Enanta Pharmaceuticals

Great Chemistry Cures

Corporate Presentation

June 2022

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A Proven Approach to Drug Discovery

Using a proven, chemistry-driven approach to develop best-in-class small molecule drugs for virology and liver disease

Robust Clinical Stage Pipeline

RSV: Phase 2 in pediatric patients (RSVPEDs) ongoing

Phase 2b in adult stem cell transplant patients (RSVPTx) ongoing

Phase 2b in high-risk adults to initiate by year-end

Phase 1 in healthy volunteers with EDP-323 to initiate in 2H 2022

HBV: Two Phase 1b studies completed

COVID-19: Phase 1 in healthy volunteers ongoing

Proven Track Record of Success

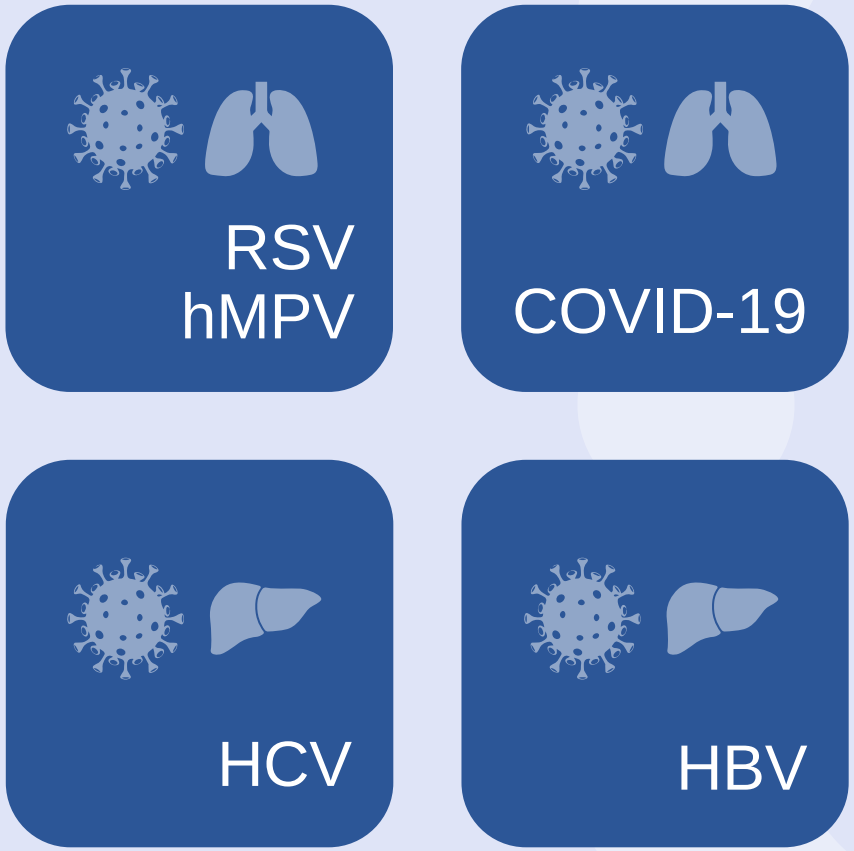
Glecaprevir – HCV protease inhibitor in MAVYRET®/MAVIRET®

$97M in fiscal 2021 royalties on HCV regimens

Strong Balance Sheet

Strong balance sheet and royalties to fund robust pipeline

$322.5M in cash at 3/31/22



Our Therapeutic Focus

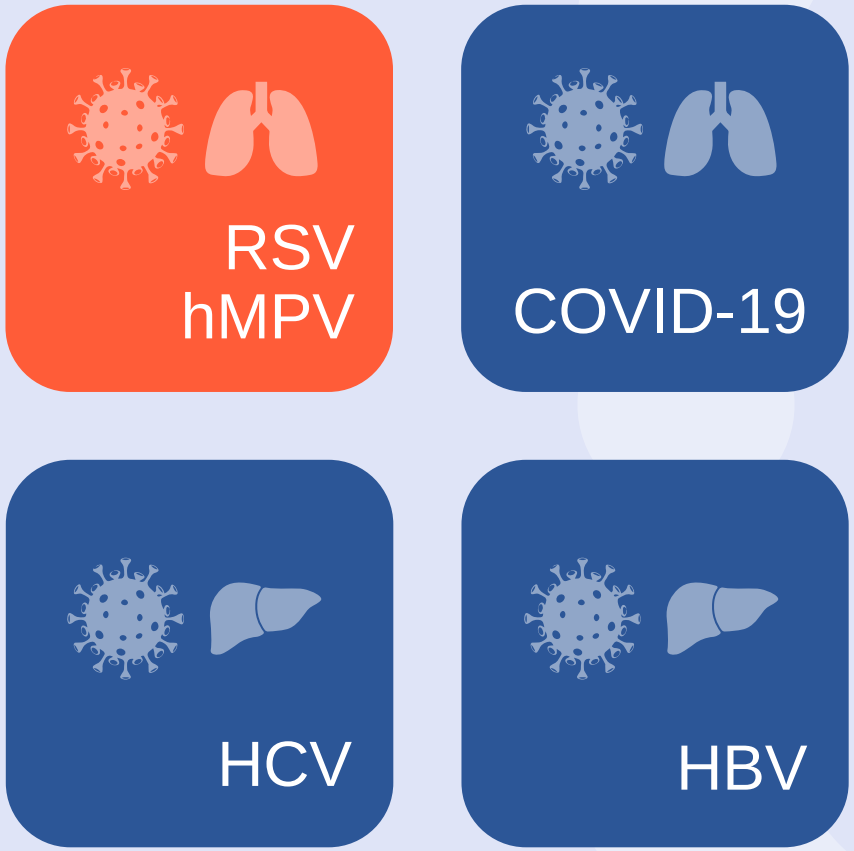
Leveraging our core strength in Hepatitis C to become a leader in oral treatments for **viral** infections and **liver** diseases

Several new therapeutic areas with goal of building multiple approaches in each

Enanta Pipeline

	PRODUCT CANDIDATE		DISCOVERY	PRECLINICAL	PHASE 1	PHASE 2	PHASE 3	MARKET
Virology: Liver	**HCV**	Protease Inhibitor	**Glecaprevir-containing pangenotypic 2-DAA combo**					MAVYRET glecaprevir/pibrentasvir
	HBV	Core Inhibitor	**EDP-514**					
Virology: Respiratory	**RSV**	N-Protein Inhibitor	**EDP-938** *RSVPEDs*					
			EDP-938 *RSVTx*					
			EDP-938 *RSV-HR* *initiating in 2H22*					
		L-Protein Inhibitor	**EDP-323**					
	hMPV	Non-Fusion Inhibitor						
	COVID-19	Protease Inhibitor	**EDP-235**					
Discovery or Preclinical	**RSV, HBV, other**							
For Out-license	**NASH**	FXR Agonists	EDP-305 (Phase 2), EDP-297 (Phase 1)					

*Fixed-dose combination contains glecaprevir and AbbVie's NS5A inhibitor, pibrentasvir. Marketed by AbbVie as MAVYRET® (U.S.) and MAVIRET® (ex-U.S.).



