 (11), 2007; 3. Gupta et al. JID 190, 2004; 4. Wald A et al. NEJM 370 (3) 2014;
5. ABI-5366 Phase 1b data as of November 25, 2025; 6. ABI-1179 Phase 1b data as of November 25, 2025

Valtrex Launch in HSV Shows the Market Potential of a Novel, Longer-Acting Medicine

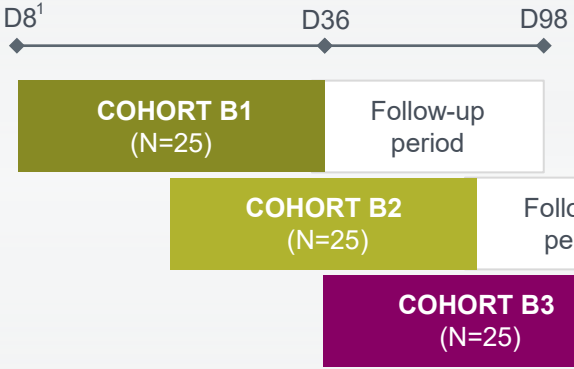
VALTREX TOOK CONSIDERABLE SHARE OVER TIME DESPITE GENERIC ACYCLOVIR AS CONVENIENCE AND ACCEPTANCE OF CHRONIC THERAPY DROVE ADOPTION



EvaluatePharma worldwide branded product sales for Zovirax (acyclovir) and Valtrex (valacyclovir) from 1985 to 2012.

ABI-5366-101 Phase 1b Study Design

- **Double-blind, placebo-controlled sequential cohorts**
- **All participants seropositive for HSV-2 with recurrent genital herpes**
- **Each cohort with 20 patients receiving ABI-5366 and 5 patients receiving placebo**



COHORT	REGIMEN	LOADING DOSE	WEEKLY DOSE
B1	Weekly	150 mg	30 mg
B2	Weekly	350 mg	350 mg
B3	Monthly	350 mg x5	-

KEY EFFICACY ASSESSMENTS

- Anogenital swabs (Day 8-36); e.g., viral shedding rate
- Daily diary of symptoms; e.g., days with lesions

DATA IN CURRENT ANALYSIS

- Diary data through D36
- 100% Shedding data
- Complete on-treatment safety data for all cohorts

Sasadeusz, et al. ESCMID, 2026. Interim ABI-5366 Phase 1b data as of November 25, 2025.
1. Dosing begins on Day 1 with swab and diary evaluations beginning on Day 8

Executive Summary:
ABI-5366 Phase 1b Interim Update

ABI-5366 PH1B STATUS UPDATE

Two weekly (B1, B2) and one monthly (B3) dosing cohorts completed

PHASE 1B TRIAL GOALS

- **80 to 85% reduction** in HSV-2 shedding vs. placebo
- **Significant reduction** in high viral load swabs[1]
- **Directional reduction** in genital lesions
- **Clean safety profile**

PHASE 1B COHORT B2 (350 MG, QW) RESULTS

- **94% reduction** in HSV-2 shedding ($p<0.01$)
- **98% reduction** in high viral load swabs ($p<0.05$)
- **97% reduction** in virologically confirmed[2] genital lesions ($p<0.05$)
- **No safety signals identified** to date
  - Chronic Toxicology: Studies complete and support proposed Phase 2 dosing

Gane et al. ESCMID, 2026. Interim ABI-5366 Phase 1b data as of November 25, 2025; 1. Surrogate for HSV-2 transmission; Schiffer JT et al. J.R.Soc.Interface 11, 2014; 2. Virologically confirmed lesions include lesions with any positive HSV-2 swab taken during the duration of the lesion.

QW: weekly.

ABI-5366 Phase 1b:
Safety Summary – Adverse Events Cohorts B1, B2 & B3

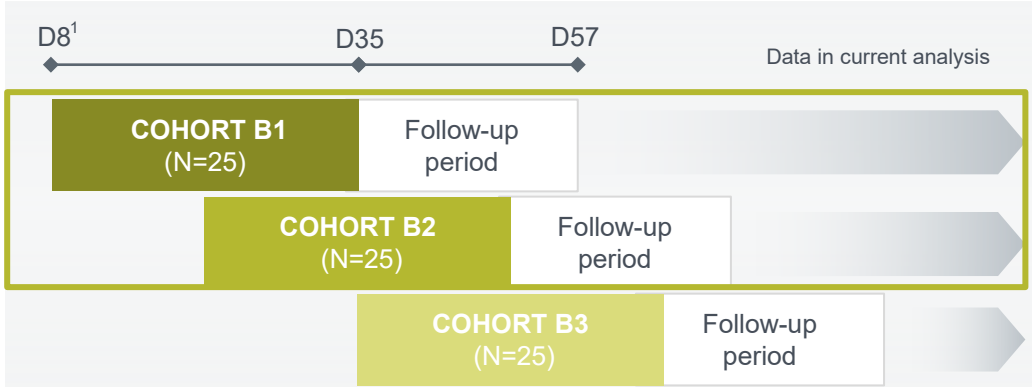
ADVERSE EVENTS AND LABORATORY ABNORMALITIES	PBO N=15	ABI-5366 30mg weekly N=20	ABI-5366 350mg weekly N=20	ABI-5366 Monthly N=21
Subjects with any Treatment Emergent Adverse Events (TEAE) (max grade), N (%)	14 (93%)	18 (90%)	19 (95%)	21 (100%)
Grade 1, N (%)	12 (80%)	17 (85%)	17 (85%)	19 (90%)
Grade 2, N (%)	8 (53%)	6 (30%)	9 (45%)	10 (48%)
Grade 3, N (%)	0	0	0	0
Grade 4, N (%)	0	0	0	0
TEAE Related to Study Drug, N (%)	6 (40%)	6 (30%)	3 (15%)	7 (33%)
TEAE Leading to Study Drug Discontinuation, N (%)	0	0	0	0
Serious Adverse Event	0	0	0	0
Treatment Emergent Lab Abnormalities, N (%)	10 (67%)	14 (70%)	15 (75%)	13 (62%)
Grade 1, N (%)	8 (53%)	12 (60%)	12 (60%)	13 (62%)
Grade 2, N (%)	3 (20%)	3 (15%)	5 (25%)	2 (10%)
Grade 3, N (%)	1 (7%)[1]	1 (5%)[1]	1 (5%)[1]	0
Grade 4, N (%)	0	0	0	0

