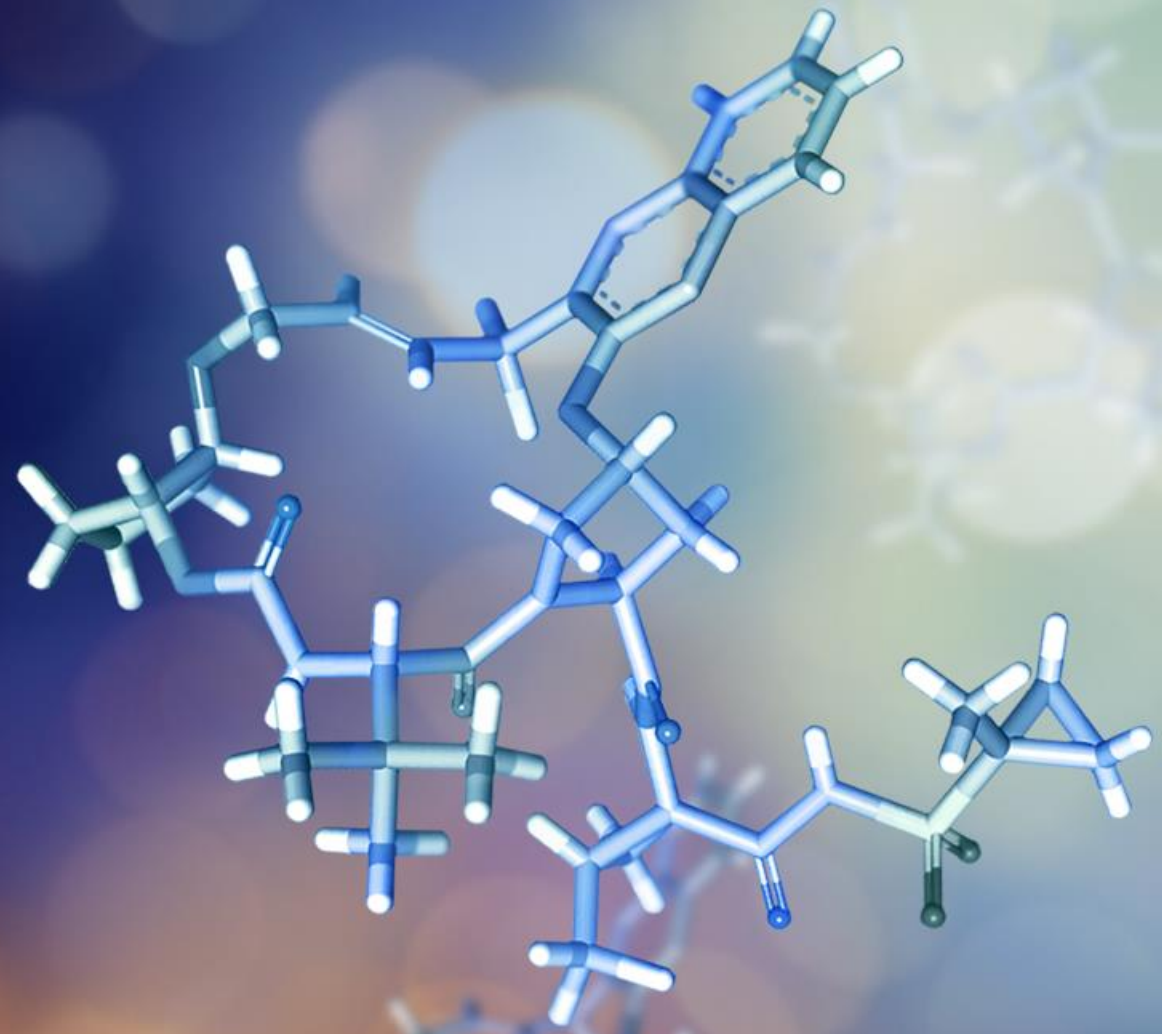
ENANTA Pharmaceuticals

CREATING SMALL MOLECULE DRUGS
FOR VIRAL INFECTIONS AND LIVER DISEASES



Corporate Presentation

June 22, 2021

Forward Looking Statements Disclaimer

This presentation contains forward-looking statements concerning our business, operations and financial performance and condition, as well as our plans, objectives and expectations for our research and development programs, our business and the industry in which we operate. Any statements contained herein that are not statements of historical facts may be deemed to be forward-looking statements. In some cases, you can identify forward-looking statements by terminology such as “aim,” “anticipate,” “assume,” “believe,” “contemplate,” “continue,” “could,” “due,” “estimate,” “expect,” “goal,” “intend,” “may,” “objective,” “plan,” “predict,” “potential,” “positioned,” “seek,” “should,” “target,” “will,” “would,” and other similar expressions that are predictions of or indicate future events and future trends, as well as other comparable terminology. These forward-looking statements include, but are not limited to, statements about overall trends, royalty revenue trends, research and clinical development plans and prospects, liquidity and capital needs and other statements of expectations, beliefs, future plans and strategies, anticipated events or trends, and similar expressions. These forward-looking statements are based on our management’s current expectations, estimates, forecasts and projections about our business and the industry in which we operate and our management’s beliefs and assumptions. These forward-looking statements are not guarantees of future performance or results and involve known and unknown risks, uncertainties and other factors that are in some cases beyond our control. As a result, any or all of our forward-looking statements in this presentation may turn out to be inaccurate.

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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 2b in adult patients (RSVP)
Phase 2b in adult stem cell transplant patients (RSVPTx)
Phase 2 in pediatric patients (RSVPEDs)

NASH: Phase 2b (ARGON-2)
Phase 1 (Follow-on FXR agonist)

HBV: Two Phase 1b studies (core inhibitor)
Phase 1 (RNA destabilizer) to initiate in mid-2021

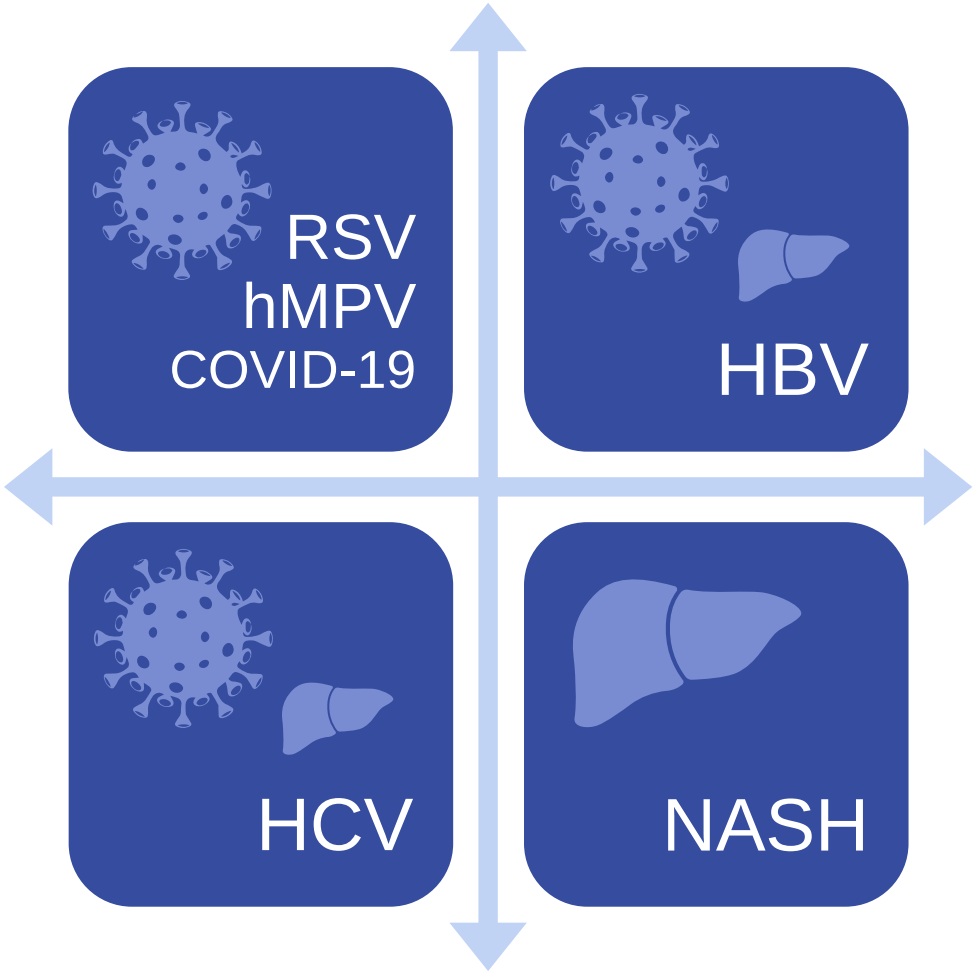
Proven Track Record of Success

Glecaprevir – HCV protease inhibitor in MAVYRET®/MAVIRET®
$122M in fiscal 2020 royalties on HCV regimens

Strong Balance Sheet

Strong balance sheet and royalties to fund robust pipeline
$400M in cash at 3/31/21