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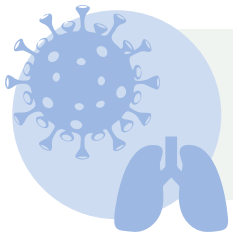
Several new therapeutic areas with goal of building multiple approaches in each

Respiratory Syncytial Virus (RSV)



Causes severe lung infections, including bronchiolitis (infection of small airways in the lungs) and pneumonia (an infection of the lungs). No safe and effective treatments.

Higher risk populations for severe illness:

- Young infants and children
- Premature babies
- Older adults especially those 65+ years
- People with chronic lung disease or certain heart problems
- People with weakened immune systems (e.g. HIV, organ transplant, chemotherapy)

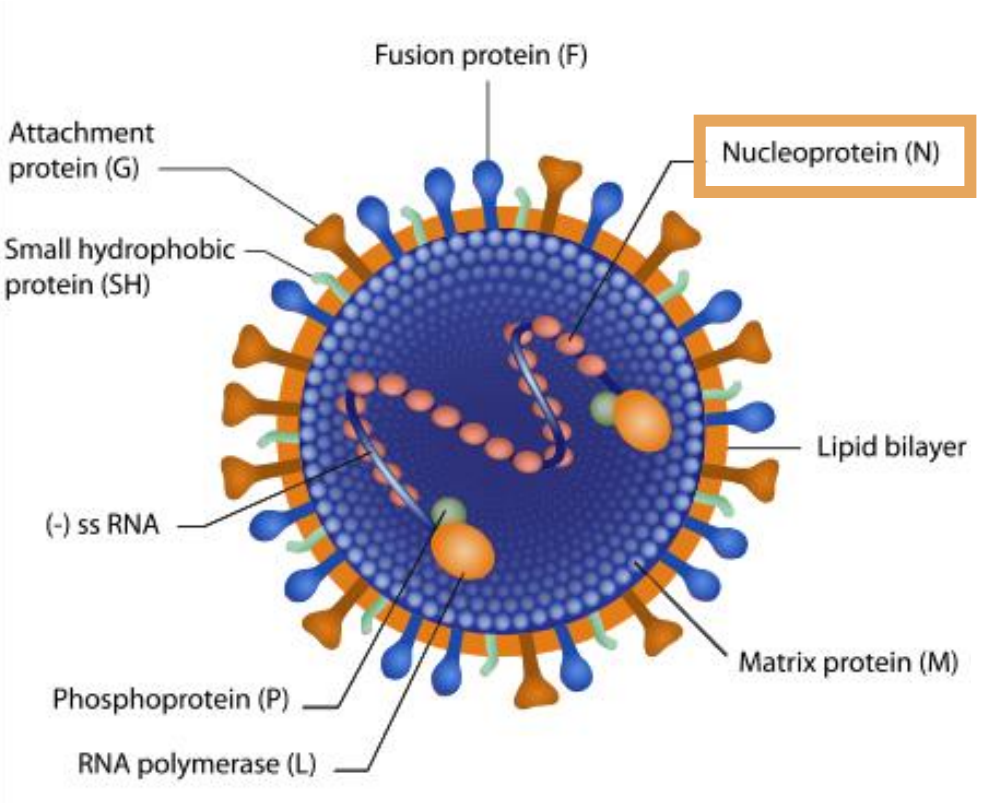
RSV at a Glance

Children < 5 years[1,2]	Adults > 65 years[3]
33M global cases	
3M global hospitalizations	177K U.S. hospitalizations
120K global deaths	14K U.S. deaths
2.1M U.S. hospitalizations/ outpatient visits, of which 78% are older than 1 year	

Sources: 1.https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5592248/ 2. https://www.nejm.org/doi/full/10.1056/NEJMoa0804877 3. https://www.cdc.gov/rsv/high-risk/older-adults.html

EDP-938: N-Protein Inhibitor for RSV

- EDP-938 is the only N-inhibitor under clinical evaluation
  - Non-fusion approach directly targets viral replication vs. entry
  - Granted Fast Track designation by FDA
- Strong preclinical virologic profile:
  - Nanomolar inhibitor of both RSV-A and RSV-B activity
  - Maintained antiviral potency across all clinical isolates tested
  - Demonstrated high-barrier to resistance *in vitro*
  - Synergy with other drug mechanisms (e.g. fusion and L-inhibitors)
  - Active against virus variants resistant to other mechanisms
  - Robust efficacy data in non-human primate model



EDP-938: Summary of Data Across Completed Clinical Studies

- Safety and Pharmacokinetic Summary
  - Generally safe and well-tolerated; AEs infrequent, generally mild, and resolved in follow-up
  - No serious or severe AEs
  - Consistent safety profile observed in approximately 500 subjects exposed to date
  - Mean Ctrough concentrations were approximately >20-40x higher than EC90
- Efficacy Summary
  - Phase 2a challenge study: highly statistically significant ($p<0.001$) reductions in RSV viral load and clinical symptoms compared to placebo after 5 days of treatment
  - RSVP study in otherwise healthy adults with community-acquired, mild, self-resolving RSV
    - Did not meet primary endpoint of clinical symptom reduction or secondary antiviral endpoints
    - Statistically significant percent of subjects achieved undetectable RSV RNA at end of treatment
    - Although treated within 48 hours of symptom onset, viral load and symptoms had already peaked and were declining, indicating infection resolves quickly in this otherwise healthy population

EDP-938: Best Antiviral Treatment for RSV in Late Development

Properties		EDP-938	Rilematovir/ JNJ53718678[1]	Ziresovir/ AK-059	Sinsunatovir/ RV521[2]
Mechanism		**N inhibitor**	Fusion inhibitor	Fusion inhibitor	Fusion inhibitor
Pre-clinical effectiveness after Infection		Yes	Development Discontinued	No	No
Clinical Efficacy (challenge study[5])	Viral Load Reduction[3]	75% (p<0.001)	41% (p=0.06)	NA	55% (p=0.007)
	Symptoms[4]	71% (p<0.02)	60% (p=0.02)	NA	71% (p=0.018)
Resistance Barrier		**High**	Low	Low	Low
Dosing Frequency		**5 days; 800mg QD**	7 days; 250mg BID	5 days; BID	5 days; 200mg BID
Stage of Development		**Global Phase 2**	Global Phase 2	Asia Phase 3	Global Phase 2

1. Stevens et al, 2018 JID; 218(5):748-756
2. DeVincenzo et al, 2020; AAC; 64(2)

NA = not available; challenge study not performed

3. % reduction in viral load (VL) area under the curve (AUC) as measured by qPCR
4. % reduction in total symptom score (TSS) AUC
5. Data from selected dose moving forward

EDP-938 Development Plans:
Treatment for Patients at High-Risk for Severe RSV Infection

