Corporate Presentation
June 18, 2019

ENANTA Pharmaceuticals
Creating Small Molecule Drugs for Viral Infections and Liver Diseases
Forward Looking Statements Disclaimer

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Investment Highlights

• Virology & liver disease-focused biotech company

• Two partnered products marketed in AbbVie’s HCV regimens:
  - Glecaprevir – HCV protease inhibitor in MAVYRET™/MAVIRET™
  - Paritaprevir – HCV protease inhibitor in VIEKIRA* regimens
  - Fiscal 2Q19 royalties on HCV regimens: $39.6 million

• Three clinical-stage programs in areas of high unmet medical need:
  - RSV: Phase 2a human challenge study complete
  - NASH: Phase 2 “ARGON-1” study ongoing
  - PBC: Phase 2 “INTREPID” study ongoing

• Ongoing R&D programs in NASH/PBC, HBV and RSV

• Strong balance sheet to fund clinical programs and other R&D efforts
  - Approx. $386.7M in cash at 3/31/19

*VIEKIRA regimens include AbbVie’s marketed HCV regimens of VIEKIRA PAK® and VIEKIRAX™
Our Therapeutic Focus

• Leverage our core strength in HCV to become a leader in Viral and Liver diseases

• Multiple new therapeutic areas with goal of building multiple approaches in each
# Broad Virology and Liver Disease Pipeline

<table>
<thead>
<tr>
<th>Product Candidate</th>
<th>Discovery</th>
<th>Preclin</th>
<th>Phase 1</th>
<th>Phase 2</th>
<th>Phase 3</th>
<th>Market</th>
</tr>
</thead>
<tbody>
<tr>
<td>HCV</td>
<td>glecaprevir – containing pan-genotypic 2-DAA combo</td>
<td></td>
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<tr>
<td>HCV</td>
<td>paritaprevir – containing regimens</td>
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<tr>
<td>RSV</td>
<td>EDP-938 Ph2 Challenge Study</td>
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<td></td>
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<tr>
<td>NASH</td>
<td>EDP-305 Ph2 “ARGON-1”</td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PBC</td>
<td>EDP-305 Ph2 “INTREPID”</td>
<td></td>
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<tr>
<td>HBV</td>
<td>EDP-514</td>
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<tr>
<td>NASH</td>
<td>EDP-305</td>
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<tr>
<td>NASH</td>
<td>Undisclosed</td>
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</table>
Glecaprevir –
A Pan-genotypic HCV Protease Inhibitor

• Glecaprevir: the protease inhibitor in AbbVie’s MAVYRET™*
  - RBV-free, once-daily, fixed-dose combination (2-DAA)
  - MAVYRET treats the majority of patients today in only 8-weeks

• Also treats patients with specific challenges:
  - compensated cirrhosis
  - severe chronic kidney disease
  - PI or NS5A treatment failures

• Marketed by AbbVie (U.S., EU, Japan & other countries globally)

• Market for HCV therapies: ~ $8 billion in 2018

*sold as MAVYRET™ in the U.S., MAVIRET™ outside the U.S.
# Glecaprevir—The Pan-genotypic HCV Protease Inhibitor in AbbVie’s MAVYRET™

<table>
<thead>
<tr>
<th>Product</th>
<th>Regimen</th>
<th>Enanta Asset</th>
<th>Economics*</th>
</tr>
</thead>
<tbody>
<tr>
<td>MAVYRET®</td>
<td>2-DAA (ABBV)</td>
<td>glecaprevir (PI)</td>
<td>Double-digit royalty on 50% of net sales</td>
</tr>
</tbody>
</table>

- **glecaprevir sales** (50% of Mavyret net sales)
  - $2.5B
  - royalty rate (annual)
    - 20%
  - 17%
  - 14%
  - 12%
  - 10%

- **calendar 2019 HCV royalties**
  - Q4  TBD
  - Q3  TBD
  - Q2  TBD
  - Q1  $39.6M

* Enanta also receives royalties on paritaprevir sales (30% of Viekira 3DAA sales, same tiers)
Virology & Liver Disease Focus Areas

