ATEA Pharmaceuticals

J.P. Morgan Healthcare Conference

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NASDAQ: AVIR

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Market data and industry information used throughout this presentation are based on management's knowledge of the industry and the good faith estimates of management. We also relied, to the extent available, upon management's review of independent industry surveys and publications and other publicly available information prepared by a number of third-party sources. All of the market data and industry information used in this presentation involves a number of assumptions and limitations, and you are cautioned not to give undue weight to such estimates. Although we believe that these sources are reliable, we cannot guarantee the accuracy or completeness of this information, and we have not independently verified this information. While we believe the estimated market position, market opportunity and market size information included in this presentation are generally reliable, such information, which is derived in part from management's estimates and beliefs, is inherently uncertain and imprecise. No representations or warranties are made by the Company or any of its affiliates as to the accuracy of any such statements or projections. Projections, assumptions and estimates of our future performance and the future performance of the industry in which we operate are necessarily subject to a high degree of uncertainty and risk due to a variety of factors, including those described above. These and other factors could cause results to differ materially from those expressed in our estimates and beliefs and in the estimates prepared by independent parties.

2023: Pivotal Year Advancing Transformative Therapeutics for Severe Viral Diseases

COVID-19

- Bemnifosbuvir SUNRISE-3 Phase 3 trial
  - SUNRISE-3 interim analysis 2H’23
  - SUNRISE-3 enrollment completion 4Q’23
- Second-generation protease inhibitor – filing IND/CTA 4Q’23

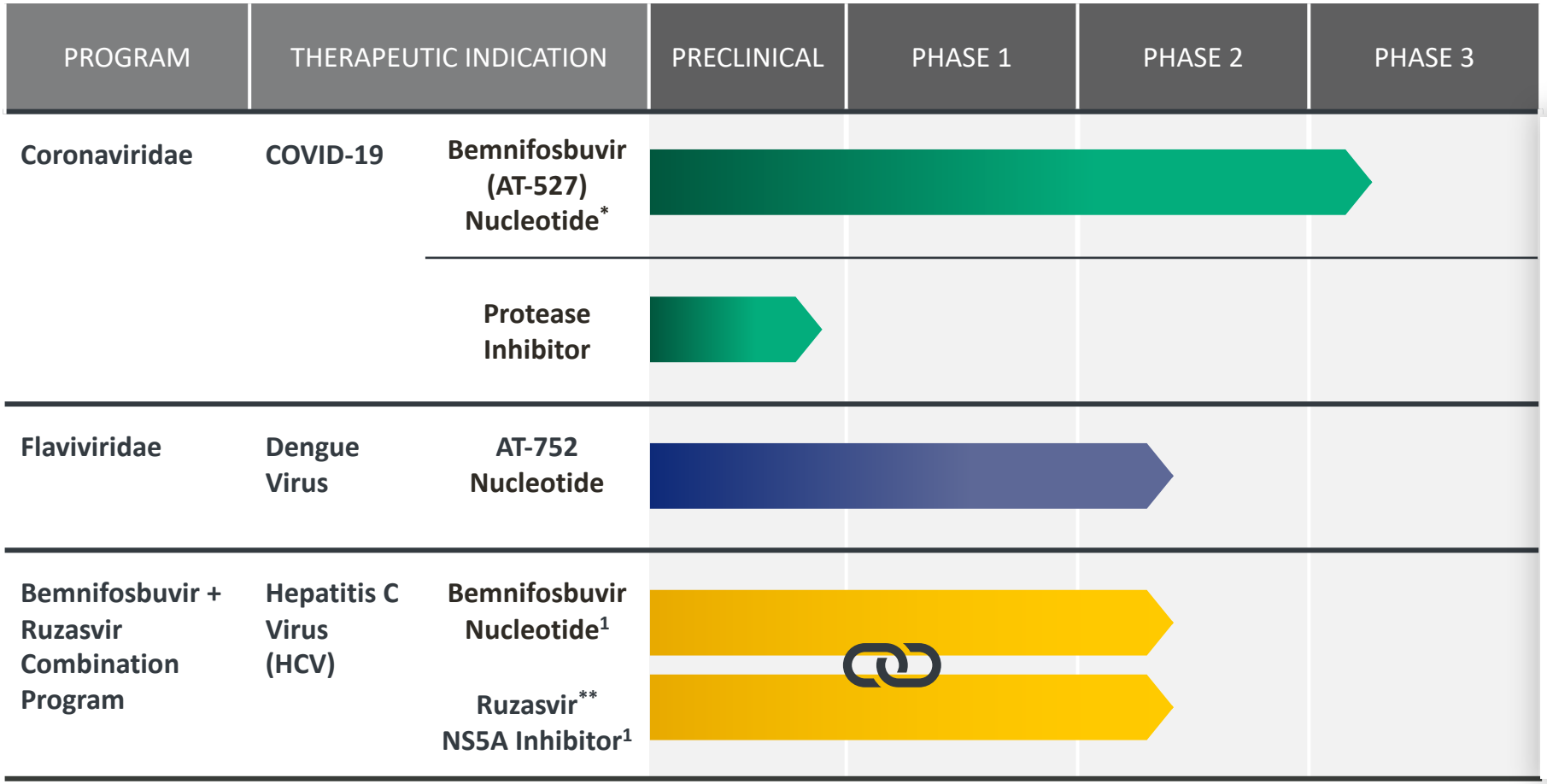
Dengue

- AT-752 proof of concept clinical results 1Q’23
  - Evaluating impact of AT-752 on dengue virus infection
  - Advance clinical program toward late-stage development