On-treatment safety data complete for all cohorts; treatment regimens were safe and well tolerated at all dose levels

Gane, et. al, ESCMID, 2026. Interim ABI-5366 Phase 1b data as of November 25, 2025; 1. All Grade 3 lab abnormalities considered unrelated to treatment: participant with decreased neutrophils (PBO), exercise-associated elevation in creatine kinase (30mg weekly), and elevation of cholesterol in follow up in participant that had a grade 2 elevation at baseline (350mg weekly)

ABI-1179-101 Phase 1b Study Design

- **Double-blind, placebo-controlled sequential cohorts**
- **All participants seropositive for HSV-2 with recurrent genital herpes**
- **Each cohort with 20 patients receiving ABI-1179 and 5 patients receiving placebo**



COHORT	REGIMEN	WEEKLY DOSE
B1	Weekly	50 mg
B2	Weekly	20 mg
B3	Weekly	10 mg

KEY EFFICACY ASSESSMENTS

- Anogenital swabs (Day 8-35); e.g., viral shedding rate
- Daily diary of symptoms; e.g., days with lesions

DATA IN CURRENT ANALYSIS

- Diary data through D35
- 100% Shedding data
- Safety data through Day 57

Edwards, et al. ESCMID, 2026. Interim ABI-1179 Phase 1b data as of November 25, 2025
1. Dosing begins on Day 1 with swab and diary evaluations beginning on Day 8

Executive Summary:
ABI-1179 Phase 1b Interim Update

ABI-1179 PH1B STATUS UPDATE

Three weekly dosing cohorts completed

PHASE 1B TRIAL GOALS

- **80 to 85% reduction** in HSV-2 shedding vs. placebo
- **Significant reduction** in high viral load swabs[1]
- **Directional reduction** in genital lesions
- **Clean safety profile**

PHASE 1B COHORT B1 (50 MG, QW) RESULTS

- **98% reduction** in HSV-2 shedding ($p<0.01$)
- **>99% reduction** in high viral load swabs
- **91% reduction** in virologically confirmed[2] genital lesions ($p<0.01$)
- **No safety signals identified** to date

Edwards, et al. ESCMID, 2026. Interim ABI-1179 Phase 1b data as of November 25, 2025
1. Surrogate for HSV-2 transmission; Schiffer JT et al. J.R.Soc.Interface 11, 2014; 2. Virologically confirmed lesions include lesions with any positive HSV-2 swab taken during the duration of the lesion. QW: :weekly.

ABI-1179 Phase 1b:
Safety Summary – Adverse Events Cohorts B1 & B2

PARAMETER	ABI-1179 20mg weekly/PBO N=24	ABI-1179 50mg weekly/ PBO N=25
Subjects with any Treatment Emergent Adverse Events (TEAE) (max grade), N (%)	17 (71%)	23 (92%)
Grade 1, N (%)	12 (50%)	9 (36%)
Grade 2, N (%)	5 (21%)	13 (52%)
Grade 3, N (%)	0	1 (4%)[1]
Grade 4, N (%)	0	0
TEAE Related to Study Drug, N (%)	8 (33%)	10 (40%)
TEAE Leading to Study Drug Discontinuation, N (%)	0	0
Serious Adverse Event	0	0
Death	0	0
Treatment Emergent Lab Abnormalities, N (%)	9 (38%)	8 (32%)
Grade 1, N (%)	8 (33%)	6 (24%)
Grade 2, N (%)	2 (8%)	3 (12%)
Grade 3, N (%)	0	0
Grade 4, N (%)	0	0

Safety data includes patients through Day 57

Edwards, et. al. ESCMID, 2026. Interim ABI-1179 Phase 1b data as of November 25, 2025
1. Grade 3 migraine reported in 50mg/PBO by participant with a medical history of migraines