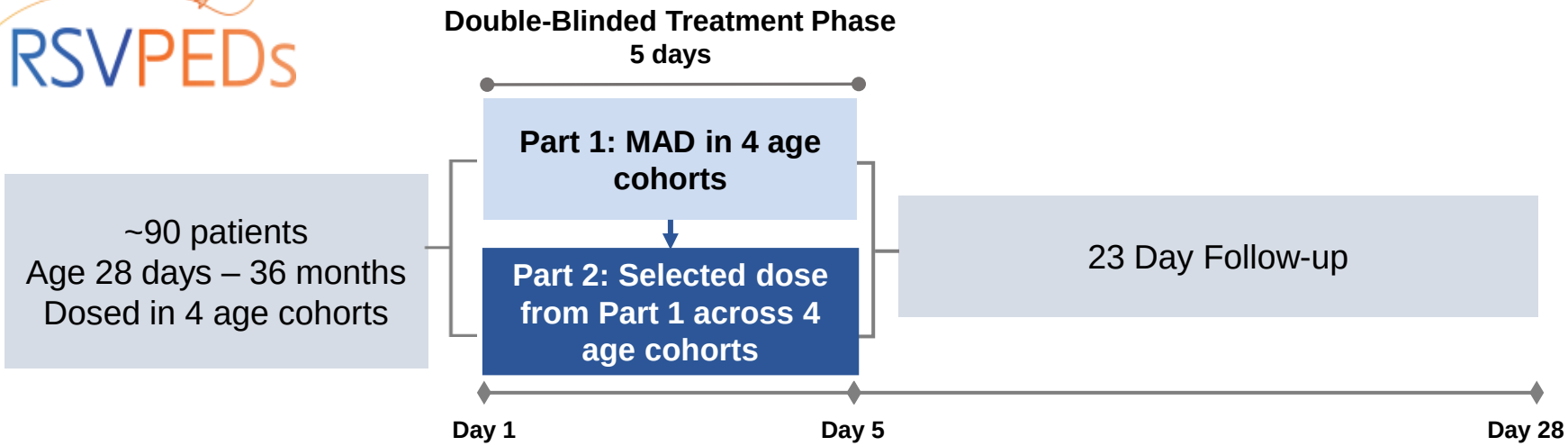
High-risk populations have reduced RSV immunity, resulting in a higher and longer duration of viral load and greater disease severity, allowing a bigger window to observe benefit

Goal: Treat patients at high-risk for developing severe infection leading to hospitalization or death, populations with the most significant unmet need

RSVPEDs	Infants and young children
RSVTx	Immunocompromised (e.g.; HSC, lung transplant)
RSV-HR *Initiating 2H22*	Elderly Chronic heart or lung disease (e.g.; asthma, COPD, CHF)

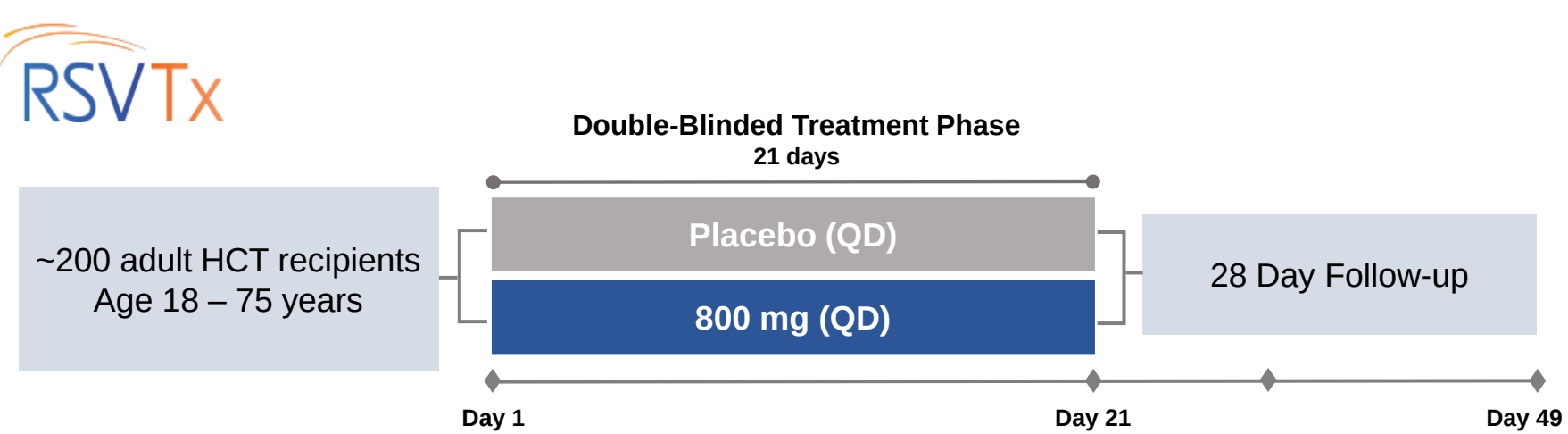
Ongoing Phase 2 Clinical Trials: RSVPEDs and RSVTx

RSVPEDs



- **Primary Objective, Part 1:** Safety and PK of EDP-938
- **Primary Objective, Part 2:** Antiviral activity of EDP-938

RSVTx

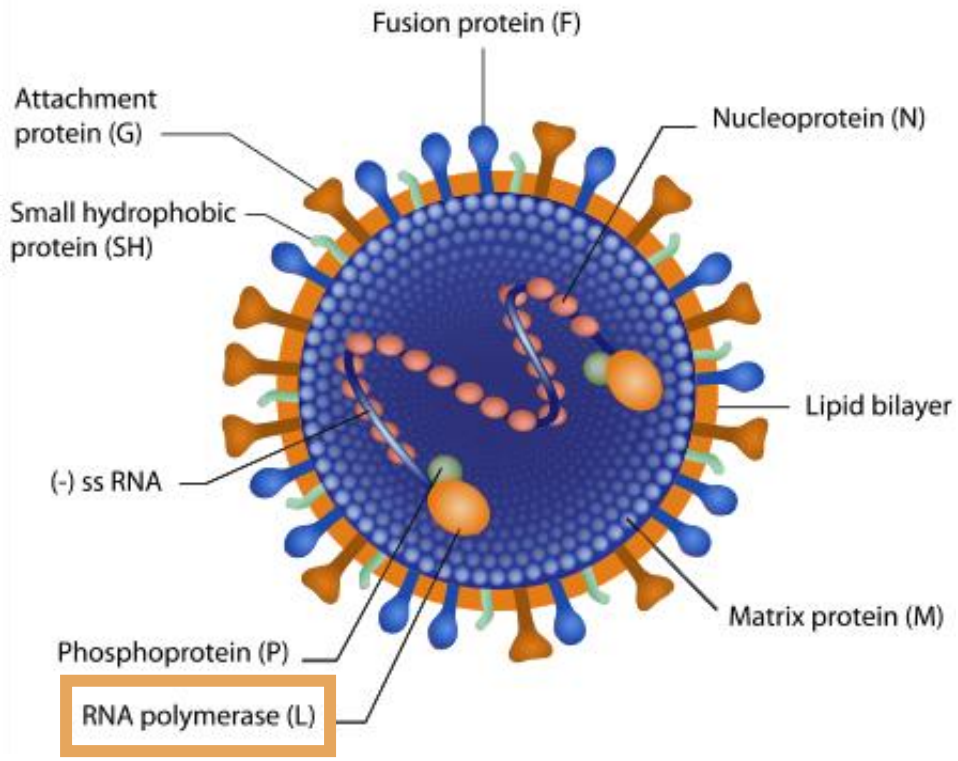


- **Primary Objective:** Effect of EDP-938 on development of LRTC in HCT subjects with acute RSV URTI
- **Secondary Objectives:** Viral load, progression to respiratory failure or all-cause mortality, PRO, PK and safety