HCV

- Bemnifosbuvir + ruzasvir Phase 2 combination clinical trial
  - 1Q’23 regulatory submissions and approvals
  - 2Q’23 first patient dosed
  - Initial results 4Q’23

Deep Antiviral Pipeline, Fully Funded Through Key Inflection Points



Well Capitalized

$665.0 million
in cash, cash equivalents and marketable securities as of 9/30/22

Cash runway through 2025

*Bemnifosbuvir (generic name for AT-527) is a double prodrug nucleotide analog. ** Worldwide exclusive license for all uses from Merck.

1. Bemnifosbuvir and ruzasvir have each separately generated clinical results and will be developed as a combination for HCV.

Bemnifosbuvir

Phase 3 Program Update for COVID-19

- COVID-19 Strategy
- Bemnifosbuvir Global SUNRISE-3 Phase 3 Trial
- Bemnifosbuvir 2nd Gen Tablet
- Bemnifosbuvir Activity Against Variants, including Omicron

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Bemnifosbuvir: COVID-19 Strategy Focused on Highest Unmet Medical Need

Unmet Medical Need

Limitations of Current Vaccines / Therapies

- Waning immunity of vaccines / natural infection (e.g., XBB.1.5)
- Failure of certain patient populations to mount immune response to vaccines
- No effective monoclonal antibodies
- Limitations with authorized oral antivirals

Monotherapy

SUNRISE-3 Cohort for Registration

Bemnifosbuvir's profile addresses key limitations of current therapies

- ✓ Antiviral efficacy against all tested variants of concern
- ✓ Low risk of drug-drug interactions
- ✓ No mutagenicity or embryo-fetal toxicity (preclinical)
- ✓ High barrier to resistance

Combination Therapy

SUNRISE-3 Combination Cohort to Inform Development Strategy

Developing combination therapy for specific COVID-19 patient populations unable to mount immune response

- Additive benefit indicated *in vitro* with bemnifosbuvir + DAAs including protease inhibitors (PIs)
- Advancing internal PI program for combination therapy with bemnifosbuvir

DAA – Direct Acting Antiviral

COVID-19: Pandemic of the Elderly - Highest Rate of Hospitalizations and Deaths

Primary Endpoint of SUNRISE-3: Hospitalization or Death

COVID-19: 3rd leading cause of death after heart disease and cancer[1] with majority 65 yrs.+

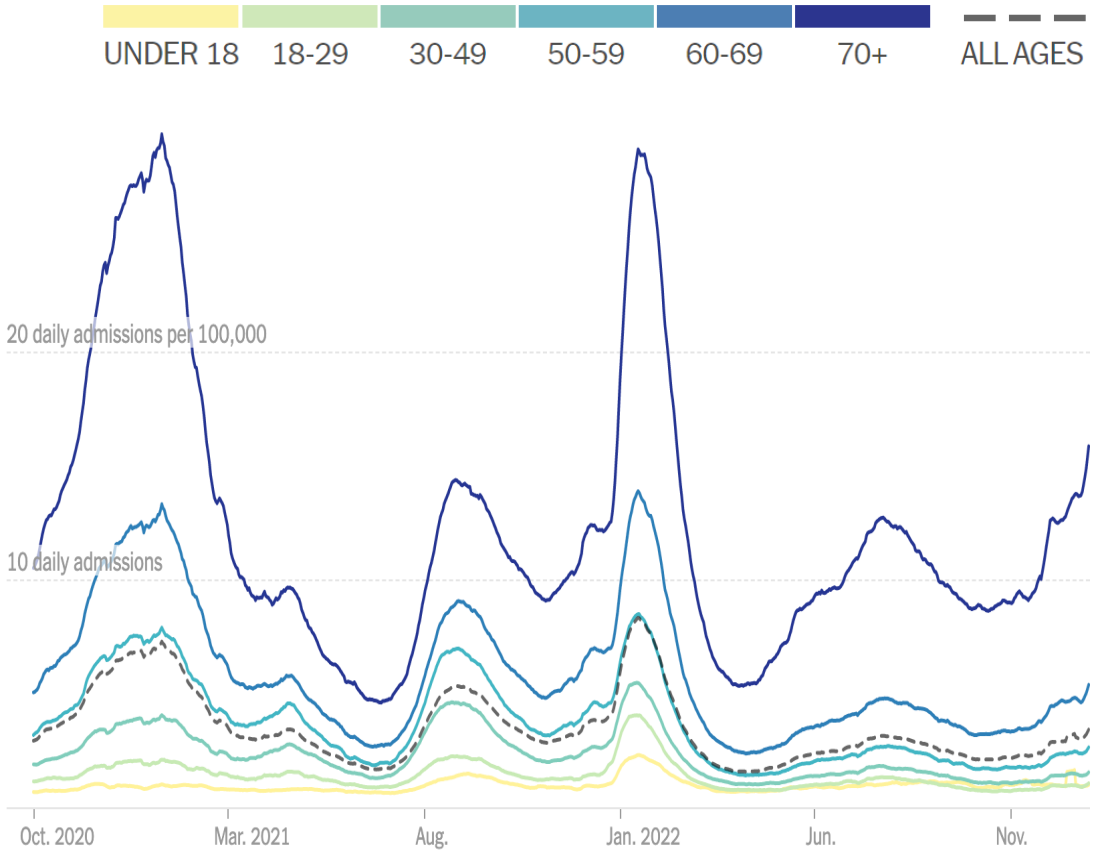
- US life expectancy decreased due to COVID-19 (2019-2021)