Our Therapeutic Focus



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

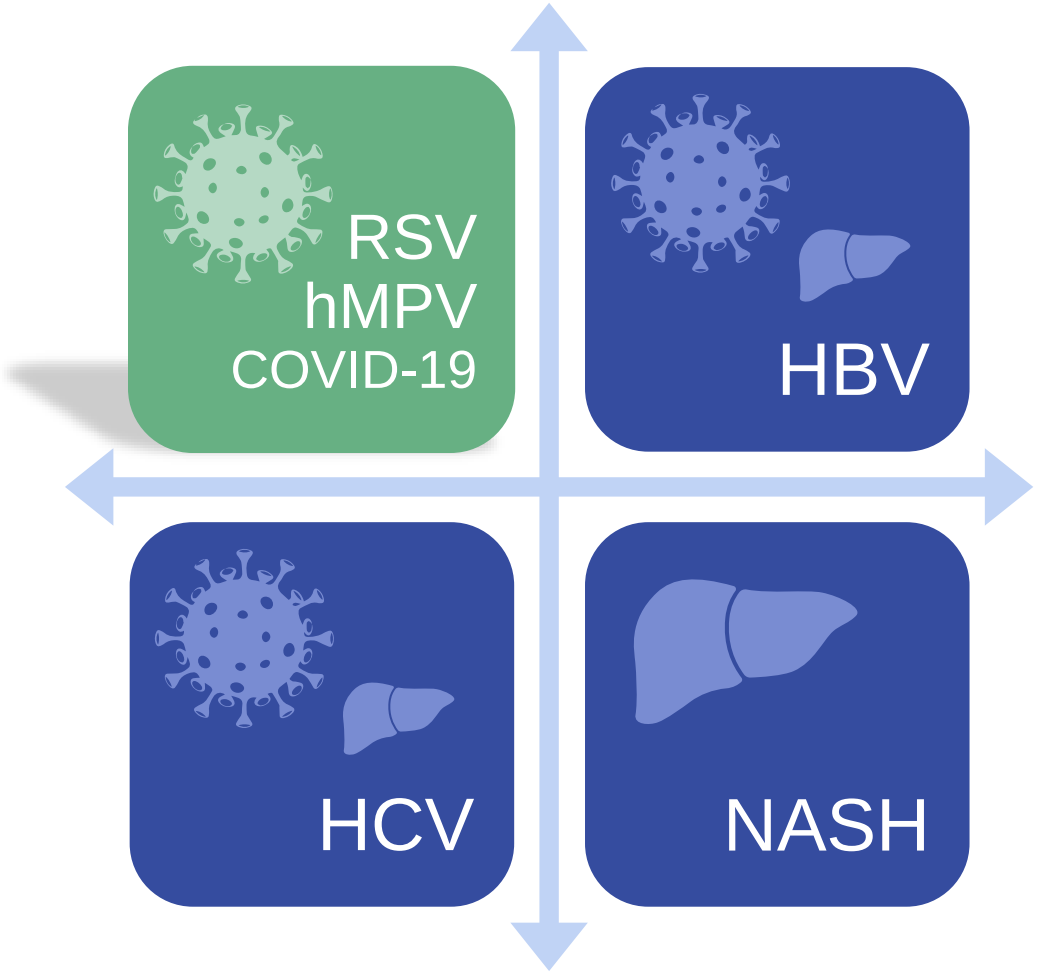
Several new therapeutic areas with goal of building multiple approaches in each

Enanta Pipeline

		PRODUCT CANDIDATE	DISCOVERY	PRECLINICAL	PHASE 1	PHASE 2	PHASE 3	MARKET
Virology: Liver	**HCV**	Protease Inhibitor	**Glecaprevir-containing pan-genotypic 2-DAA combo**					MAVYRET glecaprevir/pibrentasvir
	HBV	Core Inhibitor	**EDP-514** *Viremic HBV patients*					
			EDP-514 *NUC-suppressed HBV patients*					
		RNA Destabilizer	**EDP-721**					
Virology: Respiratory	**RSV**	N-Protein Inhibitor	**EDP-938** *RSVP*					
			EDP-938 *RSVPEDs*					
			EDP-938 *RSVTx*					
		L-Protein Inhibitor						
	hMPV	Non-Fusion Inhibitor						
	COVID-19	SARS-CoV-2 Inhibitor						
Non-viral Liver Disease	**NASH**	FXR Agonist	**EDP-305** *ARGON-2*					
		FXR Agonist Follow-on	**EDP-297**					
Discovery or Preclinical	**RSV, HBV, NASH, other**							

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

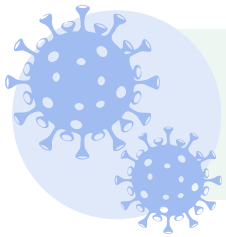
Our Therapeutic Focus



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

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 include:

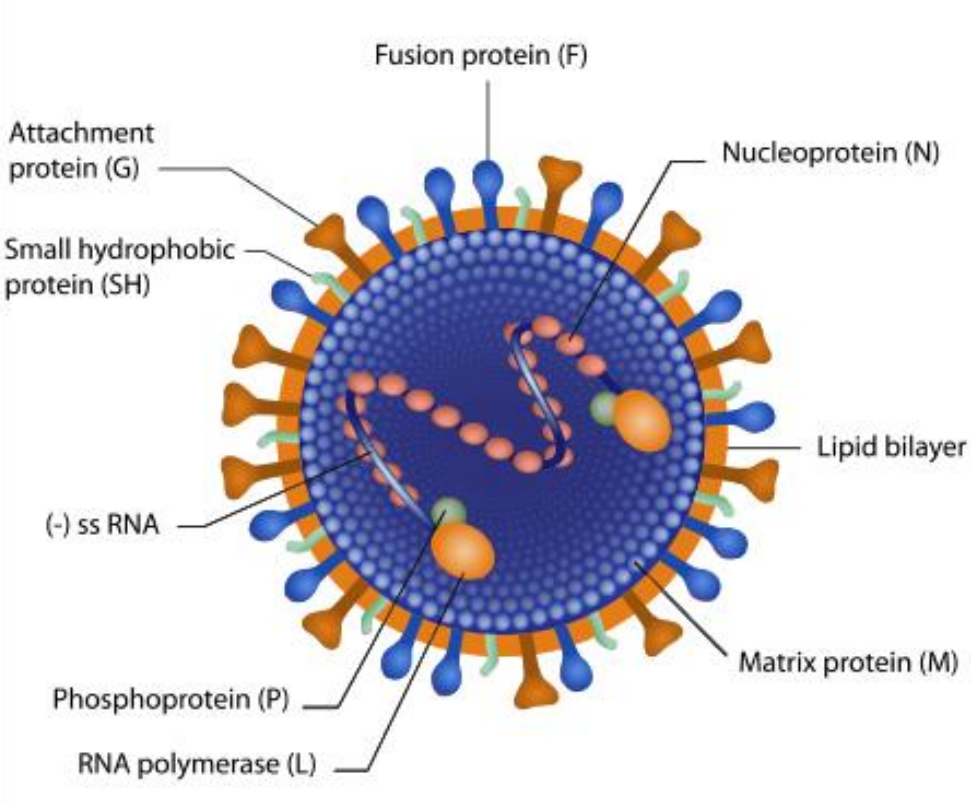
- Premature babies
- Older adults, especially those 65 years and older
- People with chronic lung disease or certain heart problems
- People with weakened immune systems (e.g. HIV, organ transplant, chemotherapy)

RSV at a Glance	
Children < 5 years[1,2]	**Adults > 65 years[3]**
33M global cases	
3M global hospitalizations	177K US hospitalizations
120K global deaths	14K US deaths
2.1M US outpatient visits	

Sources: 1.https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5592248/ 2. https://www.nejm.org/doi/full/10.1056/NEJMoa0804877 3. https://www.nejm.org/doi/full/10.1056/NEJMoa043951

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 virological 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 *in vivo* efficacy data



EDP-938 Development Program

Phase 1 Results

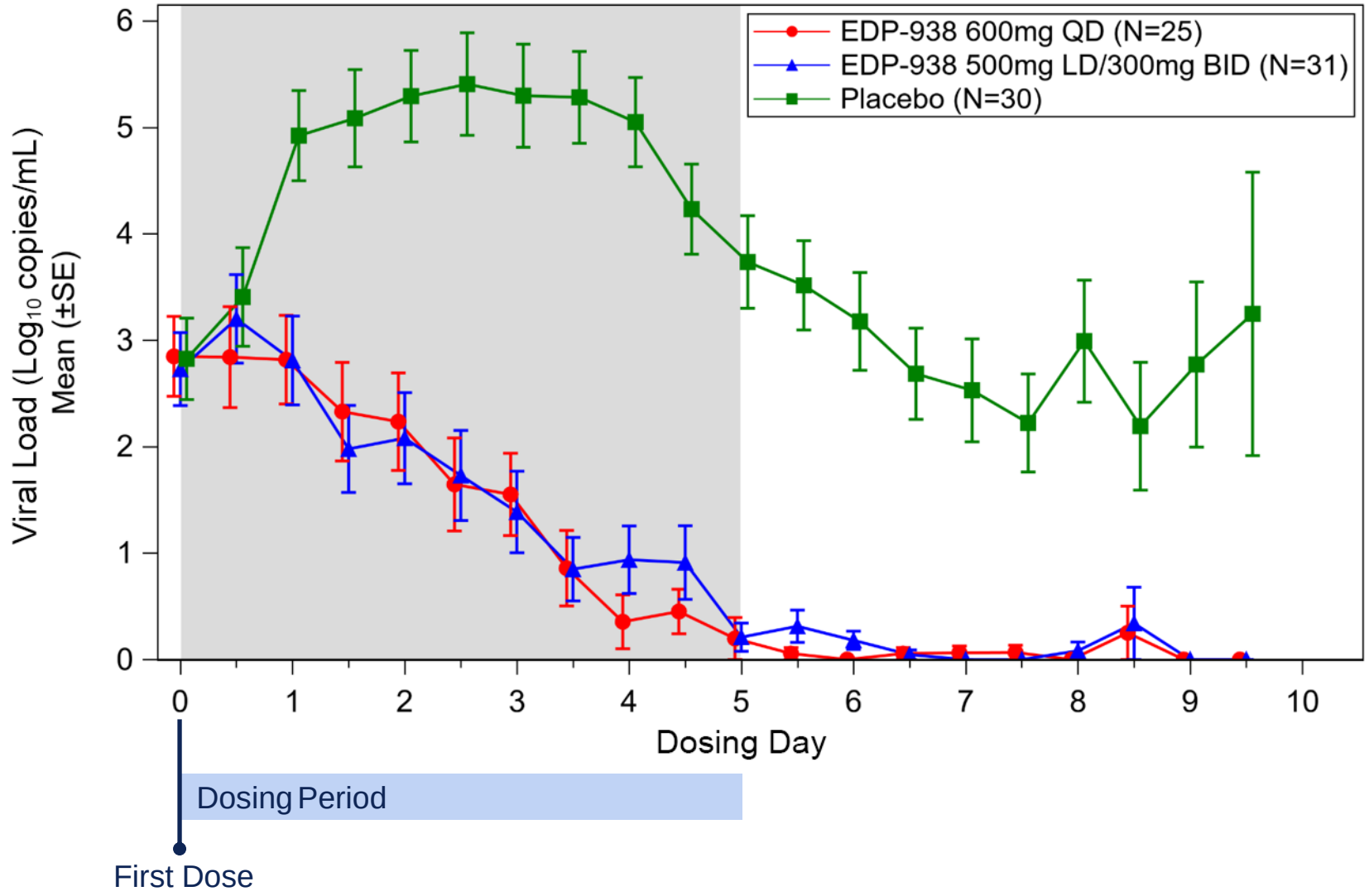
- Safe and well tolerated, no SAEs, AEs were mild
- At Phase 2 doses, mean trough levels 30x higher than EC90 of EDP-938 against RSV-infected human cells

Phase 2a Challenge Study Results

- Primary and key secondary efficacy endpoints were achieved ($p<0.001$) at both dose levels after 5 days of dosing
  - Primary endpoint: Reduction in area under the curve (AUC) viral load in the intent-to-treat-infected population (ITT-I)
  - Secondary endpoint: Reduction in Total Symptom Score (TSS)
- Mean C_{trough} concentrations were approximately >20-40x higher than EC_{90}
- Well tolerated with safety profiles similar to placebo
- Consistent profile observed in >250 subjects exposed to EDP-938 for up to 7 days in Phase 1 and Phase 2a