LRTC: lower respiratory tract complication; HCT: hematopoietic cell transplant; URTI: upper respiratory tract infection; PRO: patient reported outcomes; PK: pharmacokinetics

EDP-323: RSV L-Protein Inhibitor

- Novel, oral, selective direct-acting antiviral targeting the RSV L-protein
  - RSV L-protein is a viral RNA-dependent RNA polymerase that contains multiple enzyme activities required for RSV replication
- Potential to be used alone or in combination with other classes of RSV inhibitors, such as EDP-938
  - Additive to synergistic with F-, N-, L-inhibitors and ribavirin
  - Not expected to have cross resistance with other mechanisms
- Nanomolar potency against RSV-A and RSV-B



EDP-323 is a Potent Inhibitor of RSV Replication *In Vitro* With Excellent Preclinical Pharmacokinetics

- Sub-nanomolar inhibition of RSV replication in a range of cell types
  - Active against both major RSV subtypes

Virus	Cell Type	EC_{90} (nM)
RSV-A Long	pHAEC ALI	**0.27**
RSV-B VR-955	pHAEC ALI	**0.33**
RSV-A Long	HBEC	**0.16**

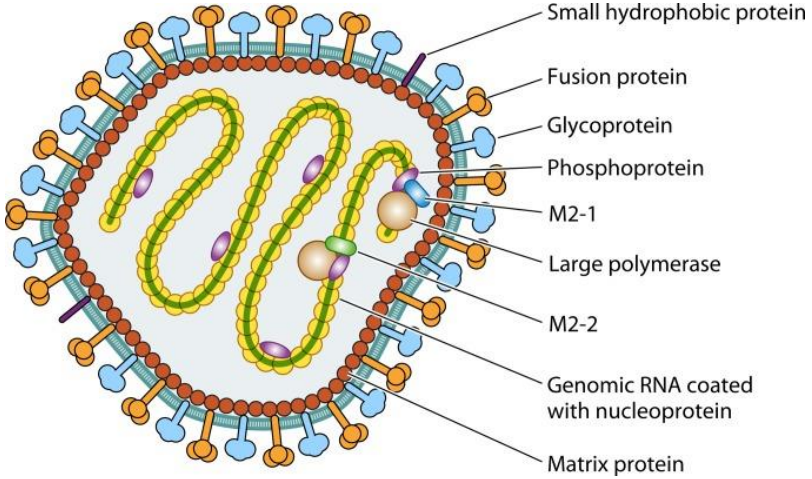
RT-qPCR readout
pHAEC ALI: primary human airway epithelial cells in air-liquid interface culture
HBEC: human bronchial epithelial cells
50% cytotoxic concentration (CC_{50}) at 5 days = 17,000 – 29,000 nM

- Well-absorbed with good plasma exposure across multiple preclinical species
- High permeability/absorption potential in human

Human Metapneumovirus (hMPV)

Important cause of respiratory tract infections (RTIs), particularly in children, the elderly and immunocompromised individuals

- Paramyxovirus closely related to RSV
  - hMPV replication dependent on several viral proteins that form a multiprotein complex in cells
  - Multiple potential targets for hMPV drug discovery
- No approved vaccine or therapeutics available
- Enanta nanomolar hMPV inhibitor leads under active optimization



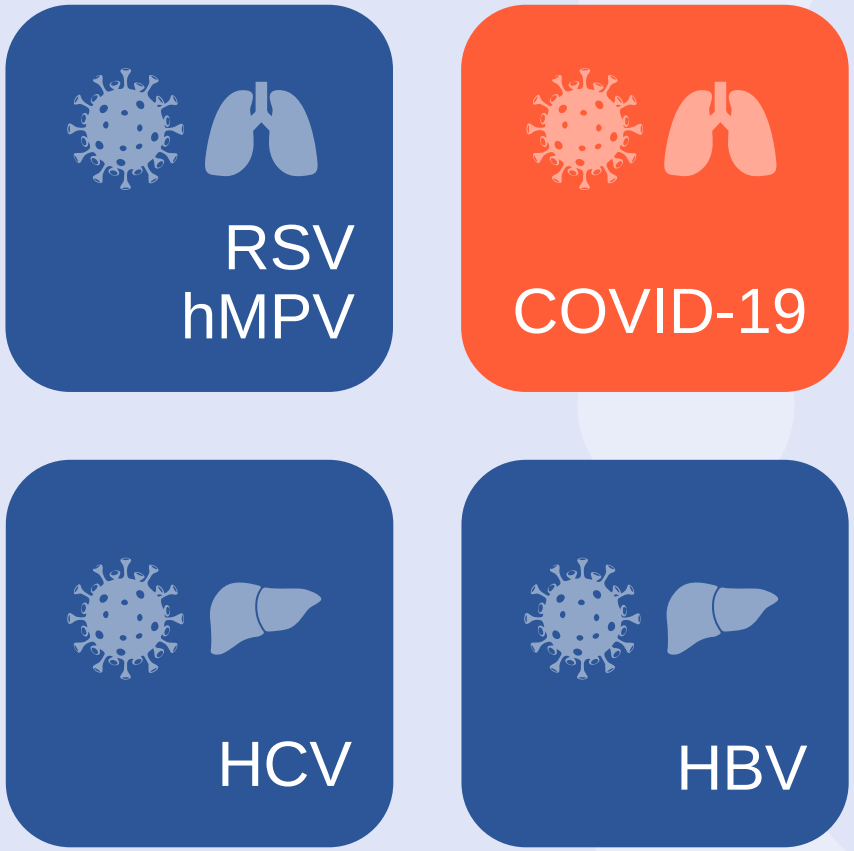
hMPV at a Glance[1]

Serious respiratory infections can occur in children under 5 years old

Second most common cause of lower RTIs in children (behind RSV)

Reinfection with hMPV occurs throughout life

Source: 1. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1539100/



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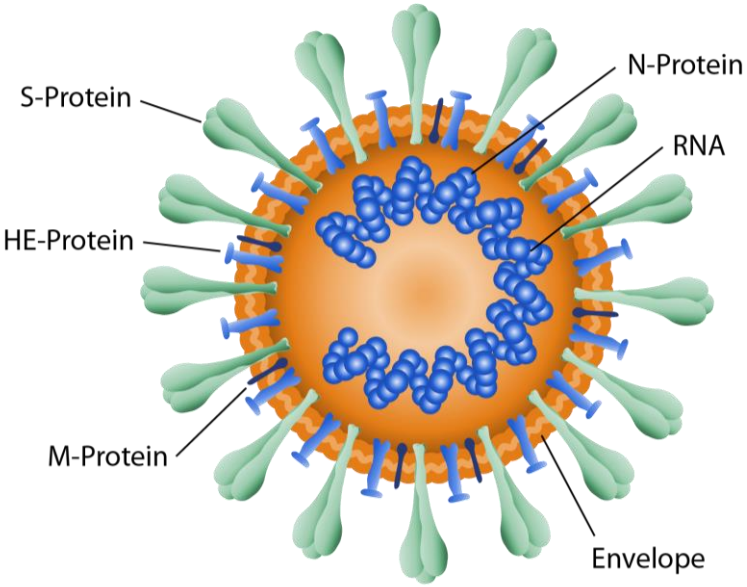
Several new therapeutic areas with goal of building multiple approaches in each