CDC: 50% hospitalized 65 yrs.+ had at least 3 vaccine shots, rates of hospitalization 3X higher in unvaccinated adults

In immunocompromised patients, **~20% hospitalized with Omicron**[2]

SUNRISE-3 patient population:
≥80 yrs., ≥ 65 yrs. with ≥ 1 major COVID-19 risk factor, ≥ 18 yrs. immunocompromised

Daily New Hospital Admission by Age



https://www.nytimes.com/interactive/2021/us/covid-cases.html

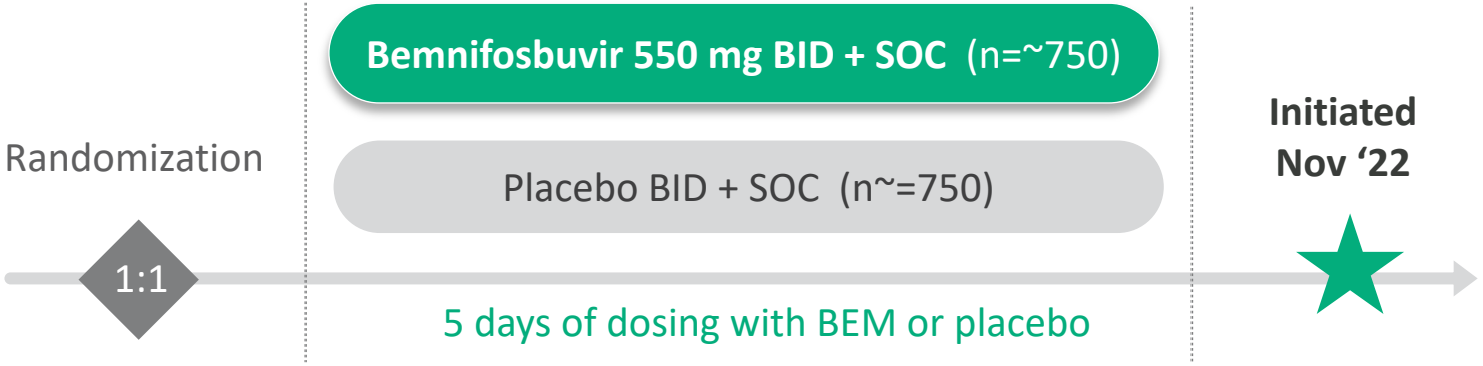
1. https://www.cdc.gov/media/releases/2022/s0422-third-leading-cause.html (Accessed 30 Sep 2022)
2. Mahale SRK et al. Clin Infect Dis. 2022; Jul 23;ciac571. doi: 10.1093/cid/ciac571d

SUNRISE-3: Global Phase 3 Registrational Trial in High-Risk COVID-19 Outpatients

Innovative Phase 3 Trial Design with Global Footprint ~300 Clinical Sites

Inclusion Criteria: High-risk outpatients with mild or moderate COVID-19, regardless of vaccination status; symptom onset ≤ 5 days before randomization

Geography: US, Europe, Japan and ROW



Phase 3 Study Design:

- Randomized, double-blind, placebo-controlled
- Study drug (bemnifosbuvir or placebo) to be initiated at the same time as locally available standard of care (SOC)
- Two study populations derived from the type of SOC received:
  - "Supportive care population" – *monotherapy* (primary analysis)
  - "Combination antiviral population" – *combination therapy* (secondary analysis, local SOC includes treatment with other compatible antiviral drugs against COVID-19)
- ~4-6% hospitalization rate targeted
- Interim analysis to be conducted

Primary Endpoint:

- **All-cause hospitalization or death through Day 29 in supportive care population (n: ≥1,300 patients)**

Secondary Endpoints (assessed in each population):

- COVID-19 related hospitalizations and deaths
- Medically attended visits
- Symptom rebound / relapse
- Viral load rebound

Bemnifosbuvir 2nd Gen Tablet (2 X 275 mg) Achieved Higher Plasma Exposure vs 1st Gen Tablet (2 X 275 mg) in Healthy Volunteers

- Steady State: fasted or with low-fat meal in healthy volunteers (n=12)
  - 2nd Gen tablet resulted in higher plasma exposure
  - 2nd Gen tablet BID x 10 days was well tolerated
- 2nd Gen tablet achieved higher plasma trough concentrations of active surrogate metabolite AT-273 (> EC_{90} of bemnifosbuvir in inhibiting SARS-CoV-2 replication) **without food effect regardless of fat content**
- 2nd Gen tablets (2 x 275 mg) BID are being used in SUNRISE-3

In Vitro Bemnifosbuvir Remains Fully Active Against Omicron Subvariants, with Similar EC_{90} Target Concentrations