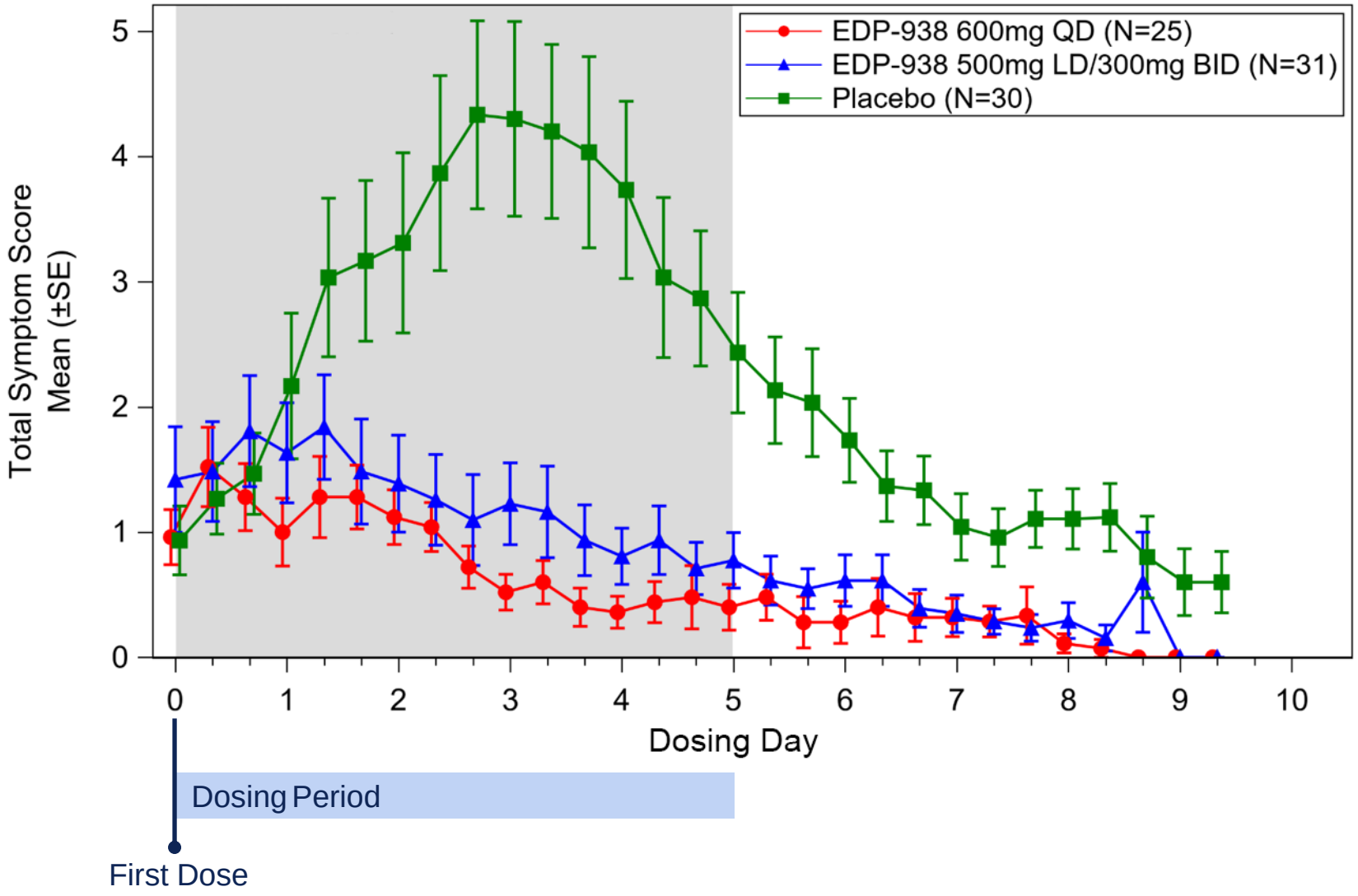
EDP-938 Robust Antiviral Effect

Rapid and Sustained Reduction in Viral Load in Both Active Arms Compared to Placebo (71%, 74% ↓ AUC; P<0.001)

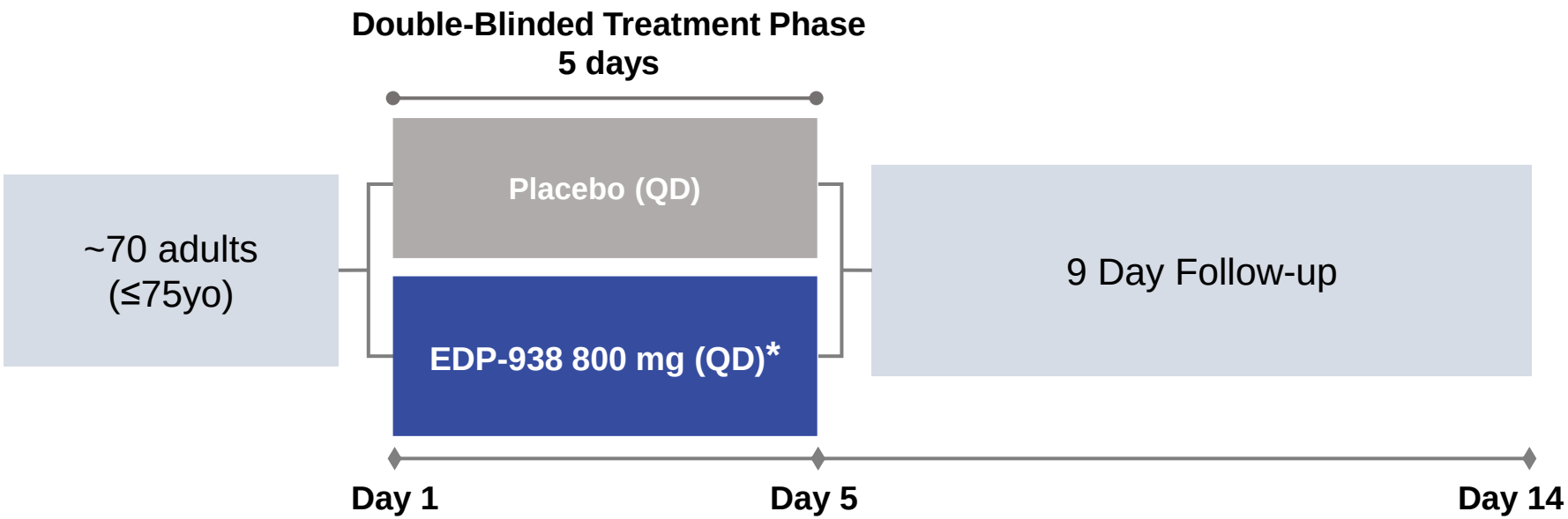


EDP-938 Robust Symptom Reduction

Rapid and Sustained Attenuation of RSV Symptoms in Both Active Arms Compared to Placebo (68%, 74% ↓ AUC; P<0.001)



RSVP: A Phase 2b Study of EDP-938 in Adult Outpatients With RSV



- **Primary Objective:**

  Effect of EDP-938 on progression of RSV infection by assessment of clinical symptoms measured over the 14-day study period

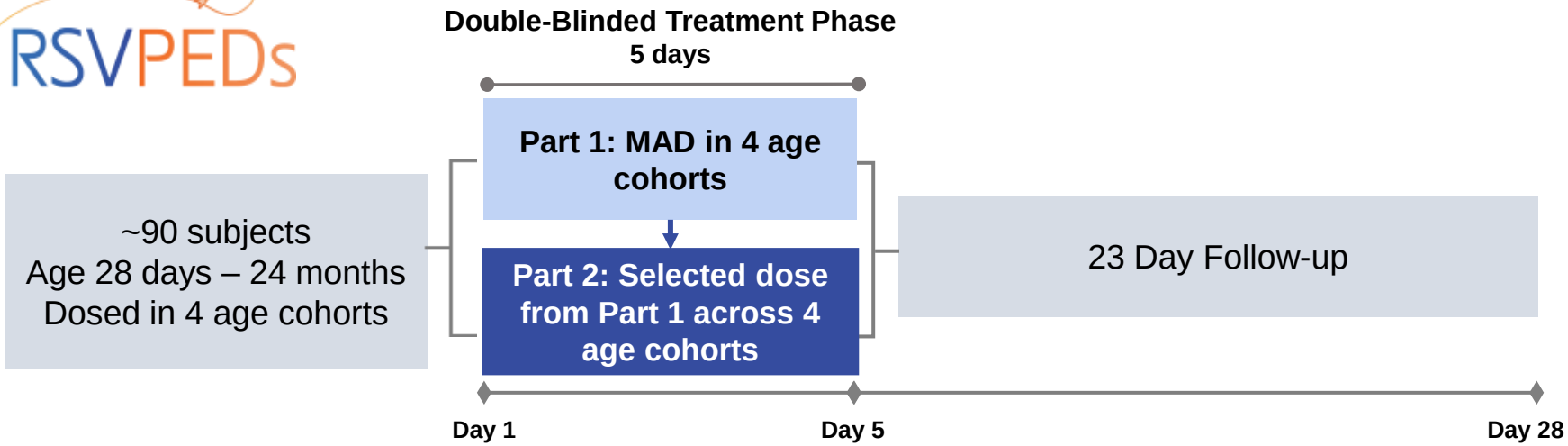
- **Secondary Objective:**

  Antiviral efficacy, safety and PK of EDP-938

*Equivalent to 600mg suspension dosage form used in challenge study

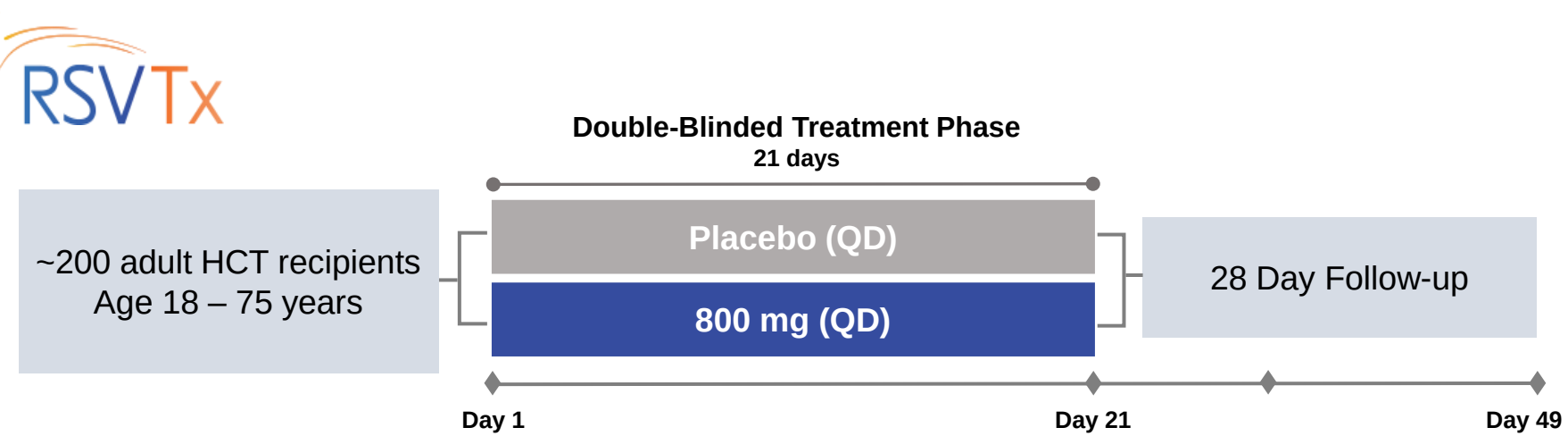
Two Additional Phase 2 Clinical Trials: RSVPEDs and RSVTx

