ATEA Pharmaceuticals

Q3 Clinical and Financial Update

November 11, 2021

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.

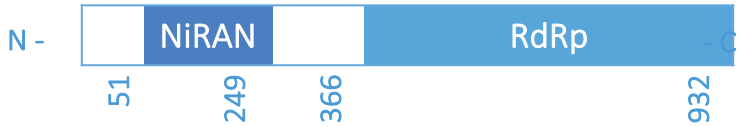
AT-527

AT-527 Addresses Key Challenges of COVID-19:

Oral Pill with MOA Designed to Inhibit Viral Replication

- Oral direct-acting antivirals (DAAs) are complementary to vaccines, easy to access with a prescription
- Targets viral RNA polymerase, a **highly conserved** enzyme critical to viral replication
- Unique differentiated mechanism with **dual targets:**
  - **Chain termination** (RdRp) without introducing mutations in the virus
  - **NiRAN inhibition**
    - Potentially creating a **high barrier to resistance** with broad antiviral coverage to coronaviruses and different variants of SARS-CoV-2
- **Non-mutagenic in mammalian cells *in vitro*, no effect on reproductive toxicology and non-teratogenic; no changes to the SARS-CoV-2 genome**
- ***Minimal drug-drug interaction,*** AT-527 is a weak inhibitor of CYP3A & no dose adjustment expected for co-administration of drugs that are CYP3A substrates
- Global collaboration with Roche with **multiple clinical trials advancing in parallel,** including global Phase 3 MORNINGSKY trial

Nsp12 Functional Domains SARS-Cov-2



RdRp = RNA-dependent RNA polymerase
NiRAN = Nidovirus RdRp-Associated Nucleotidyltransferase

Roche

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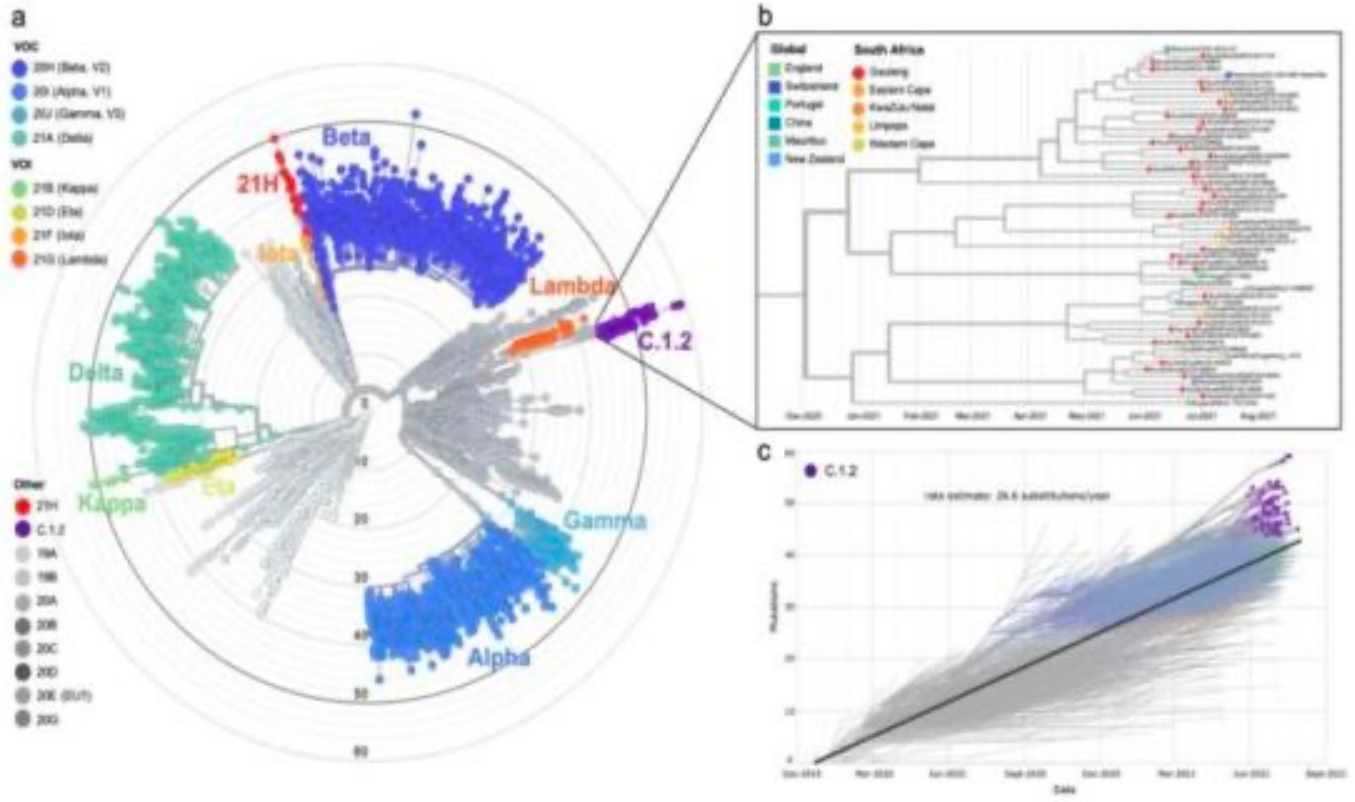
COVID-19