SARS-CoV-2 variant		AT-511* EC_{90}, µM (n)		Fold change (variant/USA-WA1)
Variant	Lineage	Mean	SD	
Original (USA-WA1/2020)	A	0.75 (n=2)	0.21	-
Alpha	B.1.1.7	2.15 (n=3)	0.22	2.9
Gamma	P.1	2.50 (n=3)	0.50	3.3
Epsilon	B.1.427	0.76 (n=2)	0.48	1.0
Original (USA-WA1/2020)	A	0.43 (n=2)	0.12	
Beta	B.1.351	0.80 (n=2)	0.23	1.9
Original (USA-WA1/2020)	A	1.20 (n=3)	0.37	-
Delta	B.1.617.2	1.36 (n=3)	0.34	1.1
Original (USA-WA1/2020)	A	0.58 (n=5)	0.26	-
Omicron (BA.1)	B.1.1.529	0.50 (n=3)	0.27	0.86
Original (USA-WA1/2020)	A	0.59 (n=2)	0.18	-
Omicron (BA.2)	B.1.1.529	0.54 (n=2)	0.08	0.92
Original (USA-WA1/2020)	A	0.88 (n=2)	0.15	-
Omicron (BA.4)	B.1.1.529	0.54 (n=2)	0.27	0.61
Omicron (BA.5)	B.1.1.529	0.81 (n=2)	0.20	0.92

EC_{90} = effective concentrations inhibiting 90% of viral replication

Readout: VYR (virus yield assay); Cells: Normal human-derived tracheal/bronchial epithelial cells.

*AT-511 is the free base of bemnifosbuvir

Bemnifosbuvir

COVID-19 Oral Antiviral Commercial Opportunity

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US Market to Transition From Gov't Advance Purchase to Traditional Channels

Market Expected to Remain a Long-Term Multi-Billion Dollar Opportunity

Projected Annual COVID-19 Oral Antiviral Retail Demand[1]

# Reported Cases		# Retail Rx		Cost of Treatment (estimated)		Annual Revenue
17.2M	→	8.8M	×	$1k-$2k /Rx	=	~$8B - $16B

Expanded Market Opportunities

- Prescribing for patients when Paxlovid™ drug-drug interactions (DDI) are a concern

Annual US retail prescriptions (2021)[2] for commonly used drug classes where Paxlovid DDI is a concern

Cancer Therapies	Immunosuppressants & Immunomodulators	Oral Corticosteroids	HIV Antivirals	Anti Coagulants	Anti Arrhythmics	Calcium Blockers	Seizure Medications	Anti Psychotics
11M	12M	114M	10M	75M	10M	112M	164M	70M

- Stockpile

(1) Projections based on average 3 months (Sept, Oct, Nov. 2022): CDC case rate, IQVIA NPA TRx. (2) IQVIA NPA 2021 TRx.

COVID-19 Oral Antivirals to Transition in US to Payer Market

Prevention of Costs of Hospitalization Critical Value Driver for Oral Antivirals

	Medicare Part-D	Medicaid	Private (Commercial)
Key Considerations For Coverage as Public Health Emergency / Gov't Funded Supply Ends	• Needs FDA approval • Min 2 products covered in drug class • Likely expedited review (90 vs 180 days) • $0 co-pay for ≥ 1 product for high-risk elderly patients • PA unlikely • Potential quantity limits	• Should cover COVID antivirals with cost share in 2023	• Needs FDA Approval • Should cover COVID antivirals • PA unlikely • Potential quantity limits • Potential premium increase

Significant Economic Burden of COVID-19: Hospitalization Costs

- CMS: Average cost per hospitalization ~$22K, total expenses for Medicare (2021) = ~$13B
- ~70% of COVID-19 related hospitalized patients were Medicare (2022)

ICER[1] and ASPE[2]: Oral Antivirals Cost-Effective by Preventing Hospitalization

Payors Expected to Cover Oral Antivirals for Elderly and High-risk Individuals

1. ICER: Institute for Clinical and Economic Review 2. ASPE: Office of the Assistant Secretary of Planning and Evaluation a. Oral Treatments for Outpatient COVID-19: Effectiveness and Value by Molly Beinfeld, MPH et.al; J. Manag Care Spec. Pharm, 2022; 22(8): 908-09 b. Understanding Coverage Considerations for COVID-19 Vaccines and Treatment by Trinidad Beleche et. al, ASPE Report; August 2022

AT-752

Program Update:
Phase 2 Clinical Development for Dengue

AT-752: U.S. FDA Fast Track Designation for Treatment of Dengue

Enrollment Completed for Proof-of-Concept, Data Expected 1Q'23

DEFEND-2: Global Phase 2 Study for Dengue Treatment

- Enrolling up to 60 adult patients with dengue fever [cohort 1 enrollment completed (n=21)]
- Randomized, double-blind, placebo-controlled trial being conducted in dengue endemic countries
- Oral administration of AT-752 750 mg TID or placebo for 5 days
- Objectives: antiviral activity, safety, and PK
  - Primary endpoint:
    Change in dengue virus viral load from baseline
  - Exploratory:
    viremia, NS1 levels, fever