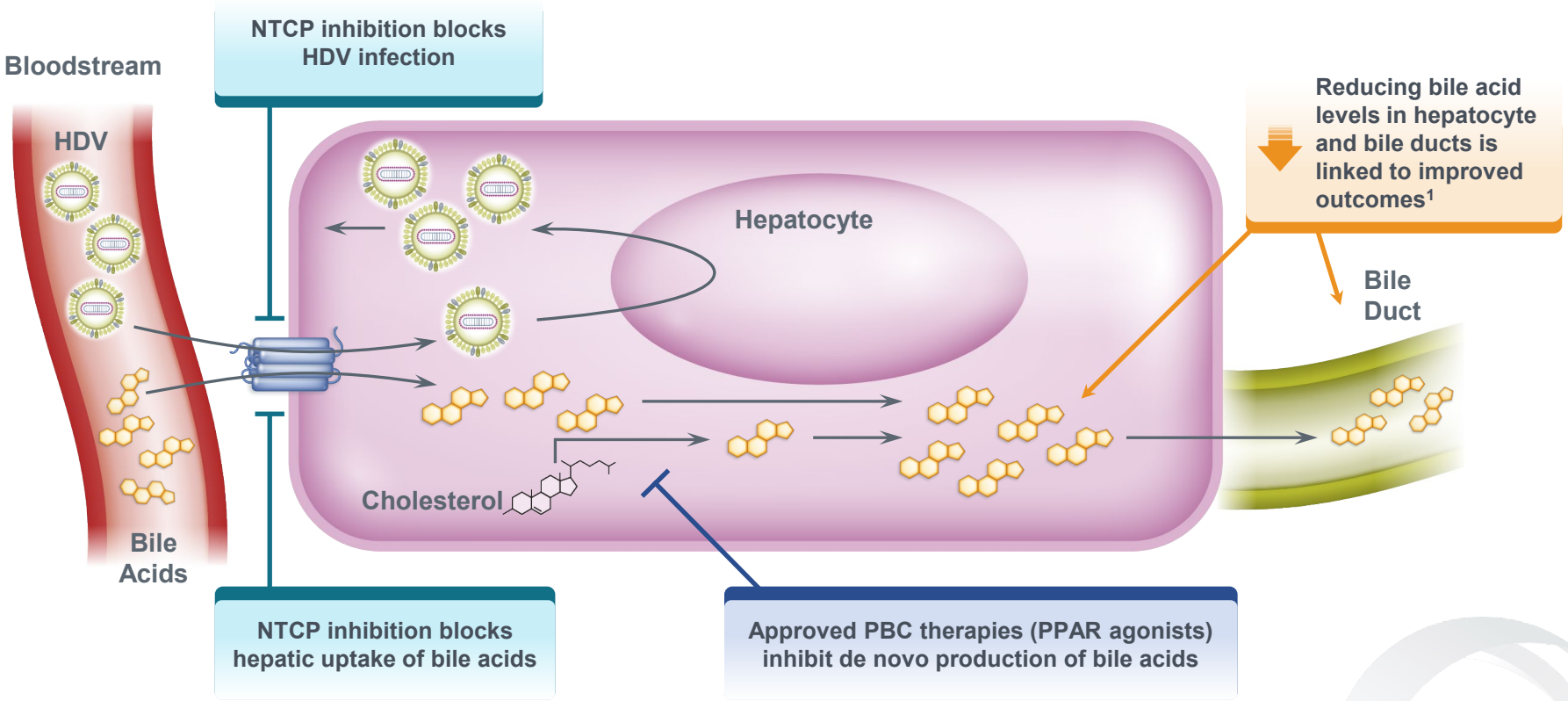
ABI-6250

Oral NTCP Inhibitor for Cholestatic Liver Diseases (CLD) and Hepatitis D

Phase 2 initiation in HDV anticipated 4Q 2026

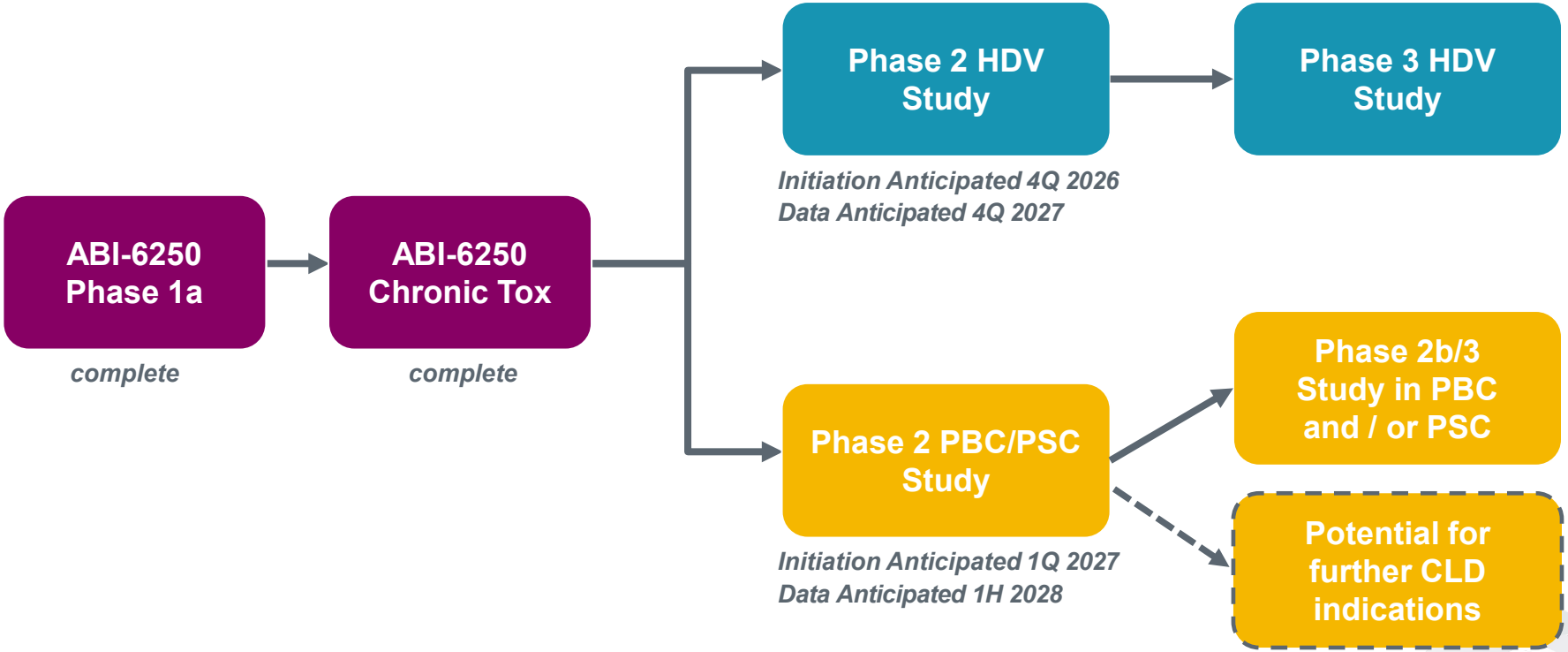
Phase 2 initiation in PBC/PSC anticipated 1Q 2027