COVID-19 Continues to Evolve with New Variants and Viral Kinetics



- Almost 6,000 variants have been sequenced
- New variants associated with increased transmissibility, neutralization resistance and disease severity
- Delta Plus (AY.4.2) is a subvariant of the Delta variant
  - Mutation associated with increased risk of transmission and reinfection
  - Leading to new COVID-19 surge in Europe and other areas worldwide

https://doi.org/10.1101/2021.08.20.21262342doi: medRxiv preprint

AT-527

In Vitro Activity Against COVID-19 Variants of Concern and/or of Interest

AT-527

New Data

AT-511 (free base of AT-527) is Potent *In Vitro* Against Major SARS-CoV-2 Variants of Concern and/or of Interest, Including Delta

For USA-WA-1 (original strain), AT-511 EC_{90} = 0.53 ± 0.23 µM (n=14) (0.15-0.90 µM)

Variant	Lineage	Strain	Relative Potency AT-511 EC_{90} [variant/USA-WA-1]*
-	A	hCoV-19/USA-WA1/2020 (original strain)	1
Alpha	B.1.1.7	hCoV-19/England/204820464/2020	2.8 (n=3)
Gamma	P.1	hCoV-19/Japan/TY7-503/2021	3.2 (n=3)
Epsilon	B.1.427	hCoV-19/USA/CA/VRLC009/2021	1.0 (n=2)
Delta	B.1.617.2	hCoV-19/USA/PHC658/2021	1.2 (n=1)**

***Preliminary data*

*Differences for all variants were within *in vitro* assay-to-assay variability (5-fold or less)

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AT-527

Clinical Development Update

Additional Analysis from Phase 2 MOONSONG Trial and Phase 3 MORNINGSKY Update

AT-527

COVID-19: Multiple Clinical Trials Active & Reporting Results in 2021 & 2022

TRIAL	DESCRIPTION	TIMING
Phase 1 Healthy Volunteers	PK safety study, clinical pharmacology, standard drug-drug interaction trials & dosing up to 1,100 mg BID	Ongoing studies
Phase 2 Hospitalized Patients with Moderate COVID-19	Safety, tolerability, and virology	Ongoing; 2Q 2021 reported positive interim virology results 1H 2022 anticipated results for 1,100 mg BID
Phase 2 MOONSONG Outpatient Trial Mild or Moderate Patients +/- Risk Factors	Antiviral activity of AT-527 compared with placebo in outpatients Safety, PK, PK/PD	Completing analysis with no additional cohorts planned
Phase 3 MORNINGSKY Outpatient Global Trial*	Protocol modifications: patient population, primary endpoint and dose	2H 2022 data anticipated
Phase 3 Follow-on MEADOWSPRING Long-Term Follow-on Study*	Evaluate AT-527's impact on long COVID in patients previously enrolled in MORNINGSKY	Ongoing 2Q 2021 initiated
Supplemental Phase 3 MARJORAM Prophylaxis Study*	Evaluate efficacy of AT-527 for preventing infection following SARS-CoV-2 exposure	1H 2022 anticipated initiation

*Country-by-country specific details to be finalized following consultation with applicable regulatory authorities.

AT-527

New Data

Phase 2 MOONSONG Infectious Virus Assay

Highly Sensitive Quantification of Viral Replication

- Two methods to evaluate drug antiviral activity by measuring viral load
  - RT-PCR **measures all viral RNA pieces**, regardless of whether it is from intact, replicating virus, or from non-viable or fragments of virus
  - Recently optimized infectivity assay for SARS-CoV-2 **quantifies viable replicating virus**

- Infectious virus is a relevant biological marker since it **quantifies ongoing viral infectivity**