- HCV
- NASH/PBC
- HBV
- RSV
Respiratory Syncytial Virus (RSV)

• Negative-sense, single-stranded RNA virus of family Pneumoviridae
• Can cause severe lung infections, including bronchiolitis (infection of small airways in the lungs) and pneumonia (an infection of the lungs)
• 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)
• Each year in U.S.:
  - > 57,000 children below age 5 are hospitalized for RSV
  - ~ 177,000 older adults are hospitalized, and about 14,000 die
• No safe and effective treatments

Source: CDC
EDP-938: Enanta’s First Clinical-Stage Compound for RSV

• EDP-938 is the only N-inhibitor under clinical evaluation
  - Non-Fusion approach directly targets viral replication

• 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 resistant virus from other mechanisms
  - Robust in vivo efficacy data

• Phase 2a human challenge study complete
### Phase 2a Challenge Study (EDP 938-101)
#### Study Design and Procedures

**Dosing (D0) is initiated 12 hours after testing positive for RSV or Day 5 (PM), whichever comes first**

<table>
<thead>
<tr>
<th><strong>Study Day</strong></th>
<th><strong>Procedure</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>-2/-1</td>
<td>Admission to Quarantine</td>
</tr>
<tr>
<td>2 to ≤ 5</td>
<td>Viral Challenge</td>
</tr>
<tr>
<td>0</td>
<td>Monitor for RSV infection** twice daily by nasal wash qualitative PCR</td>
</tr>
<tr>
<td>12</td>
<td>Dosing (QD or LD+BID or Pbo)$</td>
</tr>
</tbody>
</table>

**$** EDP-938/placebo is administered as a blinded oral liquid suspension
- EDP-938 500mg loading dose, then 300mg BID over 5 days
- EDP-938 600mg QD Q24h alternating with placebo Q24h x 5 days to maintain the blind
- Placebo for EDP-938 BID x 5 days

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**Screening**

<table>
<thead>
<tr>
<th><strong>Before Dosing Initiation</strong></th>
<th><strong>After Dosing Initiation</strong></th>
<th><strong>Follow-up</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Study Day -2/-1</td>
<td>Dosing Day 0 For 5 days</td>
<td>Study Day 28</td>
</tr>
<tr>
<td>Inoculation Day</td>
<td>Study Day 12</td>
<td></td>
</tr>
<tr>
<td>Study Day 2 to ≤ 5</td>
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<td></td>
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</tbody>
</table>

**Quarantine**

<table>
<thead>
<tr>
<th><strong>Study Day</strong></th>
<th><strong>Procedure</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>12</td>
<td>Discharge from quarantine</td>
</tr>
<tr>
<td>28</td>
<td>Final study contact</td>
</tr>
</tbody>
</table>

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Robust Antiviral Effect
Rapid and Sustained Reduction in Viral Load in Both Active Arms Compared to Placebo
**Highly Statistically Significant Reduction in Both EDP-938 Arms Compared to Placebo**
- No Statistically Significant Difference Between the Two Dosing Regimens

<table>
<thead>
<tr>
<th></th>
<th>EDP-938 600 mg QD</th>
<th>EDP-938 500 mg LD + 300 mg BID</th>
<th>Placebo</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>N</strong></td>
<td>25</td>
<td>31</td>
<td>30</td>
</tr>
<tr>
<td>Viral load AUC mean (SD) (hours x Log_{10} copies/mL)</td>
<td>203.95 (173.50)</td>
<td>217.71 (217.55)</td>
<td>790.15 (408.80)</td>
</tr>
<tr>
<td>% Reduction (relative to placebo)</td>
<td>74.43%</td>
<td>71.46%</td>
<td></td>
</tr>
<tr>
<td>Absolute Reduction* (relative to placebo)</td>
<td>-588.08</td>
<td>-564.63</td>
<td></td>
</tr>
<tr>
<td><strong>P-value</strong></td>
<td>&lt;0.001</td>
<td>&lt;0.001</td>
<td></td>
</tr>
<tr>
<td>Difference between two EDP-938 dosing groups</td>
<td>-23.45</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>P-value</strong></td>
<td>0.722</td>
<td></td>
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</tbody>
</table>