RSVPEDs



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

RSVTx



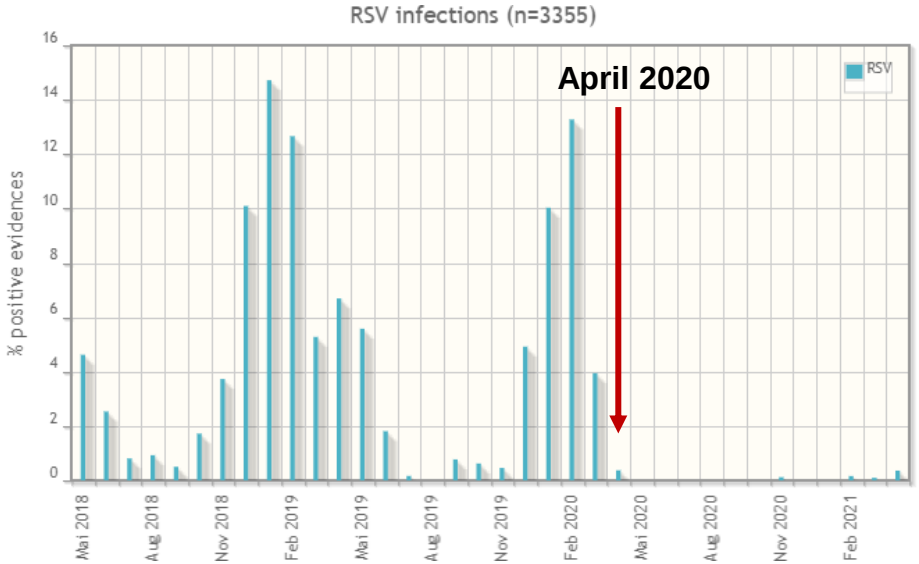
- **Primary Objective:** Effect of EDP-938 on development of LRTC in HCT subjects with acute RSV URTI
- **Secondary Objectives:** Viral load, progression to respiratory failure or all-cause mortality, PRO, PK and safety

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

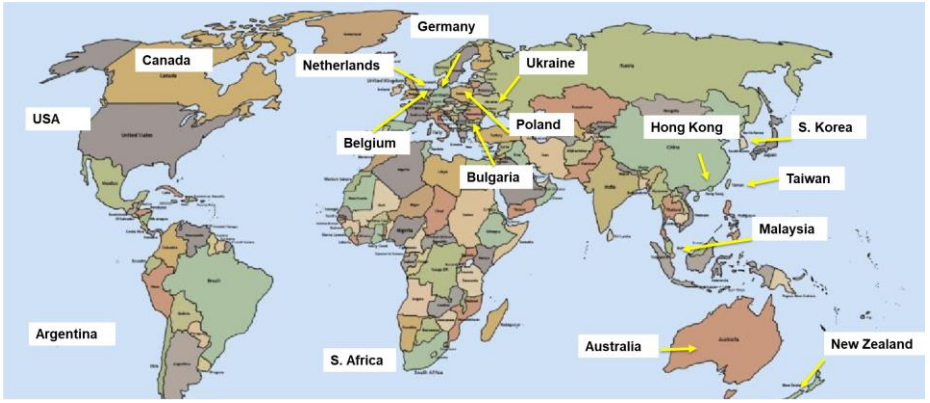
Preparing for When RSV Returns

- RSV, like influenza, did not emerge during the usual late-fall and winter RSV season in the Northern Hemisphere in 2020-2021
- Modeling predicts large future outbreaks of RSV[1]
  - Caused by an increase in susceptible RSV population, resulting from ongoing mitigation measures
  - Assuming measures are reduced, a peak in infections are projected for the next RSV seasons
- Preparing to move quickly upon RSV re-emergence
  - Establishing trial sites in North America, Europe, the Asia-Pacific region and Southern Hemisphere
  - Updated guidance will be provided once RSV becomes prevalent again

Detection of RSV in Europe[2]



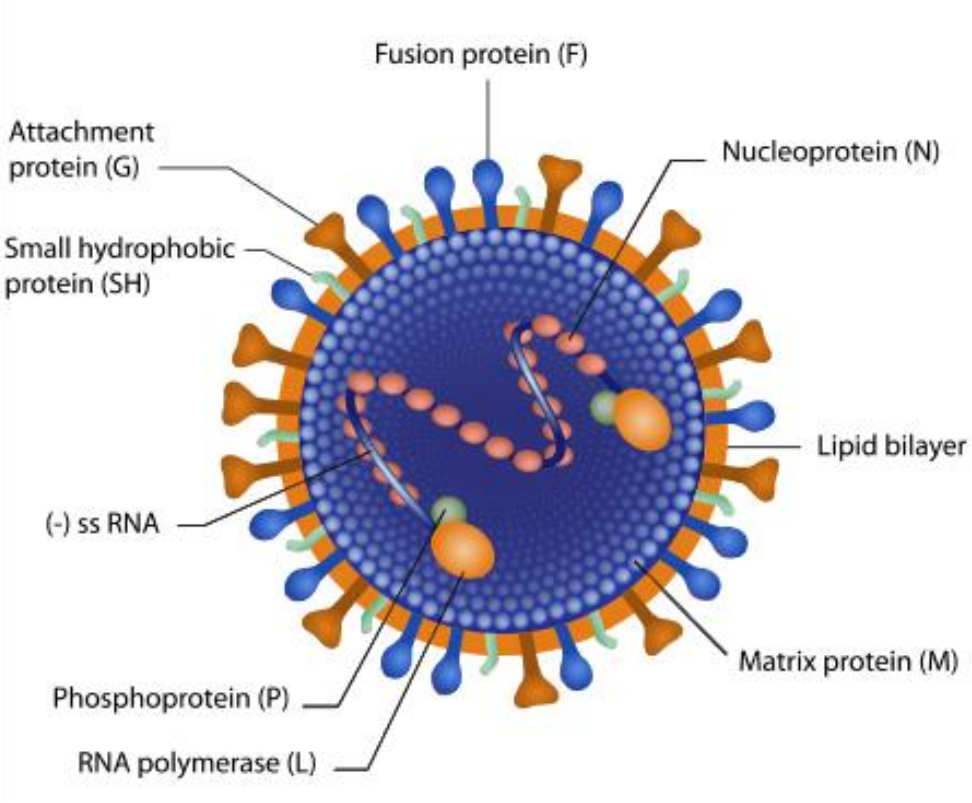
RSVP Clinical Trial Sites



Sources: 1.www.pnas.org/cgi/doi/10.1073/pnas.2013182117 2. Clinical Virology Network

RSV L-Protein Inhibitor

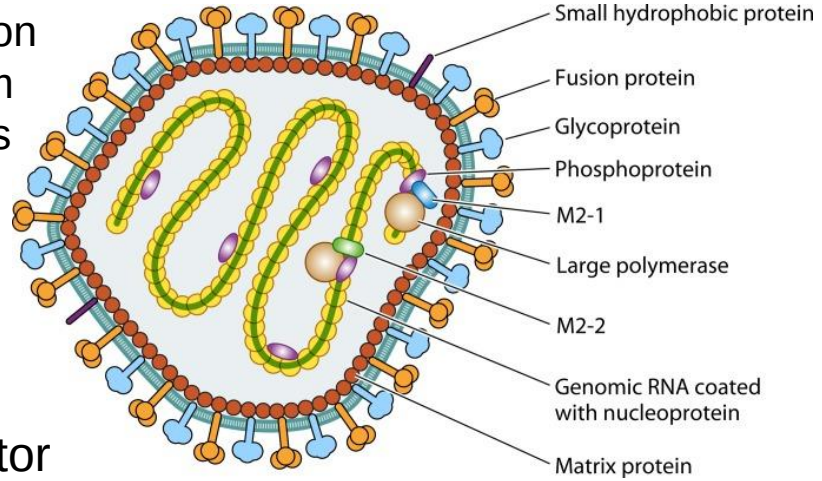
- Enanta's newest RSV program
- RSV L-protein is a viral RNA-dependent RNA polymerase that contains multiple enzyme activities required for RSV replication
- Novel RSV L-protein inhibitor leads have nanomolar potency against RSV-A and RSV-B
- Not expected to have cross resistance to other classes of inhibitors
  - Potential to be used alone or in combination with other RSV mechanisms, such as EDP-938



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

Serious respiratory infections can occur in children under 5 years old

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

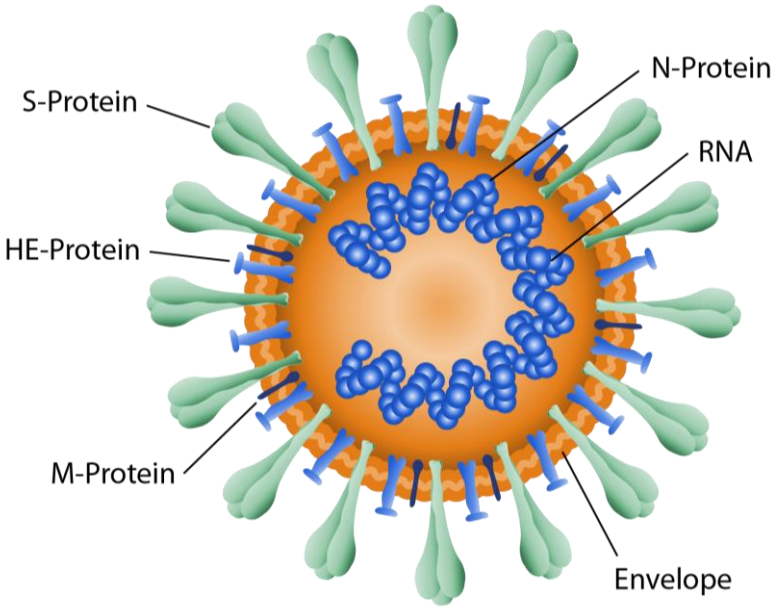
Reinfection with hMPV occurs throughout life