NTCP: A Shared Target Across HDV and CLD



1. Hirschfeld GM et al. NEJM 390 (9) 2024; Levy C et al. J. Hep 84, 2026
PPAR: Peroxisome Proliferator-Activated Receptor

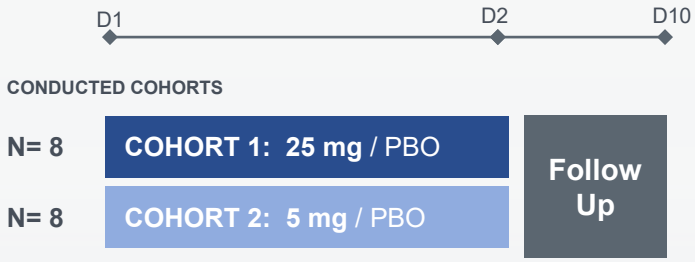
ABI-6250 Overall Strategy:
Parallel Development Strategy Across HDV and CLD



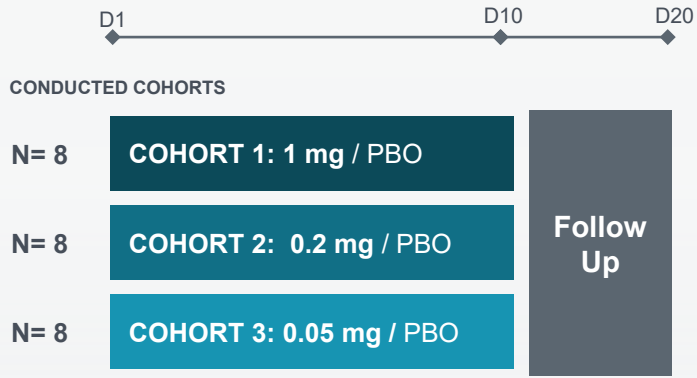
HDV: Hepatitis D virus; CLD: Cholestatic liver diseases; PBC: Primary Biliary Cholangitis; PSC: Primary Sclerosing Cholangitis

ABI-6250-101 Phase 1a Study Design

SINGLE-ASCENDING DOSE



MULTIPLE-ASCENDING DOSE

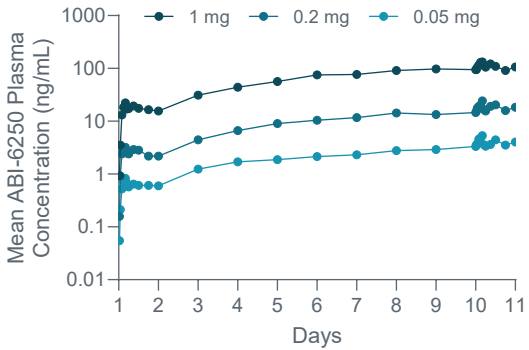


KEY OUTCOMES

- Safety and pharmacokinetics
- Biomarker of target engagement (serum bile acid levels) with single and multiple doses

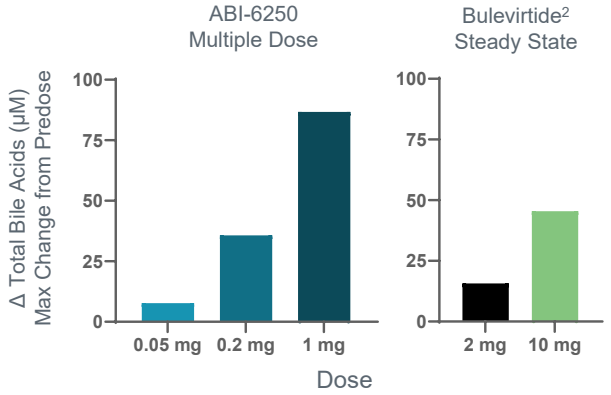
ABI-6250 shows PK/PD/Safety in Phase 1a to Support Phase 2