EDP-235: Oral Protease Inhibitor Specifically Designed for COVID-19

- Novel, oral, direct-acting antiviral specifically designed to target the SARS-CoV-2 protease
- Granted Fast Track designation by FDA
- Potent inhibition of SARS-CoV-2 3CLpro enzyme (IC_{50} = 5.8 nM)
  - Activity retained against proteases from SARS-CoV-2 variants, including Omicron
- Potent and selective inhibition of SARS-CoV-2 replication in multiple cellular models, including primary human airway epithelial cells (EC_{90} = 33nM)
- Active against other human coronaviruses
- High barrier to resistance observed preclinically
- Predicted human efficacious dose of 100 to 500mg once-daily
  - Good oral bioavailability (95% in rats), target tissue distribution (lung to plasma AUC ratio >4), and long half-life (16 hours)
- Began dosing in February 2022; Plan to report preliminary data in July 2022



EDP-235: Highly Potent 3CLpro Inhibitor and Retains Activity Against SARS-CoV-2 Variants

Assay		Lineage	Potency (nM)
Biochemical Activity	3CLpro FRET (IC_{50})	B.1.1.529, *BA.2* (P132H) *[Omicron]*	**4.1** ± 0.8
		A *[Original]* / *B.1.617.2 [Delta]**	**5.8** ± 3.7
		B.1.1.318 (T21I)	**2.0** ± 0.1
		B.1.351 (K90R) *[Beta]*	**2.8** ± 0.9
		B.1.351.2 (K90R/A193V) *[Beta]*	**5.4** ± 1.0
		B.1.617.3 (A194S)	**5.7** ± 0.5
		C.36.3 (G15S)	**4.7** ± 2.5
		P.2 (L205V) *[Zeta]*	**3.4** ± 1.0
Cellular Activity	Vero E6-TMPRSS2, Viral yield (EC_{50})	B.1.1.529 (+P-pgi) *[Omicron]*	**7.3**
	Vero E6, CPE (EC_{50})	B.1.617.2 (+P-pgi) *[Delta]*	**4.3**
	HuH-7, SARS-CoV-2 Replicon	A	**4.5** ± 1.7
	Vero E6, CPE (EC_{50})	A (+P-gpi) *[Original]*	**5.1** ± 0.3
	Vero E6, Viral yield (EC_{50})	B (+P-gpi)	**3**
	pHAEC, Viral yield and qPCR (EC_{90})	B	**33**

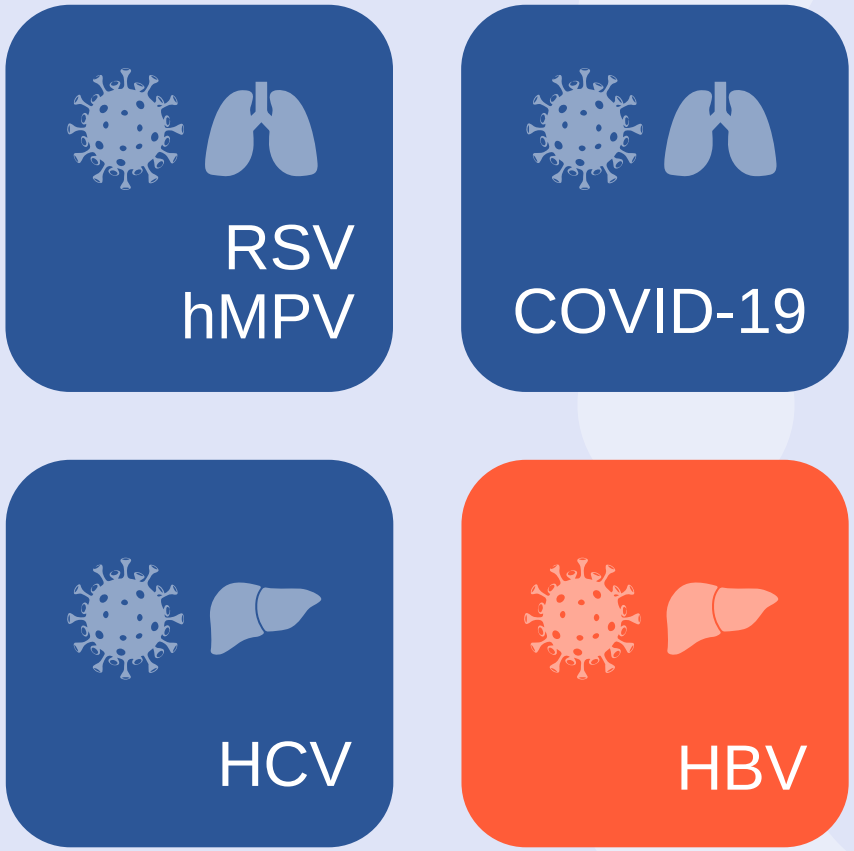
FRET: fluorescence resonance energy transfer, CPE: cytopathic effect, P-gpi: P-glycoprotein inhibitor CP-100356 (2 µM), pHAEC: primary human airway epithelial cells, qPCR: quantitative polymerase chain reaction
*3CLpro sequences for the ancestral A lineage and B.1.617.2 (Delta) variant are identical

EDP-235 Preclinical Profile Suggests Potential for Best-in-Class Antiviral Treatment for SARS-CoV-2 Infection

Preclinical Properties		EDP-235[1]	Nirmatrelvir[2]	PBI-0451[3]	S-217622[4]	Molnupiravir[5]	AT-527[6]
Mechanism		**Protease**	Protease	Protease	Protease	Polymerase	Polymerase
Potency	Enzyme IC_{50} (nM)	**5.8**	19	20 – 30	13	n/a	n/a
	Vero Cell EC_{50} (nM)	**5.1**	75	48	69	1410*	470** (EC_{90} in pHAEC)
Oral Bioavailability[7]		**95%**	34 – 50%	n/a	97%	36 – 56%	n/a
Lung Penetration[8]		**4.1**	0.8[9]	~1	0.7[9]	1.8	0.8
Projected Efficacious Dose		**100 – 500mg QD**	300mg/100mg ritonavir BID	750 or 1050 mg BID	375(D1)/125 (D2-5); 750(D1)/250 (D2-5) QD	800mg q12h	550mg BID

*Data from N-hydroxycytidine (NHC): molnupiravir prodrug of NHC
**Data from AT-511 (AT-527 is the hemi-sulfate salt of AT-511)
pHAEC: primary human airway epithelial cells