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

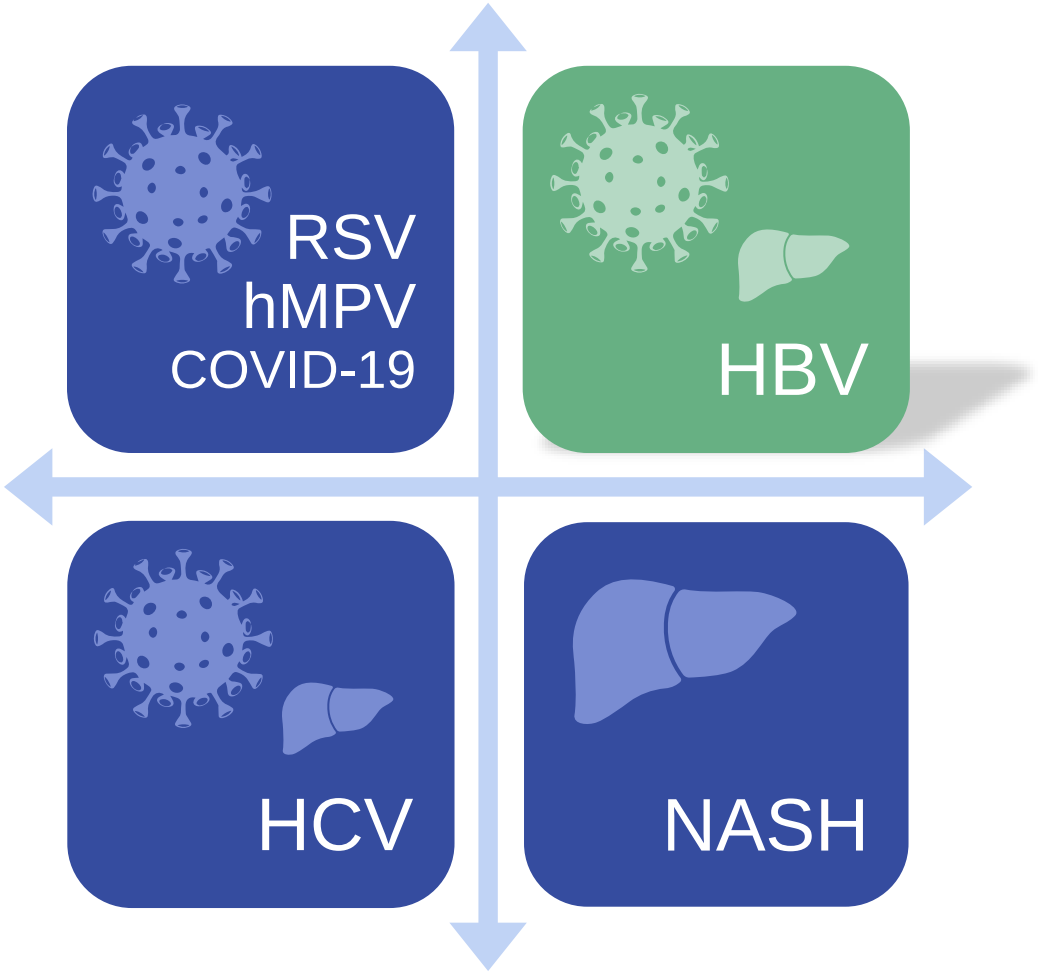
SARS-CoV-2 (COVID-19)

Caused by respiratory infection of a new highly pathogenic coronavirus, SARS-CoV-2

- SARS-CoV-2 belongs to coronaviridae, a family of enveloped RNA viruses that includes SARS-CoV and MERS-CoV
- Despite vaccine and therapeutic progress, need an oral treatment for those infected with SARS-CoV-2, and potentially for mutated virus, or for future coronaviruses
- Leveraging years of antiviral drug discovery expertise to identify direct-acting antivirals
  - Targeting mechanisms that should be effective against emerging spike protein variants
  - IND-enabling studies ongoing, with the goal to have a candidate in a Phase 1 study in early 2022



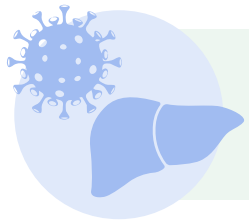
Our Therapeutic Focus



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

Hepatitis B Virus (HBV)



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

- Estimated worldwide over 200,000 and 300,000 chronic HBV carriers die each year from cirrhosis and hepatocellular carcinoma (HCC) respectively[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	
US	850K – 2M people[4]
Europe and European Economic Area	~4.7M people[5]
Worldwide	~290M people[6]

Sources: 1. https://www.journal-of-hepatology.eu/article/S0168-8278(07)00637-X/fulltext 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

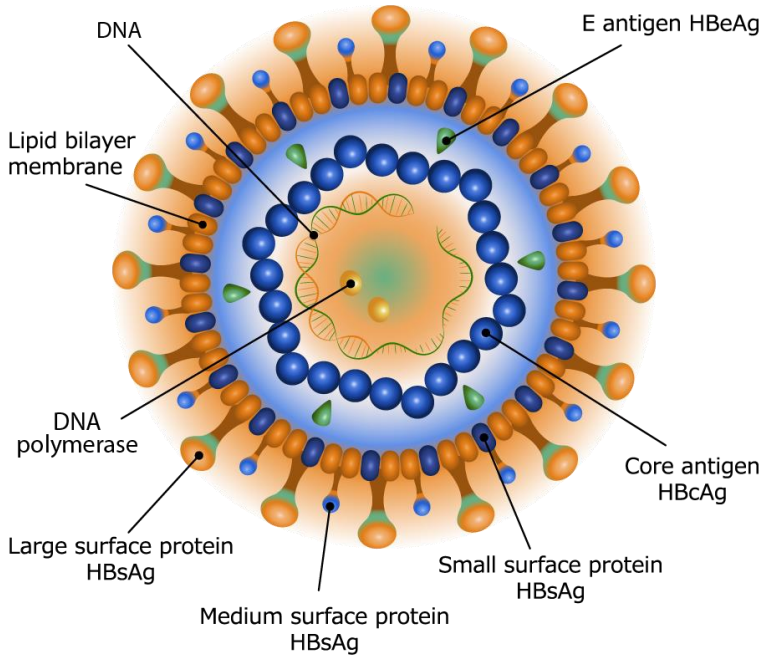
- Potent anti-HBV activity in HBV expressing stable cell lines
- Capable of preventing the establishment of cccDNA
- Pan-genotypic activity