Human Challenge Infection Model

- Enrolled healthy subjects between 18-55 years old
- Trial conducted exclusively in the United States
- Study designed to evaluate the effect of AT-752 in healthy volunteers challenged with an attenuated DENV-1 virus strain
- Oral administration of AT-752 750 mg TID or placebo for 14 days

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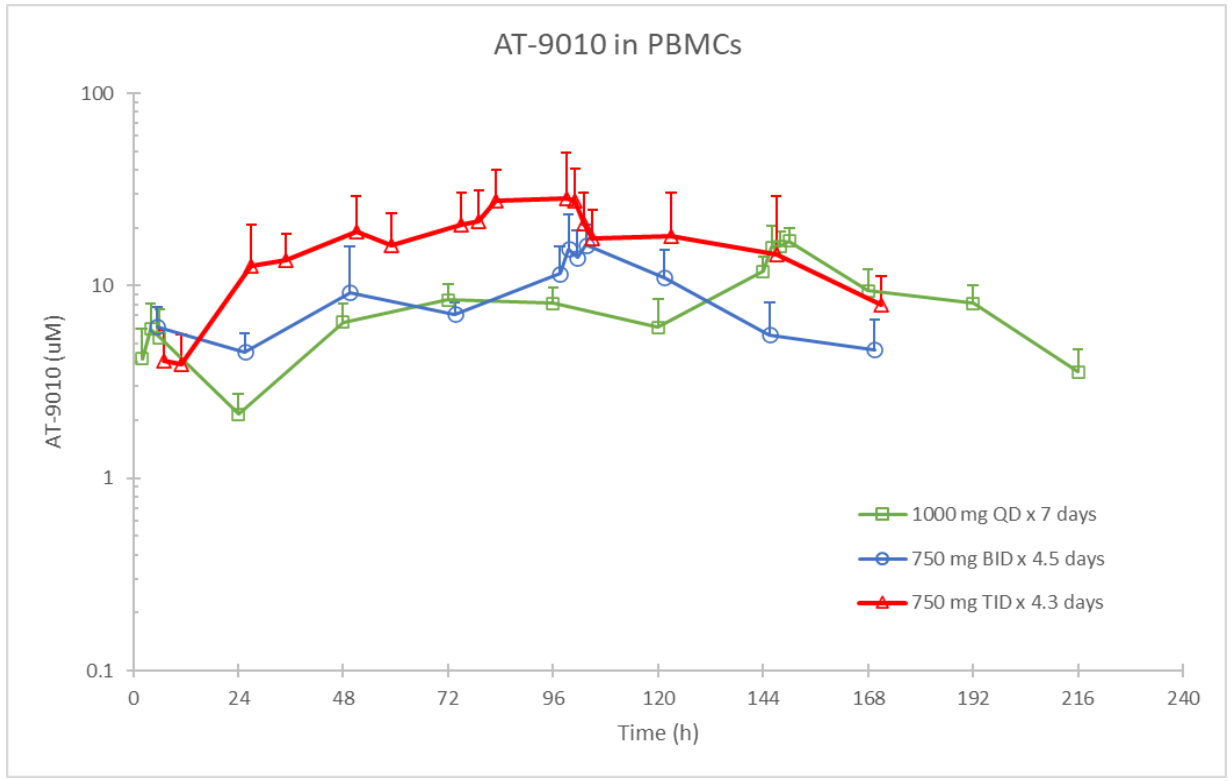
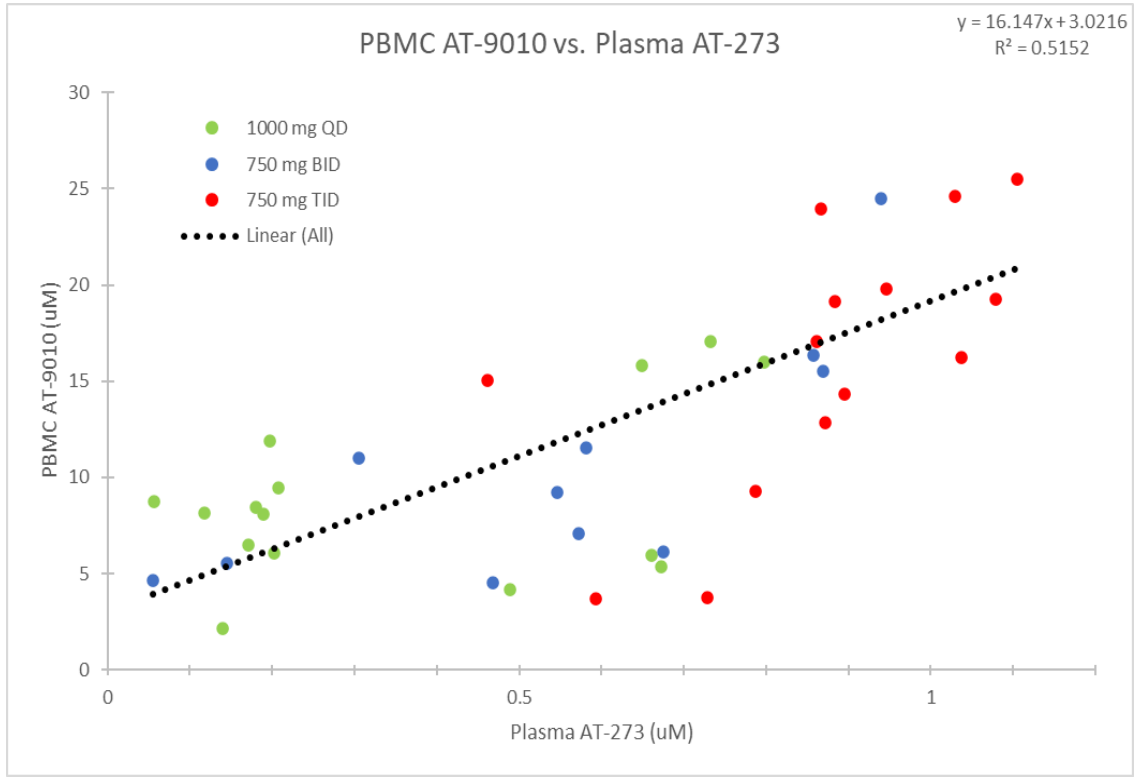
Substantial Levels of Active Triphosphate Metabolite (AT-9010) Achieved at Dengue Target Site (PBMCs) After Oral Dosing of AT-752 in Healthy Subjects