1. Jiang *et al.,* ISIRV Poster #120, Oct 19, 2021
2. Owen *et al.*, medRxiv, July 2021; EUA fact sheet for healthcare providers
3. Pardes Corporate Presentation, June and November 2021
4. Tachibana, *et al.,* ISIRV oral presentation, Oct 20, 2021; Unoh, *et al.,* bioRxiv 2022; Sasaki, *et al.*, bioRxiv 2022; Yotsuyanagi, *et al.,* ECCMID oral presentation, Apr 24, 2022
5. Grobler *et al.,* ID Week 2021, Poster 543; Painter *et al.,* Antiviral Research Nov 2019
6. Good *et al., AAC*, 2021; Atea 2Q2021 earnings presentation; Atea 1Q2022 earnings presentation
7. Oral bioavailability in rats for EDP-235, nirmatrelvir, and S-217622; in mice for molnupiravir
8. AUC lung to plasma ratio in rats (EDP-235, nirmatrelvir, S-217622), mice (molnupiravir); C_{12} lung to plasma ratio in humans for AT-527
9. Data for nirmatrelvir and S-217622 generated by Enanta



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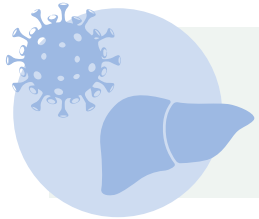
Hepatitis B Virus (HBV)



Potentially life-threatening liver infection caused by the hepatitis B virus

- In 2019, hepatitis B resulted in an estimated 820,000 deaths, mostly from cirrhosis and hepatocellular carcinoma (primary liver cancer)[1]
- Current treatments rarely give true cures
  - **Interferon** is ~10% effective, but with side effects[2]
  - **Reverse-transcriptase inhibitors** effective at reducing viral load, but low cure rates (1% or lower) and treatment for life to improve cirrhosis or HCC outcomes[3]

HBV at a Glance	
U.S.	850K – 2M people[4]
Europe and European Economic Area	~4.7M people[5]
Worldwide	~290M people[6]

Sources: 1. https://www.who.int/news-room/fact-sheets/detail/hepatitis-b 2. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5401664/ 3. https://pubmed.ncbi.nlm.nih.gov/30342034/ 4.https://jamanetwork.com/journals/jama/fullarticle/2738558 5.https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5356432/ 6.https://pubmed.ncbi.nlm.nih.gov/29599078/

EDP-514: HBV Core Inhibitor

- A novel core inhibitor that displays potent anti-HBV activity at multiple points in the HBV lifecycle
- Granted Fast Track designation by FDA

In vitro

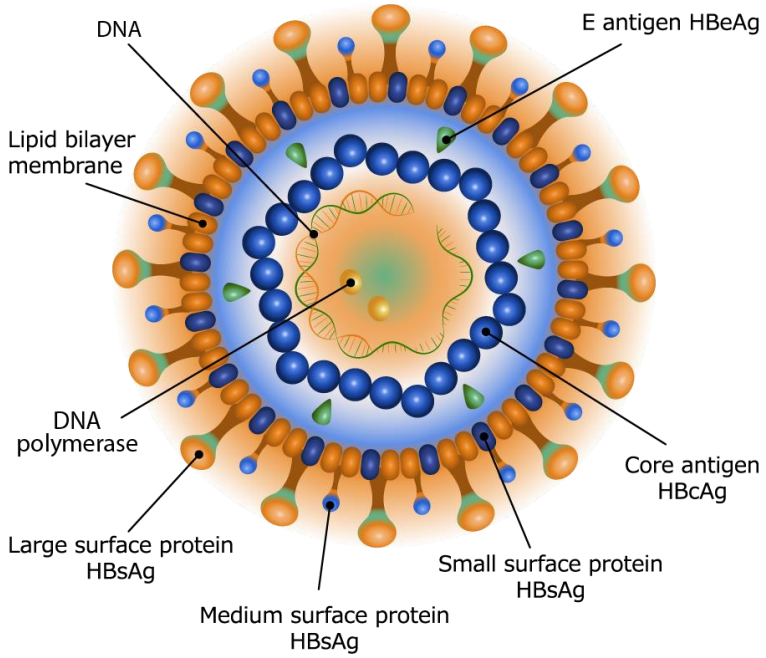
- Potent anti-HBV activity in HBV expressing stable cell lines
- Capable of preventing the establishment of cccDNA
- Pan-genotypic activity

In vivo

- Favorable tolerability and pharmacokinetic profile
- Over 4-log reduction in HBV viral titers with 12 weeks of treatment in a chimeric liver mouse model

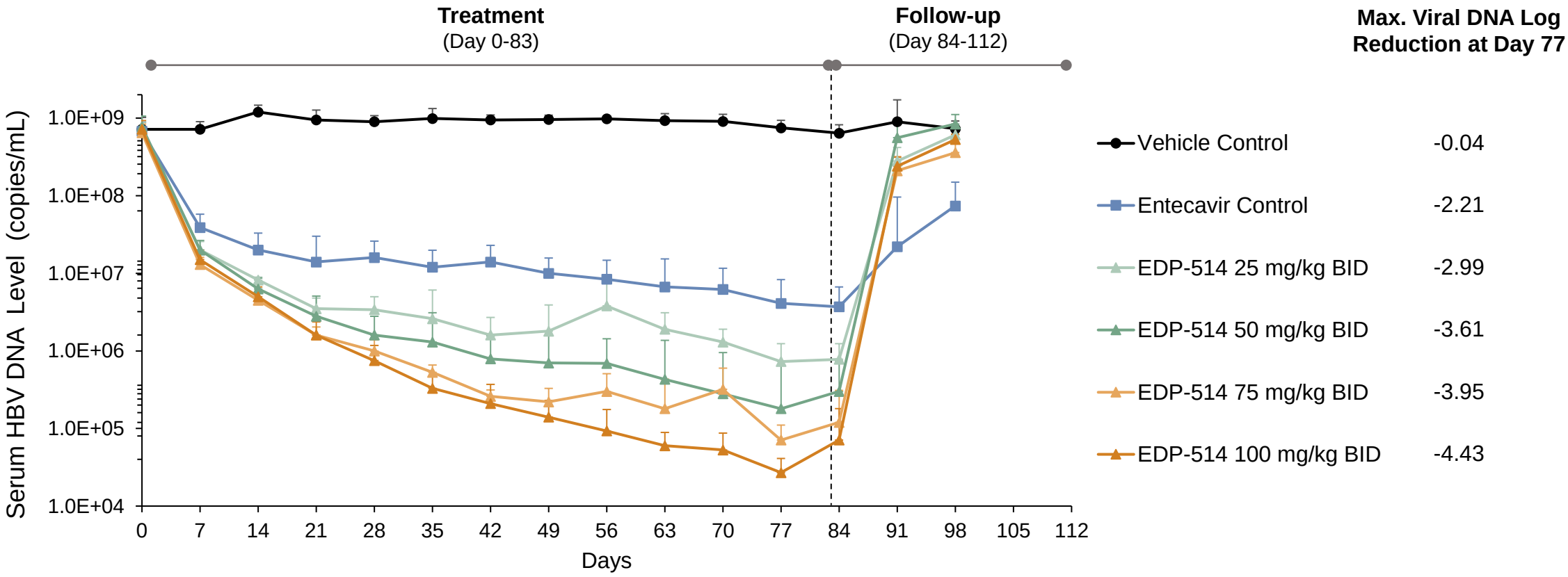
Phase 1a

- Healthy volunteer SAD/MAD
- Generally safe and well tolerated for up to 14 days
  - All reported treatment emergent adverse events of mild severity
- Pharmacokinetics supportive of once-daily dosing with no food effect