* Difference in LS Mean
EDP-938 Shows a Rapid and Sustained Attenuation of RSV Symptoms Compared to Placebo
Both EDP-938 Regimens Demonstrated Highly Statistically Significant Attenuation of RSV Symptoms Compared to Placebo - No Statistically Significant Difference Between the Two Dosing Regimens

<table>
<thead>
<tr>
<th></th>
<th>EDP-938 600 mg QD</th>
<th>EDP-938 500 mg LD/300 mg BID</th>
<th>Placebo</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>N</strong></td>
<td>25</td>
<td>31</td>
<td>30</td>
</tr>
</tbody>
</table>
| **AUC Total Symptom Score mean (SD)**
  (hours x Score)  | 124.47 (115.60)   | 181.75 (248.42)             | 478.75 (422.29) |
| **% Reduction (relative to placebo)** | 74.3% | 68.2% |
| **Absolute Reduction* (relative to placebo)** | -355.91 | -326.64 |
| **P-value**       | <0.001            | <0.001                      |         |

Difference between two EDP-938 dosing groups

<p>| | |</p>
<table>
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<tr>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td><strong>P-value</strong></td>
<td>0.700</td>
</tr>
</tbody>
</table>

* Difference in LS Mean
Summary: EDP-938, A Highly Efficacious and Safe RSV N-Inhibitor

- **Phase 1 results:**
  - Safe and well tolerate, no SAEs, AEs were mild
  - At Phase 2 doses, mean trough levels 30x higher than EC 90 of EDP-938 against RSV-infected human cells

- **Phase 2a Results:**
  - Primary and Key Secondary Efficacy Endpoints were achieved (p<0.001) at both dose levels after 5 days of dosing
  - EDP-938 mean $C_{\text{trough}}$ 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)

- **Future Phase 2 studies will focus on both adult and infant populations**
Virology & Liver Disease Focus Areas

HCV    NASH /PBC

HBV    RSV
Non-Alcoholic Fatty Liver Disease (NAFLD) and Non-Alcoholic Steatohepatitis (NASH)

- Number one cause of liver disease in Western Countries
- NAFLD: excessive fat (triglyceride) accumulation in the liver (steatosis)
- A subgroup of NAFLD patients has liver cell injury and inflammation in addition to excessive fat (steatohepatitis), i.e. NASH
- NASH is associated with the metabolic syndrome – diseases related to type 2 diabetes, insulin resistance, obesity, hyperlipidemia, and hypertension
- While NAFLD does not correlate with short-term morbidity or mortality, but progression to NASH dramatically increases risks of cirrhosis, liver failure, and hepatocellular carcinoma

Stages of Liver Injury (NIDDK)

- Fatty liver
- Liver fibrosis
- Cirrhosis

Deposits of fat cause liver enlargement.
Scar tissue forms. More liver cell injury occurs.
Scar tissue makes liver hard and unable to work properly.
Enanta’s Approach to NASH and PBC—Agonists of Farnesoid X Receptor (FXR)

- FXR
  - nuclear 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 agonist preclinical PoC
  - ameliorate pathologies in NASH and PBC models, including an effect on fibrosis

- Clinical validation of FXR agonist in NASH and PBC with 6-ECDCA (OCA)

### Classification of FXR Agonists – Four fundamental types (with variations)

#### Steroidal

- **Steroidal carboxylic acid**: S-CA
- **Steroidal non-carboxylic acid**: S-NCA

#### Non-steroidal

- **Non-steroidal carboxylic acid**: NS-CA
- **Non-steroidal non-carboxylic acid**: NS-NCA

<table>
<thead>
<tr>
<th>FXR Agonists</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>Steroidal carboxylic acid</td>
<td>OCA, bile acids</td>
</tr>
<tr>
<td>Steroidal non-carboxylic acid</td>
<td>Enanta compounds</td>
</tr>
<tr>
<td>Non-steroidal carboxylic acid</td>
<td>Enanta compounds, GS-9674, LJN452</td>
</tr>
<tr>
<td>Non-steroidal non-carboxylic acid</td>
<td>Enanta compounds</td>
</tr>
</tbody>
</table>