Pharmacokinetics[1]



- Half-life estimate of 4 days
- ~7-fold accumulation with repeated oral daily dosing

Pharmacodynamics[1]



- Dose dependent increase in serum bile acids
- Fold increase in bile acids matched or exceeded those by bulevirtide (BLV)

Safety

- Grade 1-2 ALT elevations observed at similar frequency across all dosing levels, including in placebo subjects
  - Similar findings observed in early BLV studies
- No AEs of pruritis observed

1. Adapted from Gane et al. EASL 2026;
2. BLV is approved at a 2 mg once-daily dose in the EU, AU and Canada and 8.5mg in the US. The 10 mg dose has been evaluated in clinical studies but is not an approved dose in any jurisdiction

ABI-6250 Phase 1a:
Safety Data

	PBO SD (N=4)	5 mg SD (N=6)	25 mg SD (N=6)	PBO MD (N=6)	0.05 mg MD (N=6)	0.2 mg MD (N=6)	1 mg MD (N=6)
Subjects with any TEAE, N (%)	0	4 (66.7%)	2 (33.3%)	4 (66.7%)	6 (100%)	4 (66.7%)	4 (66.7%)
Grade 1, N (%)	0	4 (66.7%)	2 (33.3%)	4 (66.7%)	6 (100%)	3 (50.0%)	4 (66.7%)
Grade 2, N (%)	0	0	0	0	0	2 (33.3%)	0
Grade 3, N (%)	0	0	0	0	0	0	0
Grade 4, N (%)	0	0	0	0	0	0	0
TEAE related to study drug, N (%)	0	0	0	0	1 (16.7%)	0	2 (33.3%)
Serious TEAE, N (%)	0	0	0	0	0	0	0
TEAE leading to study drug discontinuation, N(%)	0	0	0	0	0	0	1 (16.7%)[1]
Death	0	0	0	0	0	0	0
Number (%) of subjects with any graded TE lab abnormalities[3]	2 (50%)	4 (66.7%)	3 (50.0%)	5 (83.3%)	3 (50%)	5 (83.3%)	3 (50.0%)
Grade 1, N (%)	2 (50%)	4 (66.7%)	2 (33.3%)	4 (66.7%)	2 (33.3%)	5 (83.3%)	3 (50.0%)
Grade 2, N (%)	0	0	1 (16.7%)	3 (50.0%)	1 (16.7%)	1 (16.7%)	0
Grade 3, N (%)	0	0	0	0	0	0	0
Grade 4, N (%)	0	1 (16.7%)[2]	0	0	0	0	0

Chronic toxicology studies complete; Preparation for Phase 2 studies underway

ABI-6250: Oral Hepatitis D Virus Entry Inhibitor

Phase 2 initiation anticipated by end of 2026

Chronic HDV is a Serious Life-Threatening Disease and Major Unmet Need with Limited Treatment Options

12 – 72 million

PEOPLE ESTIMATED TO BE CHRONICALLY INFECTED WITH HDV GLOBALLY[1]

70% progress to cirrhosis within 10 years[2]

Very limited treatment options

BULEVIRTIDE, LARGE MOLECULE ENTRY INHIBITOR, ONLY APPROVED DRUG (EU, AU, and Canada; US approved 2026)

Shown to be safe and highly effective in long-term clinical trials, but requires daily injection and cold storage

ABI-6250, an opportunity to simplify treatment

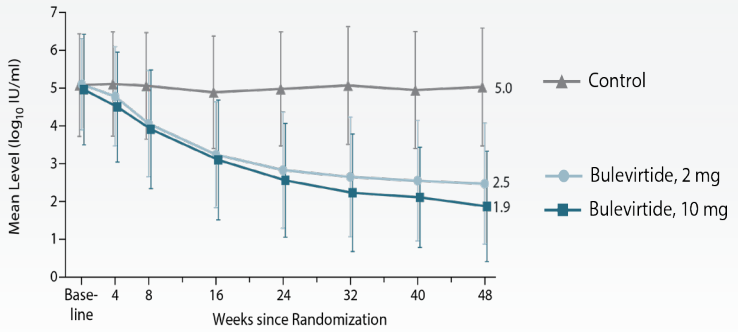
SMALL MOLECULE TARGETING SAME MECHANISM AS BULEVIRTIDE

An oral treatment is expected to further enhance treatment uptake and diagnosis rates

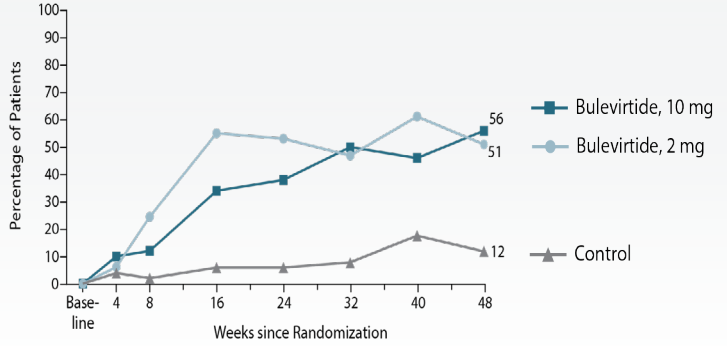
1. Negro & Lok 2023;
2. WHO 2023

Inhibition of HDV Entry by Blocking NTCP is Clinically Validated to Lower Viral Load and Normalize ALT