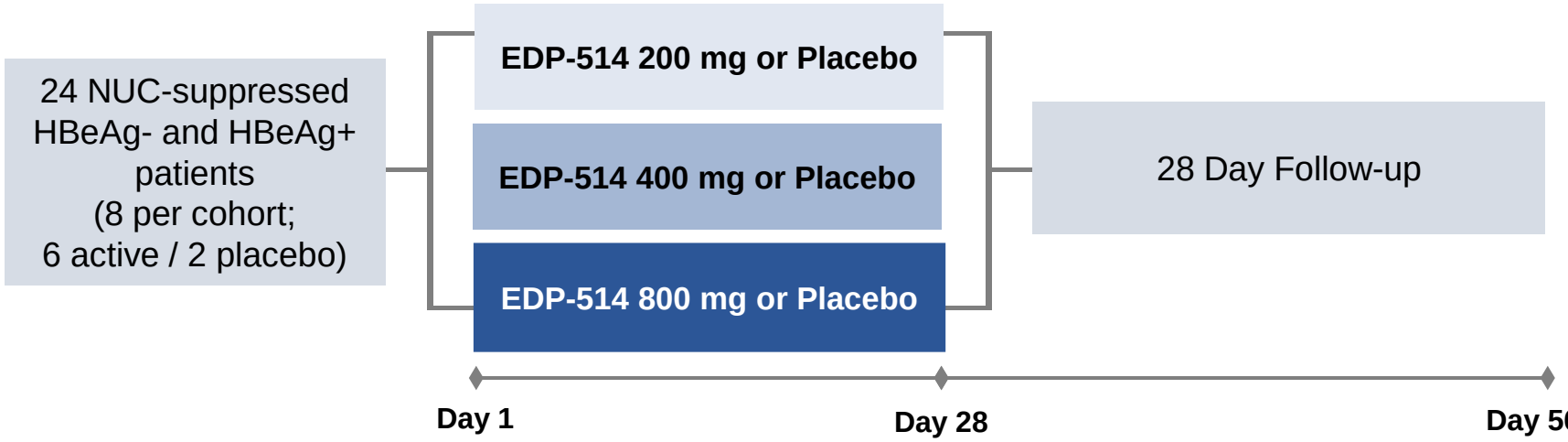


EDP-514: Efficacious in the Humanized Liver Mouse Model

- uPA/SCID mice were infected with genotype C HBV and dosed with EDP-514 for 12 weeks



EDP-514 Phase 1: Positive Data in NUC-Suppressed Patients



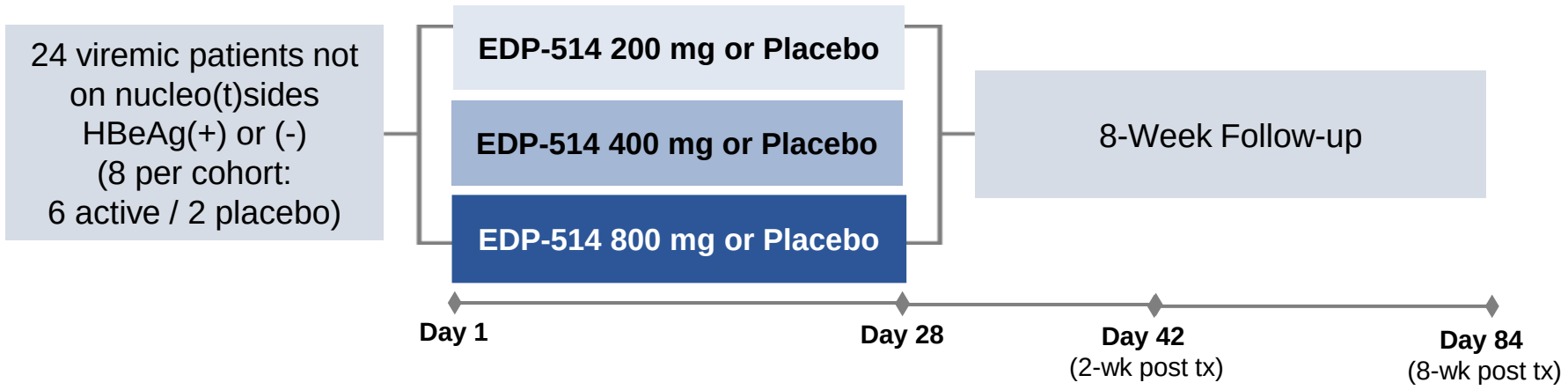
- **Primary Objective:** Safety and tolerability
- **Secondary Objective:** PK and antiviral activity

Positive data from three dose cohorts: 200 mg, 400 mg and 800 mg of EDP-514

- EDP-514 was safe and well-tolerated in NUC-suppressed subjects at all doses up to 28 days
- Pharmacokinetics supportive of once-daily dosing, with trough concentrations up to ~20-fold the $paEC_{50}$
- Mean reduction in HBV RNA of up to ~1 log compared with 0.2 log in placebo
  - Maximum reduction of 2.3 log (HBeAg-) and 2.8 log (HBeAg+) was observed in patients receiving EDP-514 as compared with 1.2 log in placebo

$paEC_{50}$: protein-adjusted EC_{50}

EDP-514 Phase 1b: Positive Data in Viremic HBV Patients

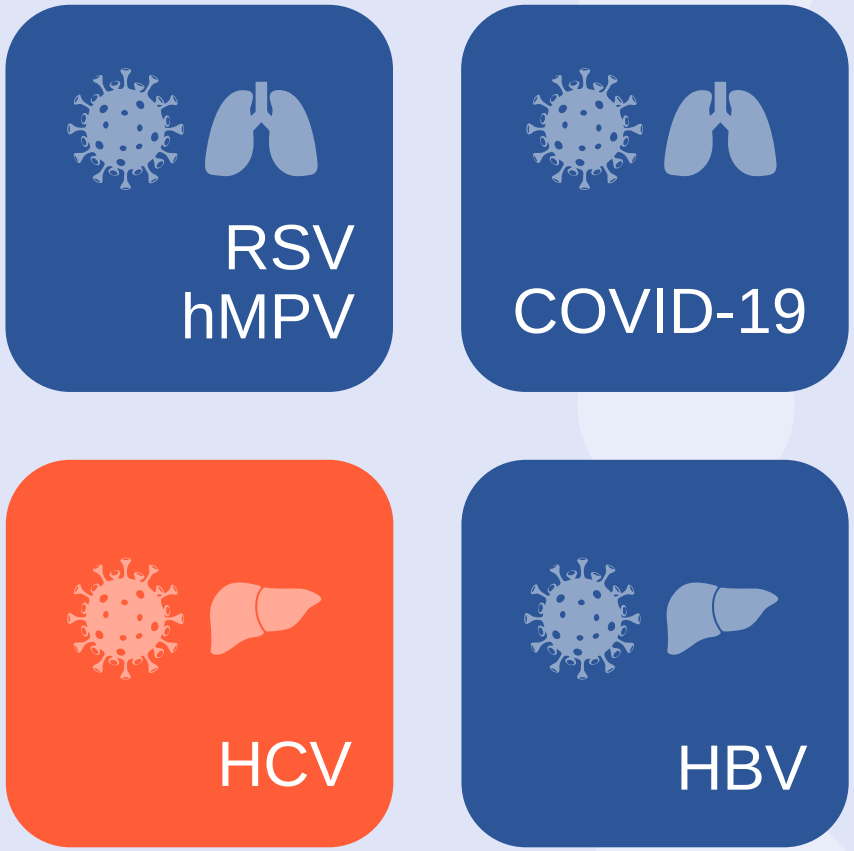


- **Primary Objective:** Safety and tolerability
- **Secondary Objective:** PK and antiviral activity