*Y. Or, NASH-TAG 2017, Park City*
FXR Agonist EDP-305: Introduction

- **EDP-305**: Steroidal non-carboxylic acid, modified with additional non-steroidal binding element to enhance potency
- Potent FXR receptor agonist activity vs OCA
- Highly selective for FXR vs other nuclear receptors
  - and vs TGR5 receptor
- Potent and differentiated effects on FXR-dependent gene expression vs OCA
  - *e.g.* Shp, Cyp7a1, Bsep, Fgf15/FGF19
  - human hepatocytes and *in vivo* mouse model
- **Efficacy in multiple NASH models**
  - STAM™ mouse NASH model and dietary-induced NASH (DIN) mouse model
  - Improvement in hepatocyte ballooning and overall NAFLD Activity Score vs OCA
- **Reduced liver fibrosis in rodent models**
  - Mdr2-/-, MCD, CDAHFD, thioacetamide, and bile duct ligation models
EDP-305 Phase 1 Study

• Double-blind, placebo-controlled, Phase 1a/b study

• Healthy adults, and adults with presumptive NAFLD (“PN”)
  - PN were obese, with or without pre-diabetes or type 2 diabetes mellitus, mean BMI= 32

• Oral suspension EDP-305 or placebo, dosed once daily
  - Total N=146 subjects (n=110 EDP305, n=36 pbo)
  - SAD, n=50, 6 cohorts at 1, 5, 10, 20, 40 and 80 mg
  - MAD, n=48 healthy and n=48 PN, 6 cohorts at 0.5, 1, 2.5, 5, 10, and 20 mg for 14 days

• Safety, tolerability, PK, and proof of target engagement support progression to Ph2 with once daily dosing
FXR Agonist EDP-305: Ph2 Studies

• Fast Track Designation granted by FDA for PBC and for NASH with fibrosis

• Two Ph 2 studies ongoing:
  - “ARGON-1” (NASH) and “INTREPID” (PBC)
  - 12 week dose ranging, randomized, double-blind, placebo-controlled
  - Evaluate safety, tolerability, PK, and efficacy (ALP reduction in PBC and ALT reduction in NASH)
  - New tablet formulation at 1 and 2.5 mg (~2X greater exposure than Ph1 suspension formulation)
  - ARGON-1 enrollment complete
Virology & Liver Disease Focus Areas

- HCV
- NASH/PBC
- HBV
- RSV
HBV Background

- Potentially life-threatening liver infection caused by the hepatitis B virus
- Current treatments rarely give true cures
  - **Interferon** gives better results (~10%), but with side effects
  - **RT inhibitors** very effective at reducing viral load, but offer very low cure rates (1% or lower) and must be taken for life to improve cirrhosis or HCC outcomes
- Prevalence estimates
  - US: ~850,000 - 2 million
  - US + Japan + major EU populations: ~4.9 million
  - Worldwide: ~250 million
- Estimated 15-25% of patients with chronic HBV infection will develop chronic liver diseases including cirrhosis, HCC, or liver decompensation

Sources: WHO, CDC, Datamonitor
Core inhibitors: Introduction
(also called capsid assembly modulators, core protein allosteric modulators, capsid inhibitors)

- Novel class of replication inhibitor
- Act at multiple steps in HBV lifecycle
  - prevent proper uncoating, nuclear import, assembly, and recycling

Phenylpropemides (AT-130)

Isothiafludine (NZ-4)

Sulfamoylbenzamides (SBA-R01)

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Core Inhibitor EDP-514 is a Potent Inhibitor of HBV Replication