Viral Load Reductions



ALT Normalization



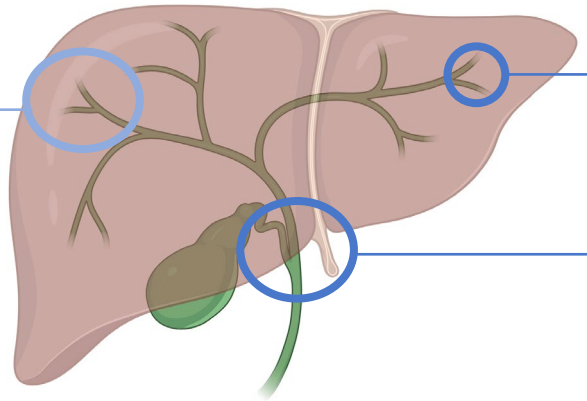
ABI-6250: Expanding Beyond HDV into Cholestatic Liver Diseases (CLD)

Phase 2 initiation anticipated Q1 2027

PBC and PSC Share a Common Pathology of Bile Acid Accumulation and Progressive Liver Injury

PBC

- Affects intrahepatic bile ducts



PSC

- Affects intrahepatic and extrahepatic bile ducts

	PBC	PSC
Associated Conditions	Sjogren's Syndrome	Inflammatory Bowel Disease
Complications	Cirrhosis, hepatocellular carcinoma	Cirrhosis, Cholangiocarcinoma, Cholangitis
Treatments	1st Line: Ursodeoxycholic Acid 2nd Line: PPAR agonist	No medical treatments available Disease progression may require liver transplant

PBC: Primary Biliary Cholangitis; PSC: Primary Sclerosing Cholangitis; PPAR: Peroxisome Proliferator-Activated Receptor

ABI-6250 Cholestatic Liver Disease Preliminary Phase 2 Design

Basket Study Design Exploring Efficacy and Safety in PBC and PSC in a Single Protocol

TRIAL CHARACTERISTICS

- Double-blind, placebo controlled
- Sentinel dosing will help select dose(s) for PBC/PSC cohorts
- Key endpoints of biochemical, pruritis and health-related quality of life improvements will be evaluated

ABI-6250 Represents a Multi-Billion-Dollar Opportunity Across PBC and PSC

PBC

~$2B+

U.S. estimated peak-year revenue

POPULATION ~150,000+ diagnosed adults in the U.S.

UNMET NEED ~40% of patients fail 1st line therapy

PSC

~$1B+

U.S. estimated peak-year revenue

POPULATION ~30,000+ diagnosed adults in the U.S.

UNMET NEED No approved therapy
~65% 10-year overall survival rate in U.S.

Expansion into CLD adds meaningful upside to an established core asset

- Multiple optional pathways: PBC, PSC, both or more
- HDV execution remains unchanged
- Opportunity to generate additional long-term value from a single molecule

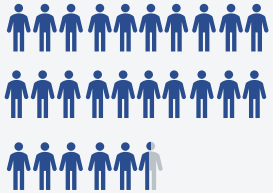
Wall Street research; Company filings; AASLD Practice Guidance (Hepatology 2019); Nevens et a., N Eng J Med 2016; Trivedi et al., Gastroenterol Hepatol 2022; Karlsen et al., J Hepatol 2017

ABI-4334: Next-Generation CAM for Hepatitis B

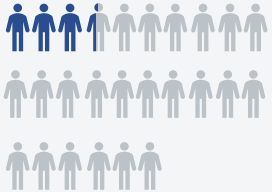
Phase 1b topline data reported June 2025

Positioned for next-phase development upon securing partner

HBV is a Major Unmet Medical Need Globally



HBV PREVALENCE:
254M[1]



DIAGNOSED:
33M[1]

TREATED:
7M[1]

Up to 1,100,000 people died in 2022[1]
FROM HBV-RELATED CAUSES

Treatments are life-long
INHIBIT VIRUS BUT CURE RATES VERY LOW

Opportunity to improve patient outcomes
AND INCREASE NUMBER DIAGNOSED AND TREATED,
with development of finite and curative therapies

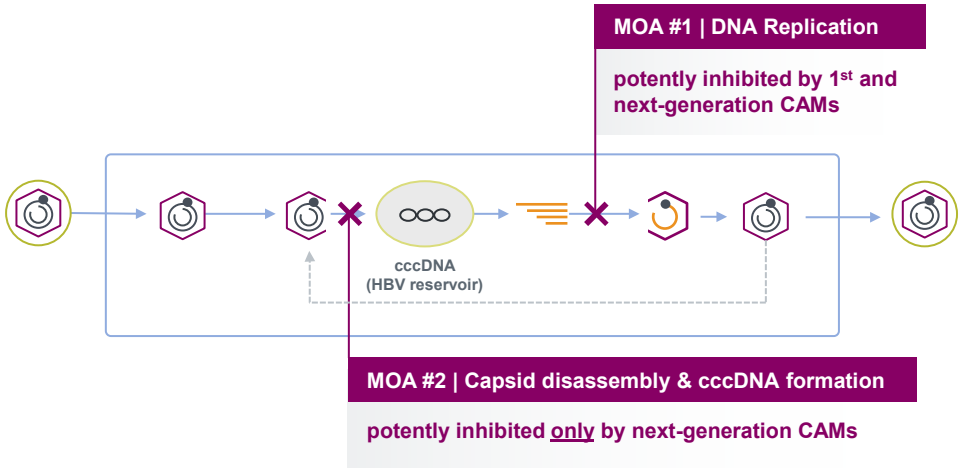
No new MOAs approved for HBV in >25 years