Positive data from three dose cohorts: 200 mg, 400 mg and 800 mg of EDP-514

- EDP-514 was safe and well tolerated in viremic chronic HBV patients dosed for 28 days
  - No severe or serious TEAEs; no liver enzyme elevations or other clinically significant laboratory abnormalities
  - Safety profile remains consistent across healthy subjects and NUC-suppressed patients
- Pharmacokinetics supportive of once-daily dosing, with trough concentrations up to ~20-fold the paEC50
- Mean reduction in HBV DNA of 2.9, 3.3, 3.5 log in the 200 mg, 400 mg, and 800 mg groups compared with 0.2 log in placebo
- Mean reduction in HBV RNA of 2.9, 2.4, 2.0 log in the 200 mg, 400 mg, and 800 mg groups compared with 0.02 log in placebo

$paEC_{50}$: protein-adjusted EC_{50}, <LLOQ: Below the lower level of quantification, <LOD: Below the limit of detection



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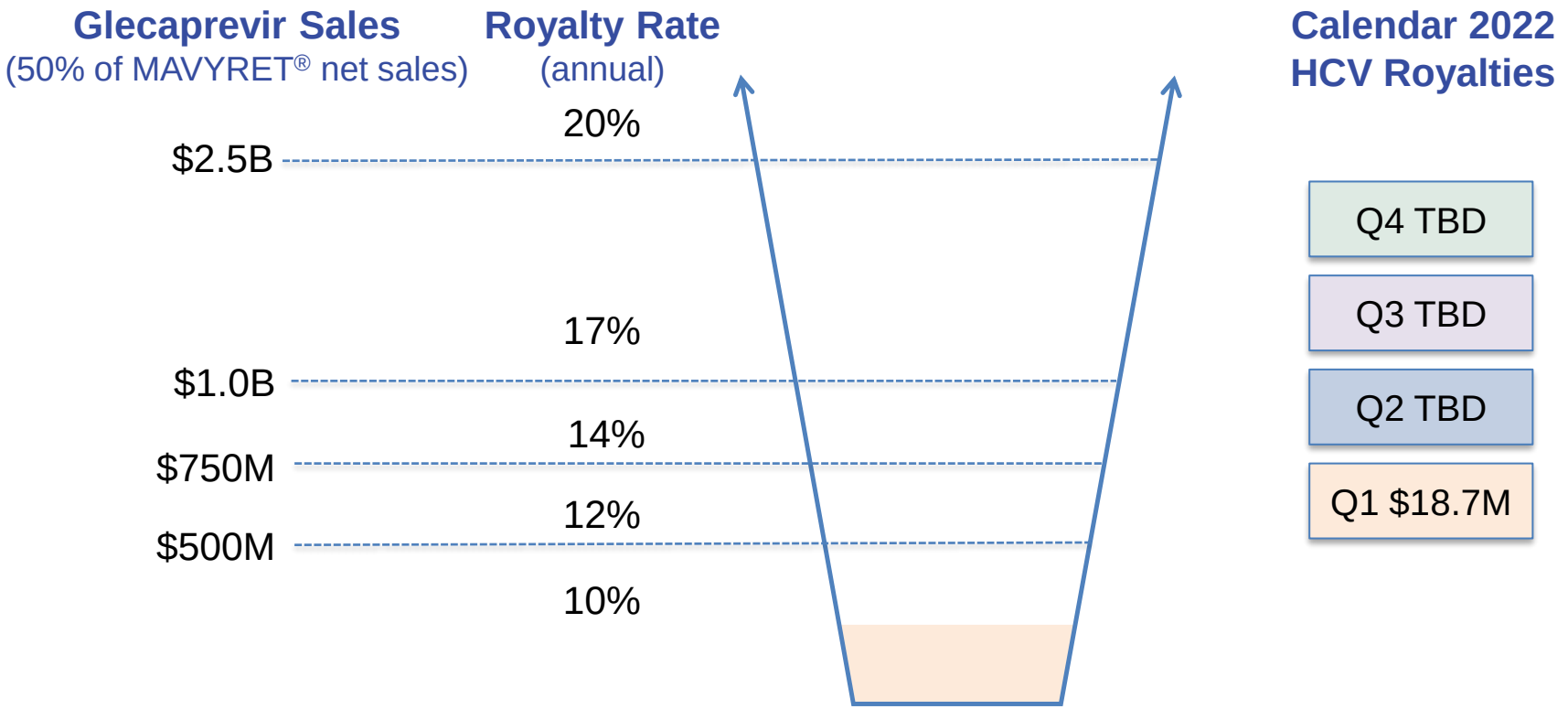
Glecaprevir: Our Licensed Protease Inhibitor for Hepatitis C Virus

Product	Regimen	Enanta Asset	Economics*
MAVYRET glecaprevir/pibrentasvir 100 mg/40 mg tablets	2-DAA (ABBV)	glecaprevir (PI)	Double-digit royalty on 50% of net sales



Calendar 2022 HCV Royalties

- Q4 TBD
- Q3 TBD
- Q2 TBD
- Q1 $18.7M

*Enanta also receives royalties on paritaprevir sales (30% of VIEKIRA 3DAA sales, same tiers)

Financial Highlights

($ In millions except per share amounts)	Fiscal Year Ended Sept. 30, 2021	Fiscal Quarter Ended Mar. 31, 2022
Total Revenues	$97.1	$18.7
R&D Expenses	$174.1	$42.1
G&A Expenses	$32.5	$10.5
Net Loss	$(79.0)	$(33.6)
Net Loss per Diluted Common Share	$(3.92)	$(1.63)
Balance Sheet		
Cash, Cash Equivalents and Marketable Securities	$352.4	$322.5

Key Catalysts 2022

Virology Respiratory

Respiratory Syncytial Virus

- ✓ Report topline data for RSVP Phase 2b trial of EDP-938 in 2Q 2022
- ☐ Continue recruitment for RSVPEDs and RSVTx clinical trials for EDP-938
- ☐ Initiate Phase 2b trial of EDP-938 in high-risk adults by year-end
- ☐ Initiate Phase 1 trial for EDP-323 in 2H 2022

SARS-CoV-2

- ☐ Report preliminary data for Phase 1 trial of EDP-235 in July 2022

Human Metapneumovirus

- ☐ Nominate clinical development candidate in 2H 2022

Virology Liver

Hepatitis B Virus

- ☐ Select third mechanism for HBV combination regimen with EDP-514

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