- EDP-514 is active in multiple HBV stable cell lines

<table>
<thead>
<tr>
<th></th>
<th>HBV Stable Cell Line EC$_{50}$ (nM)</th>
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<tbody>
<tr>
<td></td>
<td>HepAD38</td>
</tr>
<tr>
<td>Intracellular Viral DNA</td>
<td>18</td>
</tr>
<tr>
<td>Encapsidated pgRNA</td>
<td>25</td>
</tr>
<tr>
<td>HBeAg</td>
<td>20</td>
</tr>
</tbody>
</table>

* In HepG2.2.15 cells, HBeAg is transcribed off transgene and is not dependent on viral replication

Viral DNA measured by qPCR
Encapsidated pgRNA measured by modified pulldown and qPCR
HBeAg measured by commercial ELISA kit
EDP-514 Prevents *de novo* Formation of cccDNA in Primary Human Hepatocytes

- EDP-514 prevents cccDNA establishment when present at early time points in infection (HBsAg as surrogate marker)

<table>
<thead>
<tr>
<th>Compound</th>
<th>HBsAg EC$_{50}$ (nM)</th>
<th>HBV DNA EC$_{50}$ (nM)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>d0 Addition</td>
<td>d3 Addition</td>
</tr>
<tr>
<td>EDP-514</td>
<td>35</td>
<td>&gt;1000</td>
</tr>
<tr>
<td>Entecavir</td>
<td>&gt;1000</td>
<td>&gt;1000</td>
</tr>
</tbody>
</table>
EDP-514 is Efficacious in the Humanized Liver Mouse Model

- uPA/SCID mice were infected with genotype C HBV and subsequently treated with EDP-514 BID at indicated doses for 12 weeks

**Graph:**
- **Treatment (Day 0-83):** Shows the decay of viral DNA levels over time for different treatment groups.
- **Follow-up (Day 84-112):** Continuation of the treatment's effect.
- **Max. Viral DNA Log Reduction @ Day 77:**
  - Vehicle Control: -0.04
  - Entecavir Control: -2.21
  - EDP-514 25 mg/kg BID: -2.99
  - EDP-514 50 mg/kg BID: -3.61
  - EDP-514 75 mg/kg BID: -3.95
  - EDP-514 100 mg/kg BID: -4.43
HBV Core Inhibitor EDP-514 Summary

- A novel core inhibitor that displays potent anti-HBV activity at multiple points in the HBV lifecycle

  - *In vitro:*
    - Potent anti-HBV activity in HBV expressing stable cells lines
    - Capable of preventing the establishment of cccDNA
    - Potent 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

- Ph1 start targeted for 3Q-19
## Financial Highlights

<table>
<thead>
<tr>
<th>($ In millions)</th>
<th>Fiscal Year Ended Sept. 30, 2018</th>
<th>Fiscal 2Q19</th>
</tr>
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<tbody>
<tr>
<td><strong>Total Revenues</strong></td>
<td>206.6*</td>
<td>$39.6</td>
</tr>
<tr>
<td><strong>R&amp;D Expenses</strong></td>
<td>$94.9</td>
<td>$34.2</td>
</tr>
<tr>
<td><strong>G&amp;A Expenses</strong></td>
<td>$23.4</td>
<td>$6.8</td>
</tr>
<tr>
<td><strong>Net Income</strong></td>
<td>$71.9</td>
<td>$4.1</td>
</tr>
<tr>
<td><strong>EPS (per diluted share)</strong></td>
<td>$3.48</td>
<td>$0.20</td>
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**Balance Sheet**

| Cash, Cash Equivalents and Marketable Securities | $325.1 | $386.7 |

*Includes $15M milestone payment from AbbVie for reimbursement approval of MAVIRET™ in Japan
Key Catalysts

• Ongoing double-digit HCV royalties from glecaprevir (MAVYRET™)

• RSV program:
  - Goal – Initiate Ph2b adult outpatient study by end of 2019

• FXR agonist EDP-305 for NASH / PBC:
  - Phase 2 data in NASH by end of 3Q19
  - Identify follow-on FXR clinical candidate for NASH in 2019
  - Advance non-FXR compounds for NASH
  - Continued PBC enrollment in 2019

• HBV program
  - Initiate Phase 1 with Core Inhibitor EDP-514 in 3Q19