- 750 mg TID rapidly achieved the highest triphosphate (AT-9010) levels in peripheral blood mononuclear cells (PBMCs)
- 750 mg BID led to comparable levels at steady state
- AT-9010 exhibited long intracellular half-life of ~30 hrs.

- AT-9010 levels in PBMCs correlated with plasma AT-273 levels at all doses with better distribution of TID and BID dosing regimens

Dengue Has Significant Global Disease Burden and High Unmet Medical Need

Dengue Oral Antiviral Therapeutic has Potential Global Market Opportunity of ~$500M

Most Prevalent Mosquito-Borne Viral Disease

>100
Countries where dengue is endemic[1]

~4B
People live in high-risk areas[1]

$8-$9B
Annual global economic burden[2]

~400M
Estimated infected annually[3]

12-44%
Mortality rate for severe dengue if left untreated[4]

Robust US Travel Market Potential[5]

Over 400K
missionaries deployed across the globe

Over 173K
US troops in 159 countries

66M
US International leisure travelers annually

4K
Peace Corps volunteers in 60 countries

600K Malarone (atovaquone/proguanil) TRxs dispensed in the US in 2019[6]

Large Endemic Market with No Antiviral Treatments Available

While many of the highly endemic countries are lower income countries, high incidence and responsible pricing can represent significant market potential

$1B Takeda's Dengue vaccine, Qdenga™ peak sales estimates[7]

1. WHO 2. The global economic burden of dengue: a systematic analysis: *Donald S Shepard, Eduardo A Undurraga, Yara A Halasa, Jeffrey D Stanaway: Lancet Infect Dis* 2016; 16: 935–41 3. CDC
4. Dengue and dengue haemorrhagic fever: *José G Rigau-Pérez, Gary G Clark, Duane J Gubler, Paul Reiter, Eduard J Sanders, A Vance Vorndam:* THE LANCET • Vol 352 • September 19, 1998 971
5. GlobalData 6. IQVIA NSP 7. Takeda March 2021 Investor Presentation

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HEPATITIS C

Program Update: Potential Best-in-Class Pan-Genotypic Regimen

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HCV Development for Bemnifosbuvir + Ruzasvir

Potential Best-in-Class Pan-genotypic Regimen

- Phase 2 trial evaluating convenient and short duration treatment in HCV-infected patients including those with compensated cirrhosis
  - regulatory submissions / approvals 1Q'23
  - patient enrollment anticipated 2Q'23

Bemnifosbuvir + Ruzasvir Competitive Profile

Convenient and short duration protease inhibitor-free treatment

Potential for first RBV-free therapy for decompensated disease

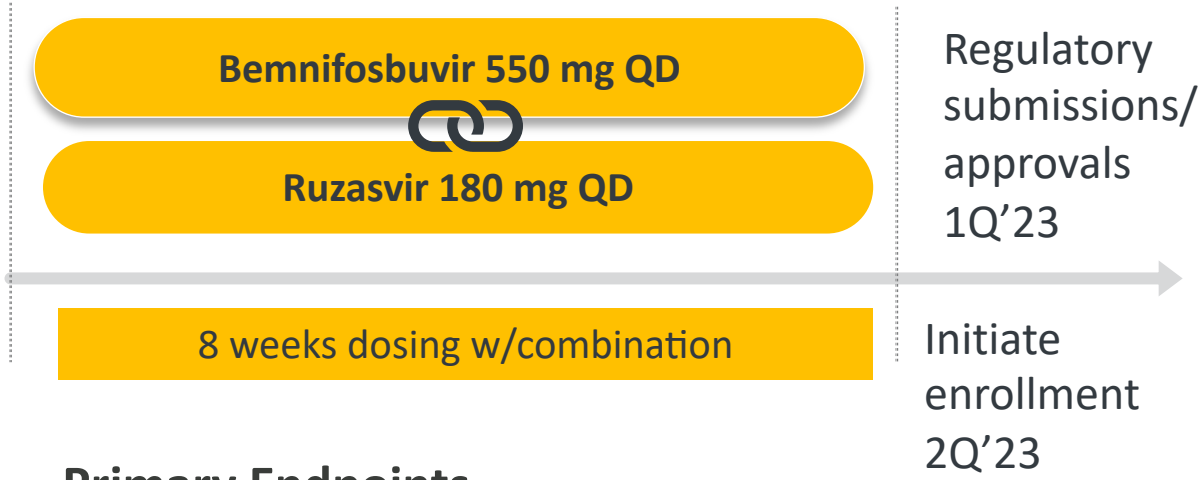
- ✓ Bemnifosbuvir is the most potent nucleotide inhibitor to-date being developed for HCV[1]
- ✓ Ruzasvir is a highly potent drug candidate[2]
- ✓ Potential for best-in-class pan-genotypic fixed-dose combination