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

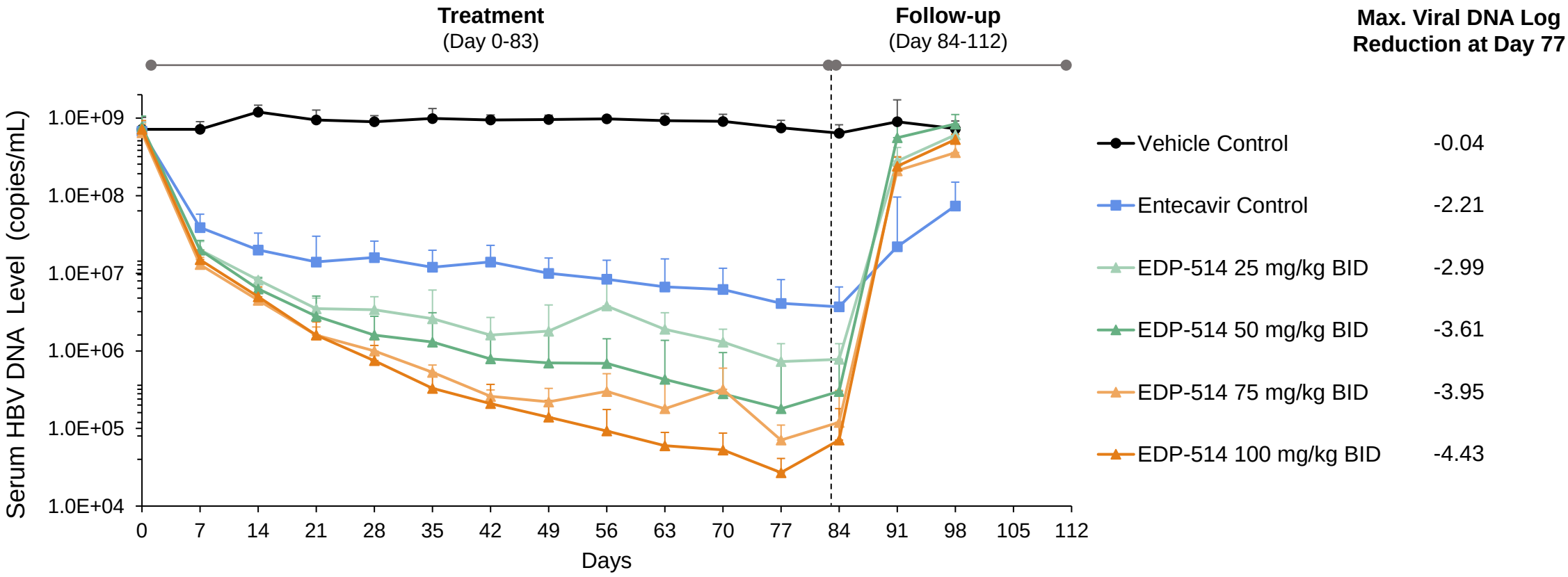
Phase 1a

- 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

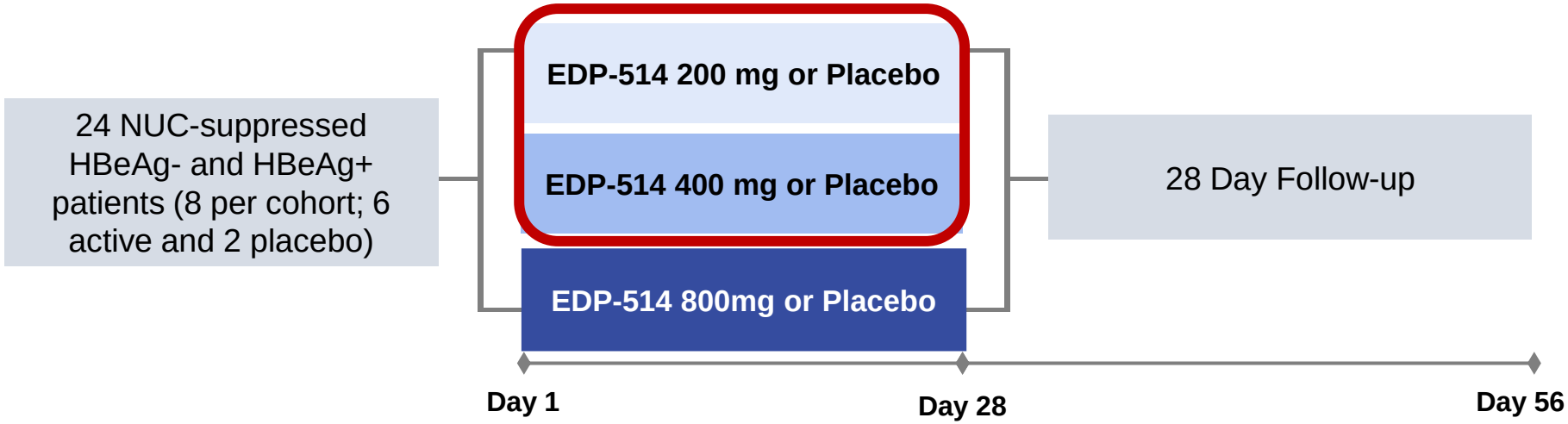


EDP-514: Efficacious in the Humanized Liver Mouse Model

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



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



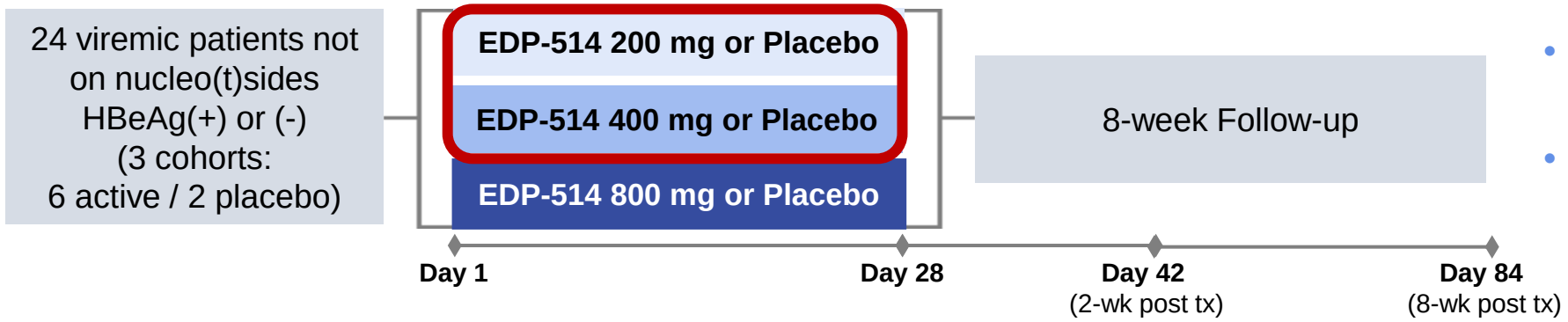
- **Primary Objective:** Safety and tolerability
- **Secondary Objective:** PK and antiviral activity

Positive preliminary data from first two dose cohorts: 200 mg and 400 mg of EDP-514

- EDP-514 was safe and well tolerated in NUC-suppressed subjects up to 28 days
- Pharmacokinetics supportive of once daily dosing, with trough concentrations up to 18-fold the paEC50
- Mean reduction in HBV RNA of 1 log compared with 0.3 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

paEC50: protein-adjusted EC50

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



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

Positive preliminary data from first two dose cohorts: 200 mg and 400 mg of EDP-514

- EDP-514 was safe and well tolerated in viremic chronic HBV patients dosed for 28 days
  - No Grade 3 TEAEs or SAEs; 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

Antiviral Activity at Day 28	Mean Reduction (log IU/mL)	Maximum Reduction (log IU/mL)	# Patients <LLOQ
HBV DNA	2.9 , 3.3 , 0.2 (200, 400, pbo)	EDP-514 : 4.2 Placebo : 0.5	EDP-514 : 4/12 Placebo : 0/4
HBV RNA	2.9 , 2.4 , 0.2 (200, 400, pbo)	EDP-514 : 4.8 Placebo : 1.9	EDP-514 : 10/12 (8 <LOD) Placebo : 1/4 (0 <LOD)

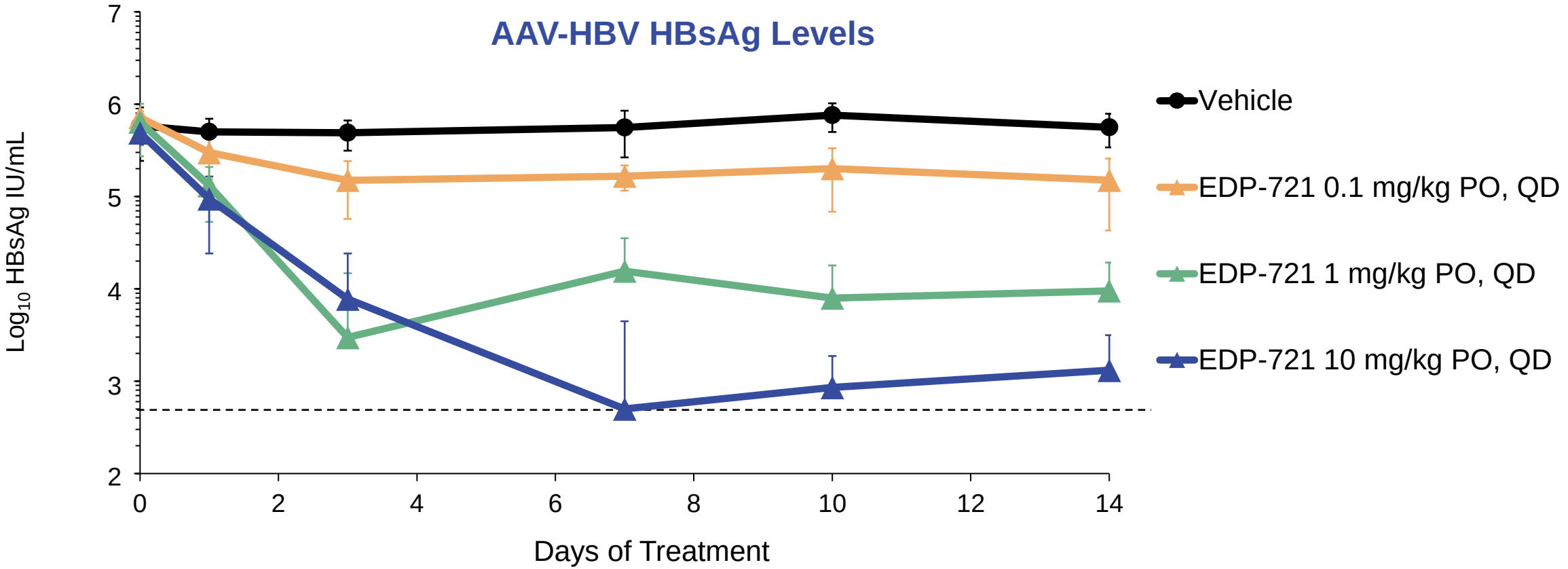
paEC50: protein-adjusted EC50, <LLOQ: Below the lower level of quantification, <LOD: Below the limit of detection

EDP-721: HBV RNA Destabilizer

- EDP-721 is an oral small molecule HBV RNA destabilizer that results in reduction of HBsAg
  - High levels of HBsAg suppress immune responses and sustained loss is needed for functional cure
- EDP-721 has a robust preclinical profile with potent reduction in HBcAg, HBeAg, and HBsAg
  - HBsAg EC_{50} = 0.4 nM in primary human hepatocytes
  - Dose dependent HBsAg reductions *in vivo* of up to 3 logs
  - HBV pan-genomic activity
  - Additive to synergistic activity with nucleosides and core inhibitors
- EDP-721 causes HBV RNA destabilization by reducing maintenance of HBV poly(A) tails
  - Potent and selective RNA competitive inhibitor of the host poly(A) polymerases PAPD5 & PAPD7
  - Results in minimal changes to host transcriptome in treated primary human hepatocytes

EDP-721 *In Vivo* Activity

- Dose dependent decrease in HBsAg observed with EDP-721 in AAV-HBV mouse model



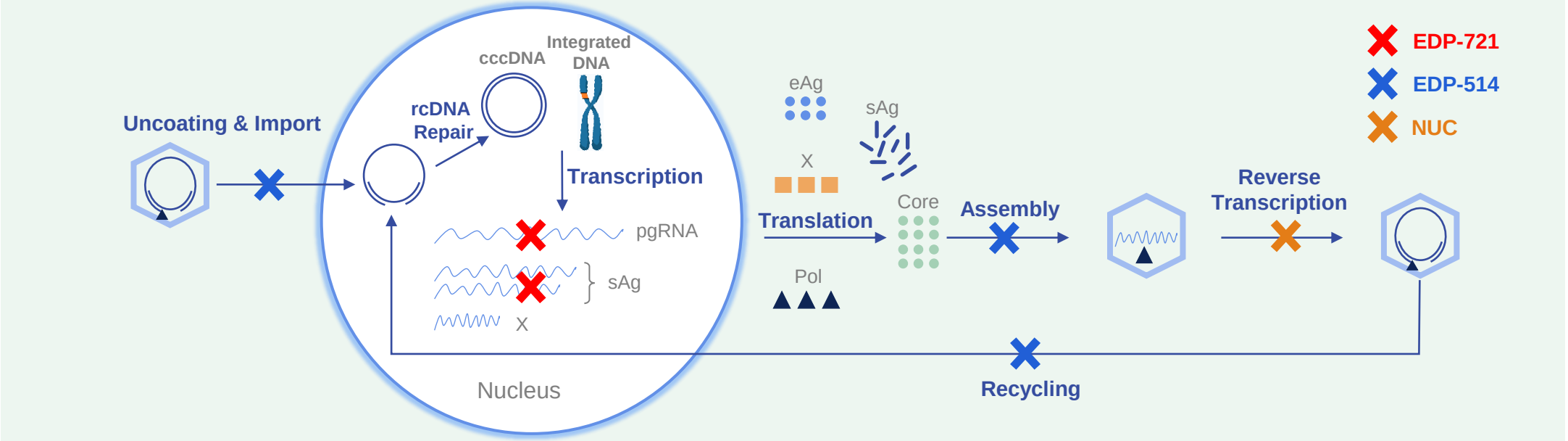
Efficacy of Anti-HBsAg Agents in AAV-HBV Mouse Model