1. WHO (2024)

ABI-4334 is a Next-Generation Capsid Assembly Modulator Designed to Target Both MOAs for the Class

CAPSID ASSEMBLY MODULATORS (CAMs)

Direct-acting antivirals with two distinct mechanisms of action



ABI-4334 PHASE 1B PK

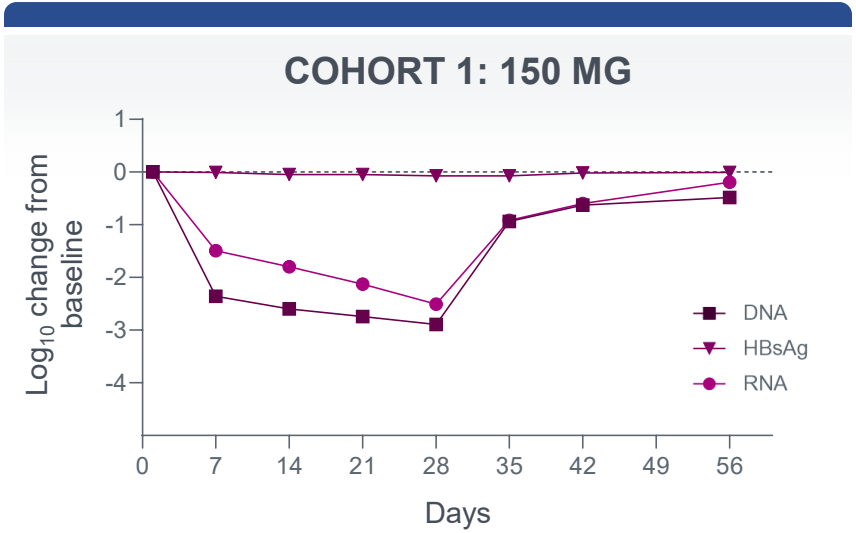
Supportive of the ability to potentially achieve double-digit multiples over $paEC_{50}$

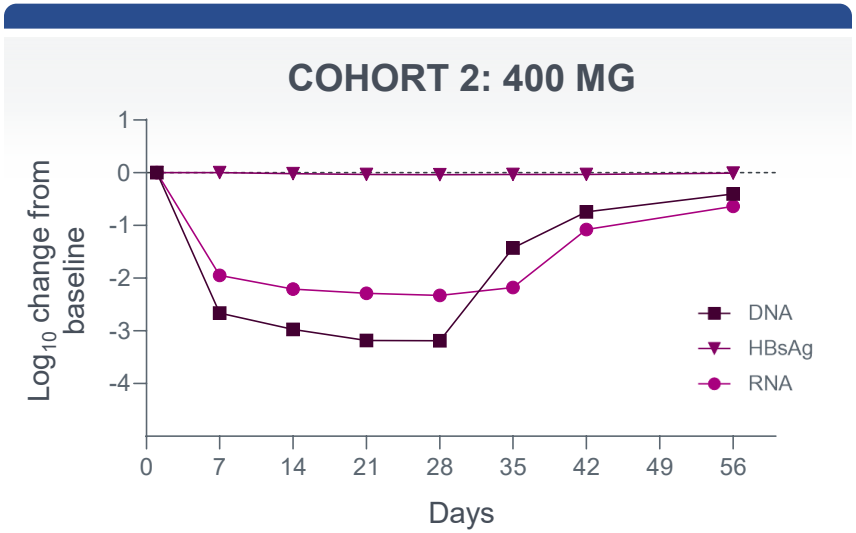
	4334 Phase 1b Cohorts[1]	
	150mg[2]	400mg[2]
Fold of $C_{min}/paEC_{50}$ MOA #1 (antiviral)	62x	269x
Fold of $C_{min}/paEC_{50}$ MOA #2 (cccDNA)	12x	52x

1. Jucov et al. AASLD, 2025; nonclinical potency data on file
2. Based on observed data on day 28

cccDNA, covalently closed circular DNA ; Cmin, daily minimum plasma trough concentration; paEC50, protein-adjusted concentration of a drug that gives half-maximal response; PK, Pharmacokinetics

Positive Phase 1b Data: ABI-4334 Demonstrates Potent Antiviral Activity





HBeAg-positive or -negative cHBV infected participants not on NrtI, randomized 8:2 active:placebo per cohort

- 2.9 and 3.2 $\log_{10}$ IU/mL mean decline in HBV DNA over 28 days observed in 150 mg and 400 mg cohorts, respectively, supporting ability of lower dose to potentially saturate antiviral mechanism of action
- Limited changes in HBsAg observed as expected given 28-day treatment period