1, Good SS et al (2020) Preclinical evaluation of AT-527, a novel guanosine nucleotide prodrug with potent, pan-genotypic activityagainst hepatitis C virus. PLoS ONE 15(1):e0227104 https://doi.org/10.1371/journal.pone.0227104 2.Journal of Viral Hepatitis, 2019, September:26 (9); 1127-1138.

Phase 2 Open Label Study of Bemnifosbuvir + Ruzasvir in HCV Patients

Study Design: Open label combination

N=280: including a lead-in cohort of n=~60



Patient Population

- HCV-infected patients, including compensated cirrhosis
- Direct-acting antiviral naïve
- All genotypes

Primary Endpoints

- Sustained virologic response (SVR) at Week 12 post-treatment (SVR12)
- Safety

Other Endpoints

- Virologic failure
- SVR24
- Resistance

2021 Hepatitis C Global Market Approached $4B in Net Sales

US Accounted for ~50% of Global DAA Sales

With a best-in-class profile, bemnifosbuvir + ruzasvir has potential to command significant market share

Large Number of Patients

- In the US, ~ 2M patients undiagnosed
- ~75% of diagnosed patients are untreated
- Incidence of HCV is rising in US, with new infections exceeding cures achieved with antivirals

Market Opportunity

- Mavyret® NRx share ~42% Epclusa® NRx share ~53%
- Differentiated product profile relating to food effect, duration of therapy and tablet burden / packaging may affect prescribing behavior

Net Pricing Remains High

- Net therapy costs range between $11K-$17K in US
- Net pricing has stabilized following introduction of authorized copies