Agent	Modality	Route of Administration	Dose (mg/kg)*	HBsAg Log Drop at Day 14
EDP-721	**Small Molecule**	**PO**	10 qd	**~3**
VIR-2218[1]	siRNA	SC	9	~3
AB-729[2]	siRNA	SC	3	~2.5
ARB-1467[2]	siRNA	IV	0.3	~1
ALG-125097[3]	siRNA	SC	5	~1
ALG-020572[4]	ASO	SC	10	~1.5
PAPD5/7 ASO[5]	ASO	SC	5	~1.5

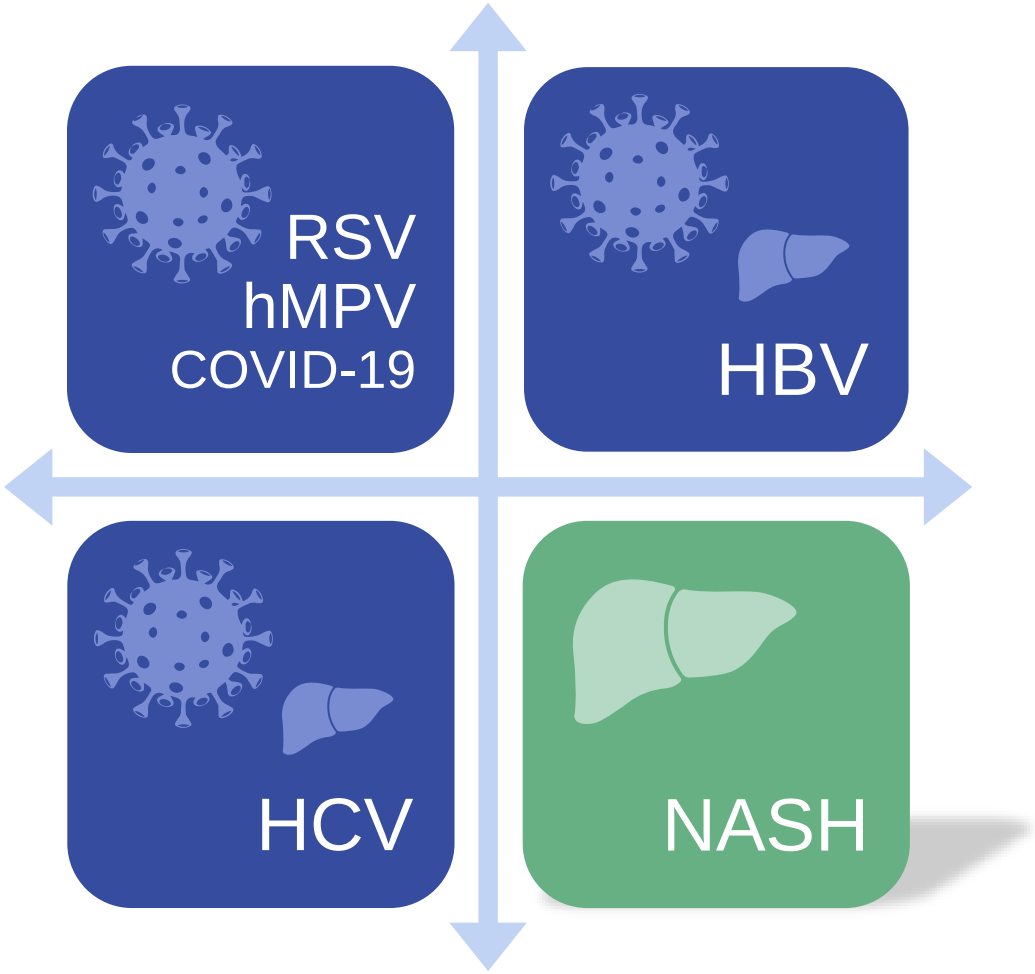
Sources: 1. EASL 2020 Poster SAT426; 2. EASL 2018 Oral Presentation O2646; 3. Jefferies Healthcare Conference 2020; 4. AASLD 2020 Oral Presentation O84; 5. AASLD 2019 Poster P704

Combination Regimen: Potential for Functional Cure

- Combination of multiple antiviral agents can block different points in the HBV life cycle
- Potential to drive rapid and deep suppression of viral replication (**EDP-514** + **nucleos(t)ide**) and suppression of sAg production (**EDP-721**)
- All-oral regimen of **EDP-514**, **EDP-721** and **NUC** has potential to lead to functional cure for HBV



Our Therapeutic Focus



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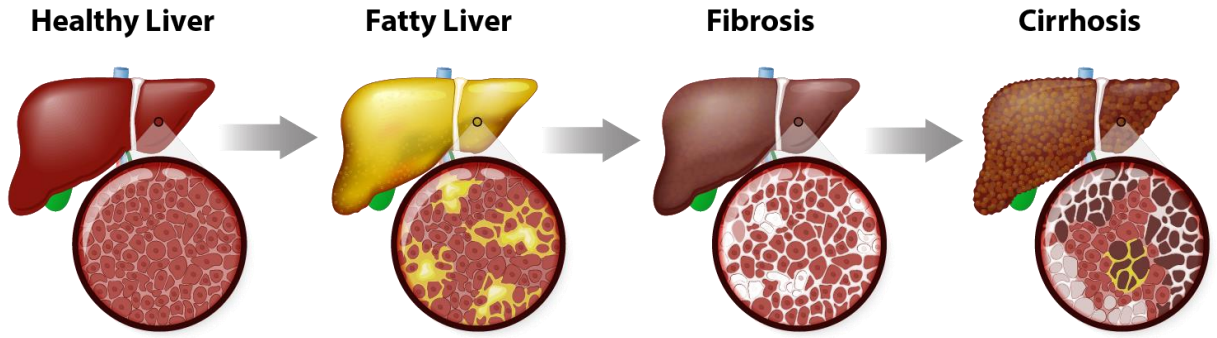
Non-Alcoholic Steatohepatitis (NASH)

Leading cause of liver disease in western countries

- Associated with obesity, type 2 diabetes and metabolic syndrome
- Increases risk of cirrhosis, end-stage liver disease and hepatocellular carcinoma
- By 2030 NASH will be the most frequent reason for liver transplants in the U.S.[1]

NASH at a Glance	
US	6.5 – 16.3M people[1]
Worldwide	115M people[2]
Worldwide in 2030	357M people[2]

Stages of Liver Damage



Sources: 1. American Liver Foundation, 2. GlobalLiver.org

EDP-305: A Potent FXR Receptor Agonist

Farnesoid X Receptor (FXR)

- Nuclear hormone receptor
- Main regulator of bile acid levels in liver and small intestine
- Responds to bile acids by regulating transcription of key enzymes and transporters
- FXR agonists ameliorate pathologies in NASH models, including fibrosis
- Clinical validation of FXR agonist in NASH with 6-ECDCA (OCA)

EDP-305

- Non-bile acid
- Designed to take advantage of increased binding interactions with the receptor
- Highly selective for FXR *vs* other nuclear receptors
- Potent and differentiated effects on FXR-dependent gene expression vs OCA in preclinical models
- Robust efficacy seen in multiple fibrosis and NASH models
- Granted Fast Track Designation by FDA

EDP-305 ARGON-1 Phase 2a Study Summary

Endpoints Met at Week 12 Using 2.5 mg Dose

Primary Endpoint:
ALT change

Secondary Endpoint:
Liver fat by MRI-PDFF

Efficacy Biomarkers Using 1.0 and 2.5 mg Doses

Target Engagement:
Decreases in C4

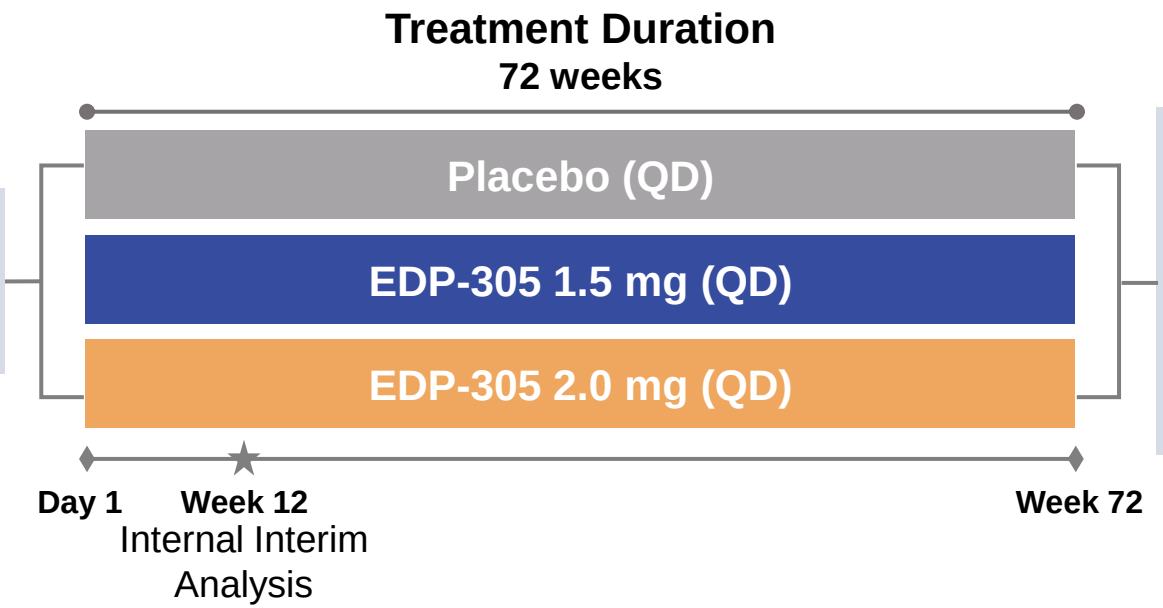
Markers of Liver Injury:
Reductions in GGT and ALT

- Generally safe for up to 12 weeks
  - Majority of treatment emergent adverse events were mild to moderate
  - Incidence of treatment discontinuation due to pruritus: 1.8% for 1 mg and 20.8% for 2.5 mg
  - Associated with small numeric absolute changes in lipids

EDP-305: ARGON-2 Phase 2b Study

ARGON-2

~340 biopsy-proven NASH with fibrosis patients



Primary Endpoint:

Improvement of fibrosis without worsening of NASH and/or NASH resolution without worsening of fibrosis