Topline Safety Data Supports Flexibility in Dose Range

	Placebo (N=4)	ABI-4334 150mg (N=8)	ABI-4334 400mg (N=8)
Subjects with any TEAE (max toxicity), N (%)	2 (50%)	5 (62.5%)	6 (75%)
Grade 1, N (%)	0	2 (25%)	1 (12.5%)
Grade 2, N (%)	2 (50%)	2 (25%)	5 (62.5%)
Grade 3, N (%)	0	1 (12.5%)*	0
Grade 4, N (%)	0	0	0
TEAE related to study drug, N (%)	1 (25%)	5 (62.5%)	1 (12.5%)
Serious TEAE, N (%)	0	0	0
TEAE leading to study drug discontinuation, N (%)	0	0	0
Death	0	0	0
Number (%) of subjects with any graded TE lab abnormalities	3 (75%)	6 (75%)	8 (100%)
Grade 1, N (%)	3 (75%)	5 (62.5%)	8 (100%)
Grade 2, N (%)	3 (75%)	3 (37.5%)	4 (50%)
Grade 3, N (%)	1 (25%)**	1 (12.5%)*	0
Grade 4, N (%)	0	0	0

*ALT elevation; resolved by Day 28 with continued dosing of ABI-4334
** Total Bilirubin increased

ABI-7272:
Oral Broad-Spectrum Non-Nucleoside Polymerase Inhibitor (NNPI) for Transplant-Associated Herpesviruses

IND/CTA-enabling studies

Multiple Herpesviruses Can Cause Significant Morbidity and Mortality in Immunocompromised Transplant Recipients

95,000 PATIENTS AFFECTED[1]

AMONG TRANSPLANT PATIENTS:

~60% are CMV positive

~60% are HSV positive

~80% are VZV positive

~45% are EBV positive

Lifelong latent infections

FREQUENTLY REACTIVATE DURING IMMUNOSUPPRESSION

Uncontrolled viral replication

AND SEVERE DISEASE DURING REACTIVATION

Risk of graft loss and death

SOC antivirals are:

- **PARTIALLY EFFICACIOUS**
- **NOT BROAD-SPECTRUM**
- **HAVE TOLERABILITY AND DRUG INTERACTION LIMITATIONS**

An oral broad-spectrum herpesvirus antiviral could improve efficacy and greatly simplify treatment

Patel and Paya. Clin. Microbiol. Rev. 1997; Breuer, et al. Mol. Diagn. Ther. 2012; Clark, et al. Semin. Respir. Crit. Car Med. 2013; Haidar and Singh. Curr. Opin. Infect. Dis. 2019; Beyar-Katz et al. Clin. Microbiol. Infect. 2020; Kwon et al. Transp. Infect. Dis. 2021; Wutzler et al. Vaccine 2001; Bauer et al. BMC Infect. Dis. 2010; Reynolds et al. Public Health Rep. 2010; Lanzieri et al. Int. J. Gynaecol. Obstet. 2016; Lachmann et al. PLoS One 2018; Patton et al. Clin. Infect. Dis. 2018; Ayoub et al. BMC Med. 2019; Zuhair et al. Rev. Med. Virol. 2019; Zhang et al. Virol. J. 2022; Marty et al. NEJM 2017; Limaye et al. JAMA 2023; Witzke et al. Transp. 2012; Witzke et al. Transp. 2018; Höcker et al. Clin. Infect. Dis. 2012; Cho et al. Am. J. Clin. Pathol. (2014); Holman et al. Clin. Transplant (2012); Bamoulid et al. Am. J. Transplant. (2013); Verghese et al. Transplant. (2015).

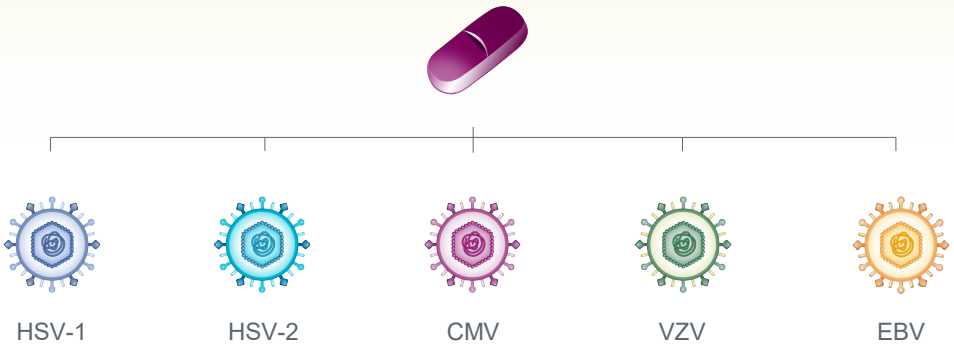
1. EBMT, OPTN, UNOS, and IRODAT (estimate for transplanted-associated herpesvirus reflects US and EU only).

ABI-7272 is Designed to Provide Significant Innovation Over Current Standard of Care

CONSERVED VIRAL POLYMERASES PROVIDE OPPORTUNITY FOR BROAD-SPECTRUM HERPESVIRUS INHIBITION

OPPORTUNITY TO ADVANCE CURRENT STANDARD OF CARE

- Improve efficacy and broaden spectrum of antiviral activity
- Simplify treatment (1 agent to target 5 viruses)
- Improve tolerability and reduce drug-drug interactions



IND/CTA ENABLING
studies ongoing

Nasdaq: ASMB