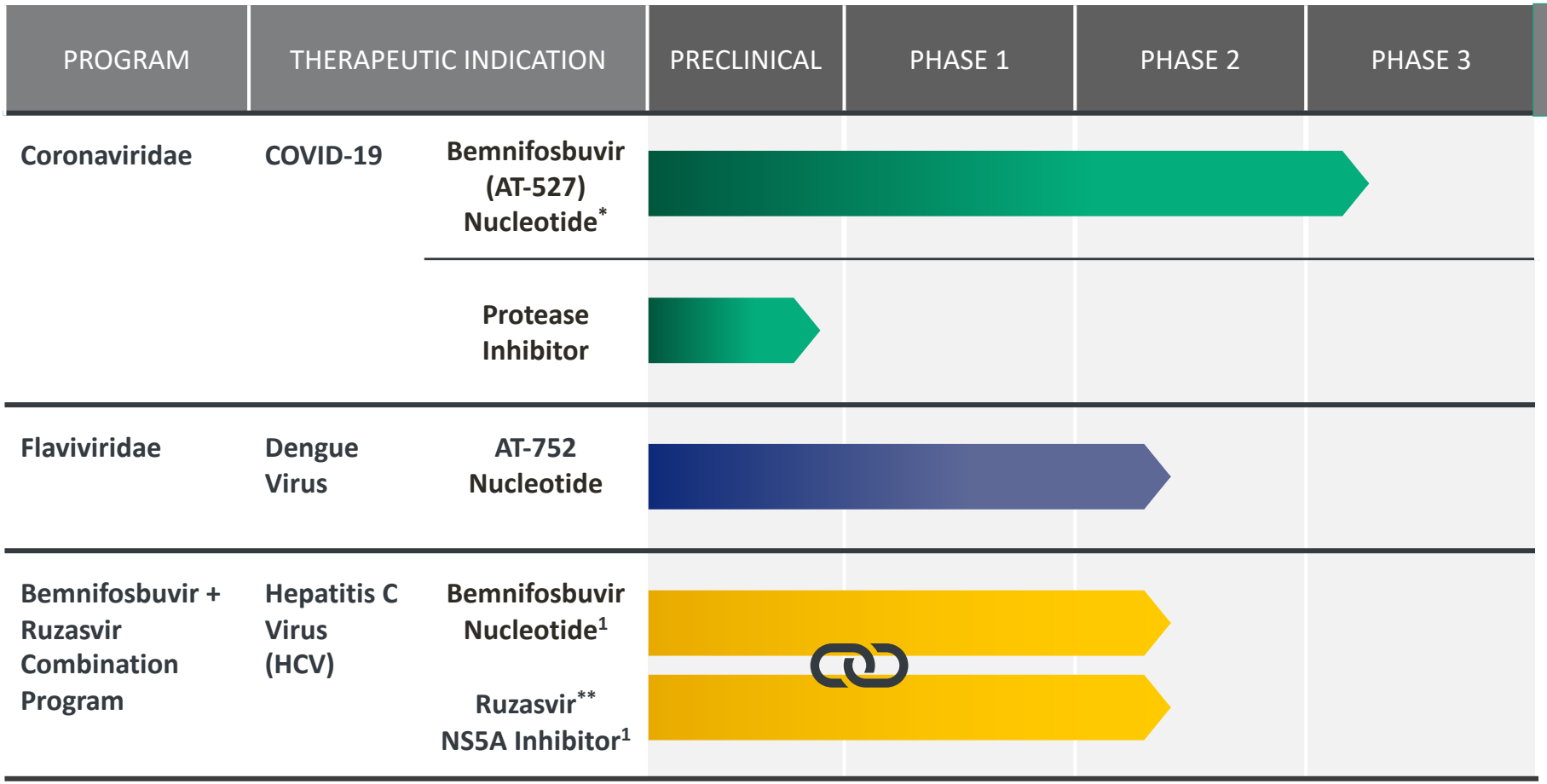
Concentrated US Prescriber Base

- ~6K prescribers write ~80% of DAA prescriptions
- Top 10 prescribers account for 5% of total prescription market

Sources: IQVIA Analytics Link, Gilead 2021 Investor Report, AbbVie 2021 Investor Report, Atea Custom Research August 2022, IQVIA Exponent

Closing Remarks

2023: Pivotal Year Advancing Transformative Therapeutics For Severe Viral Diseases



2023 EXPECTED MILESTONES

COVID-19

- Complete enrollment for SUNRISE-3 Ph 3 trial 4Q'23
- Initiate clinical trial for internal PI 4Q'23

Dengue

- PoC results 1Q'23

HCV

- Initial results for Ph 2 bemnifosbuvir + ruzasvir trial 4Q'23

$665.0 million in cash, cash equivalents and marketable securities as of 9/30/22

Cash runway through 2025

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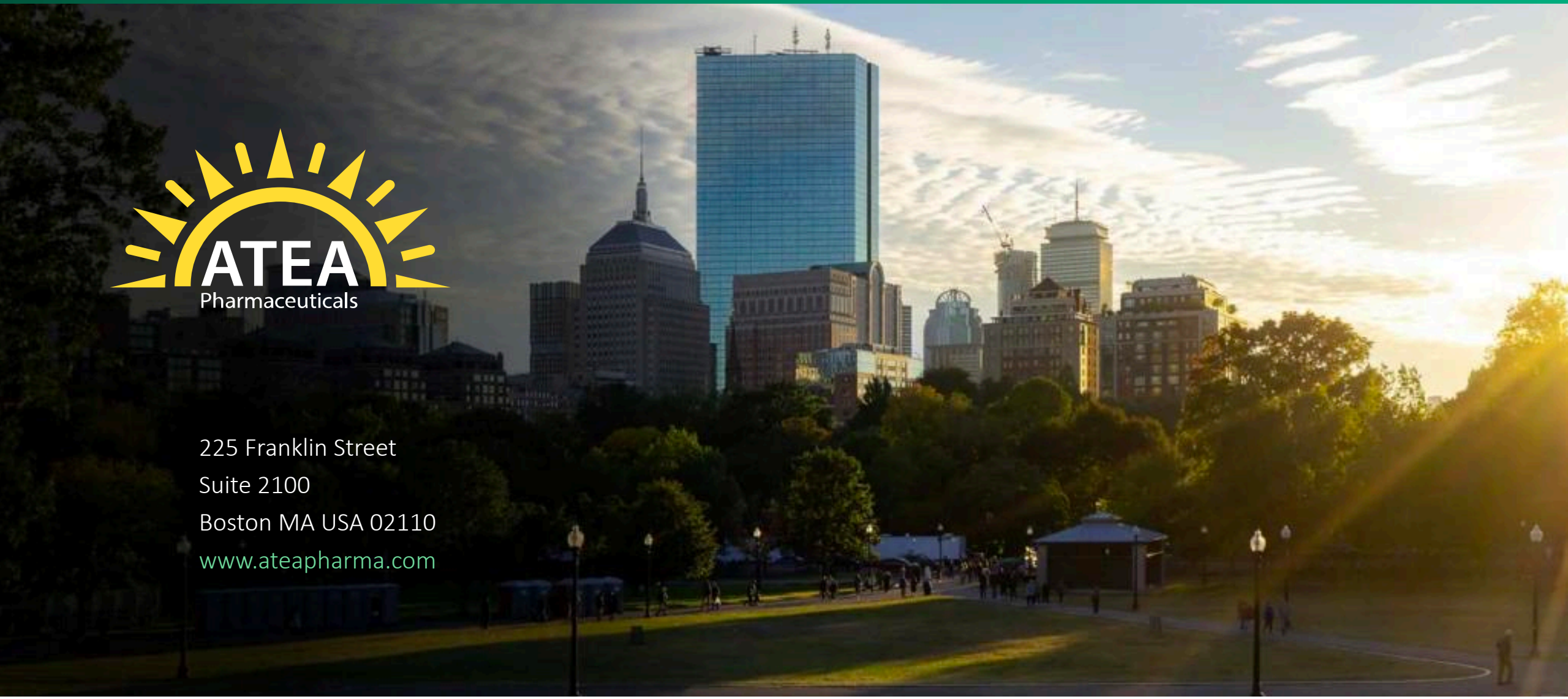

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