- 12-week internal interim analysis (IA) in Q3 2021 to generate additional dose information more quickly for potential combinations, as well as a prespecified powered IA when ~40% of subjects reach week 72 biopsy
- Two doses selected to provide a balanced profile in terms of efficacy and tolerability
  - 1.5 mg dose: designed to demonstrate even stronger effects on efficacy biomarkers than seen at 1.0 mg
  - 2.0 mg dose: designed to demonstrate less pruritus than seen at 2.5 mg

EDP-297: A Potent and Differentiated Follow-on FXR Agonist

- EDP-297 preclinical profile shows:
  - High target-tissue distribution (liver and intestine) vs plasma and skin
  - Potency greater than that published on any FXR agonist in clinical development today
- A highly potent *and* highly targeted FXR agonist may allow for lower doses and reduced drug levels at non-targeted tissues
  - Potential to reduce pruritus unless pruritus is FXR-mediated by FXR receptors in liver or intestine
- Initiated Phase 1 study in Q3 2020; data expected in mid-2021

EDP-297: Highly Potent with Excellent Target Tissue Distribution

Compound		FXR FL Activation EC_{50} (nM)	Dose (mouse, *po*)	Intestine / Plasma	Liver / Plasma
				At 4 hrs ~ Tmax	
OCA	Bile Acid	130[1]	10 mg/kg	160	26
cilofexor	Non-Bile Acid	41[2]	1 mg/kg	0.6	0.9
EDP-305	Non-Bile Acid	8	1 mg/kg	7	15
tropifexor	Non-Bile Acid	0.4[3]	1 mg/kg	0.8	8
EDP-297[4]	Non-Bile Acid	<0.1	1 mg/kg	265	75

Enanta data except where noted:

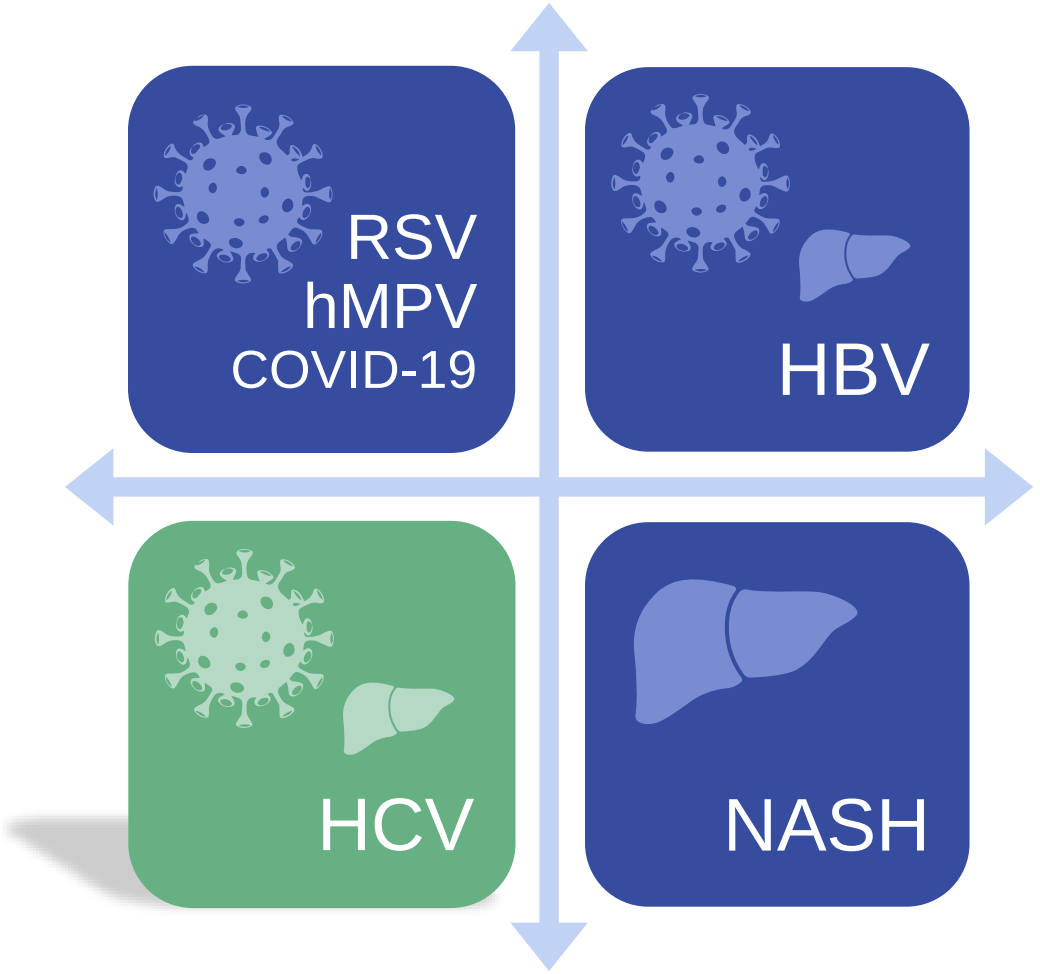
[1] EC_{50} = 99 nM reported by Intercept

[2] Gilead data. Trauner *et al Hepatology* 2019

[3] EC_{50} = 0.26 nM reported by Novartis. Tully *et al J. Med. Chem.,* 2019

[4] **EDP-297 is undetectable in mouse skin**

Our Therapeutic Focus

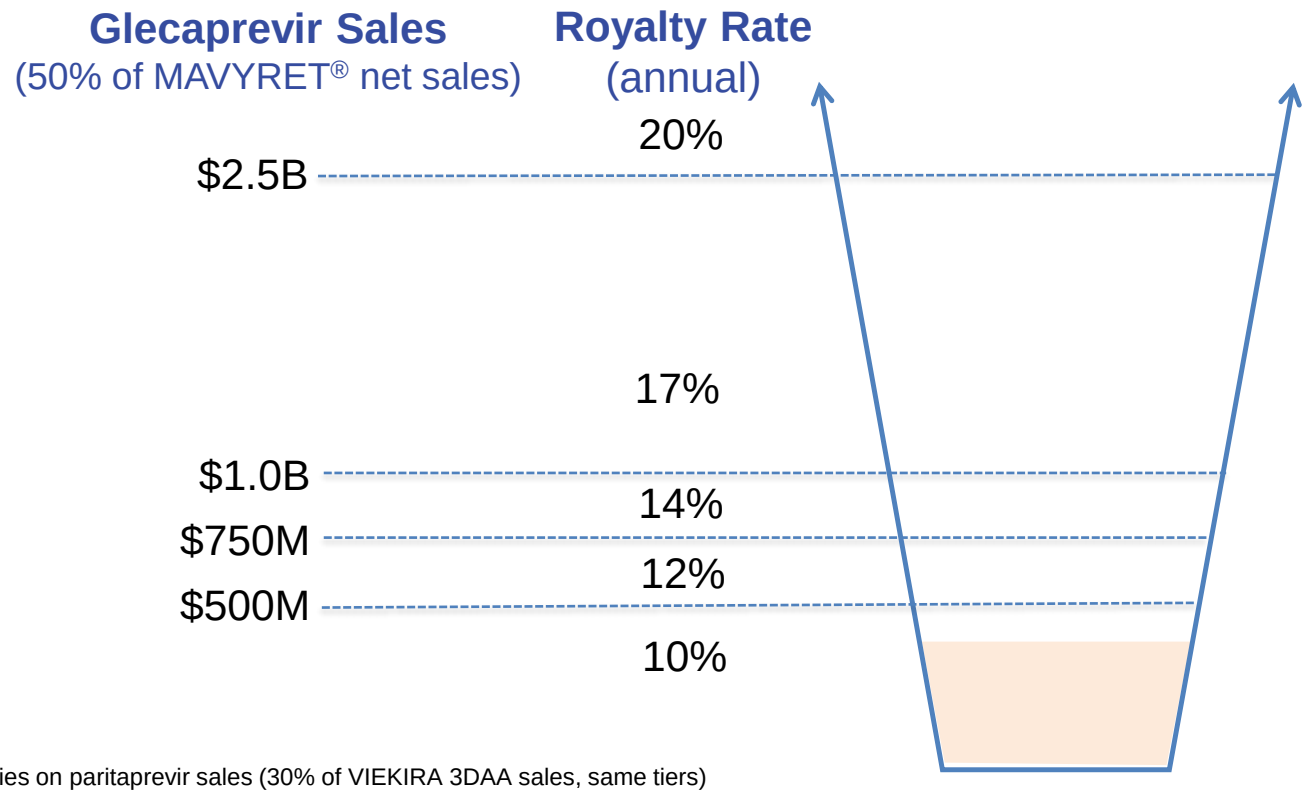


Leveraging our core strength in Hepatitis C to become a leader in oral treatments for **viral** infections and **liver** diseases

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

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 2021 HCV Royalties

- Q4 TBD
- Q3 TBD
- Q2 TBD
- Q1 $20M

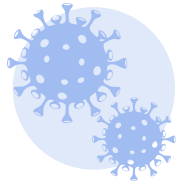
*Enanta also receives royalties on paritaprevir sales (30% of VIEKIRA 3DAA sales, same tiers)

Financial Highlights

($ In millions)	Fiscal Year Ended Sept. 30, 2020	Fiscal Quarter Ended Mar. 31, 2021
Total Revenues	$122.5	$20.1
R&D Expenses	$136.8	$41.5
G&A Expenses	$27.4	$8.3
Net Income (Loss)	$(36.2)	$(22.0)
Net Income (Loss) per Diluted Common Share	$(1.81)	$(1.09)
Balance Sheet		
Cash, Cash Equivalents and Marketable Securities	$419.3	$400.4

Key Catalysts 2021

Virology



RSV N-Inhibitor EDP-938

- ✓ Initiated RSVTx in Q4 2020
- ✓ Initiated RSVPEDs in Q1 2021
- ☐ Resume recruitment for RSVP when RSV returns

hMPV, SARS-CoV-2 and RSV L-inhibitor

- ☐ Nominate two clinical development candidates

HBV Core Inhibitor EDP-514 and RNA Destabilizer EDP-721

- ✓ EDP-514 Phase 1b in NUC-suppressed HBV patients; preliminary data reported in Q2 2021
- ✓ EDP-514 Phase 1b in viremic HBV patients; preliminary data reported in Q2 2021
- ☐ Initiate Phase 1 with EDP-721 in mid-2021

NASH

FXR Agonists EDP-305 and EDP-297

- ☐ ARGON-2 Phase 2b in NASH ongoing; 12-week internal interim analysis in Q3 2021
- ☐ Phase 1 with EDP-297 (follow-on FXR) ongoing with data expected in mid-2021
- ☐ Advance non-FXR compounds for NASH

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