- Infection and transmission are due to the **presence of live virus**

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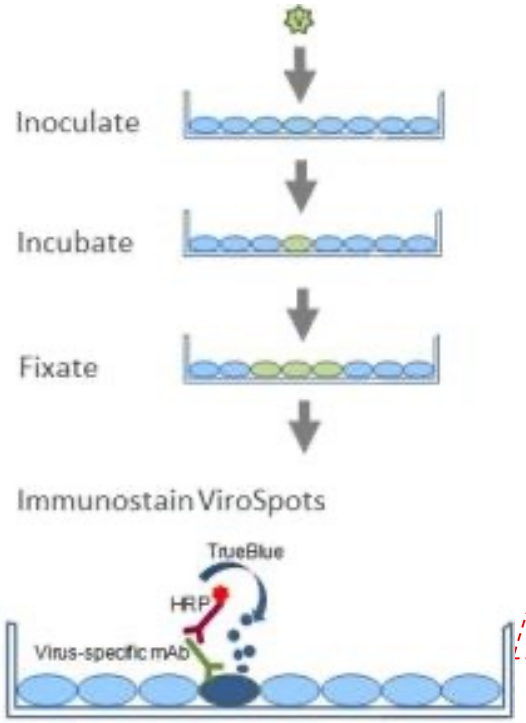
AT-527

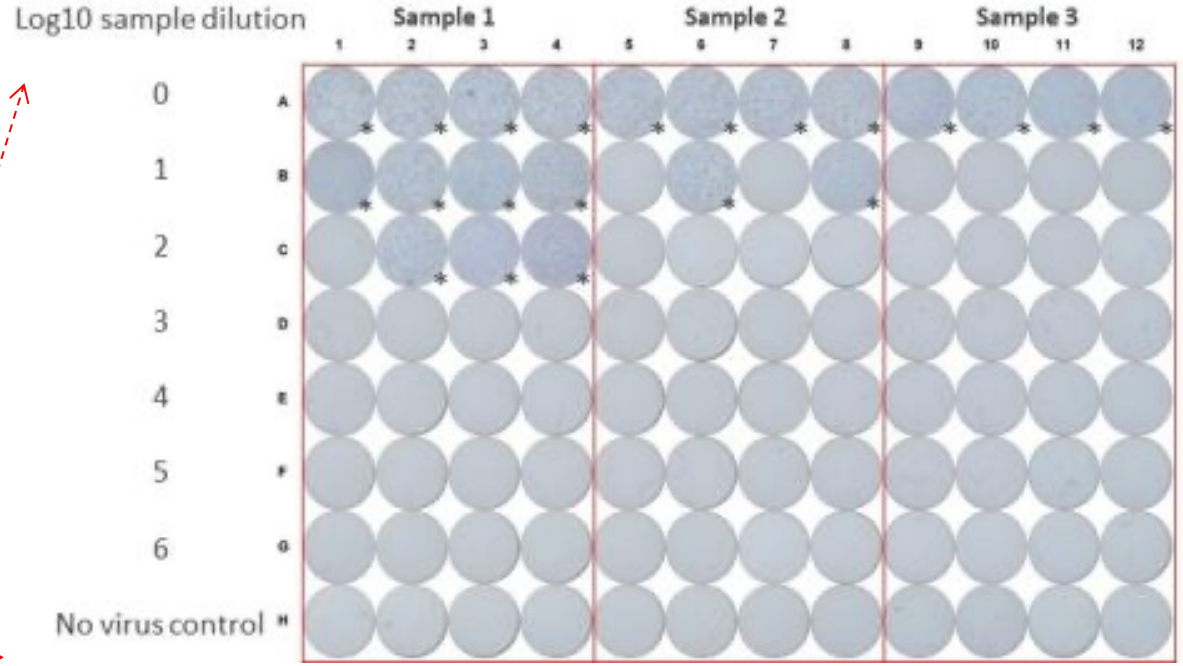
Infectious Virus Assay: Quantitative Highly Sensitive SARS-CoV-2 Live Virus Assay

New Data

Virus titration



SARS-CoV-2 immunostaining at 6 days post-inoculation



Each well was inoculated with 0.1 mL NP swab sample

Wells that contain SARS-CoV-2 immunostaining positive cells are indicated with an *

Log_{10} $TCID_{50}$/0.1 mL	2.25	1.00	0.50
Log_{10} $TCID_{50}$/1.0 mL	3.25	2.00	1.50

Images courtesy of Dr. Carel van Baalen, Viroclinics/DDL

- Quantifies infectious virus (vs. RT-qPCR which may detect small RNA fragments)
- Quantitative, highly sensitive (LLOQ = 1 log_{10} $TCID_{50}$/mL, LOD = 0.75 log_{10} $TCID_{50}$/mL)
- 71% baseline positivity rate for all patients in MOONSONG Cohort A and B

LLOQ = Lower Limit of Quantification, LOD = Limit of Detection, $TCID_{50}$ = 50% Tissue Culture Infectious Dose

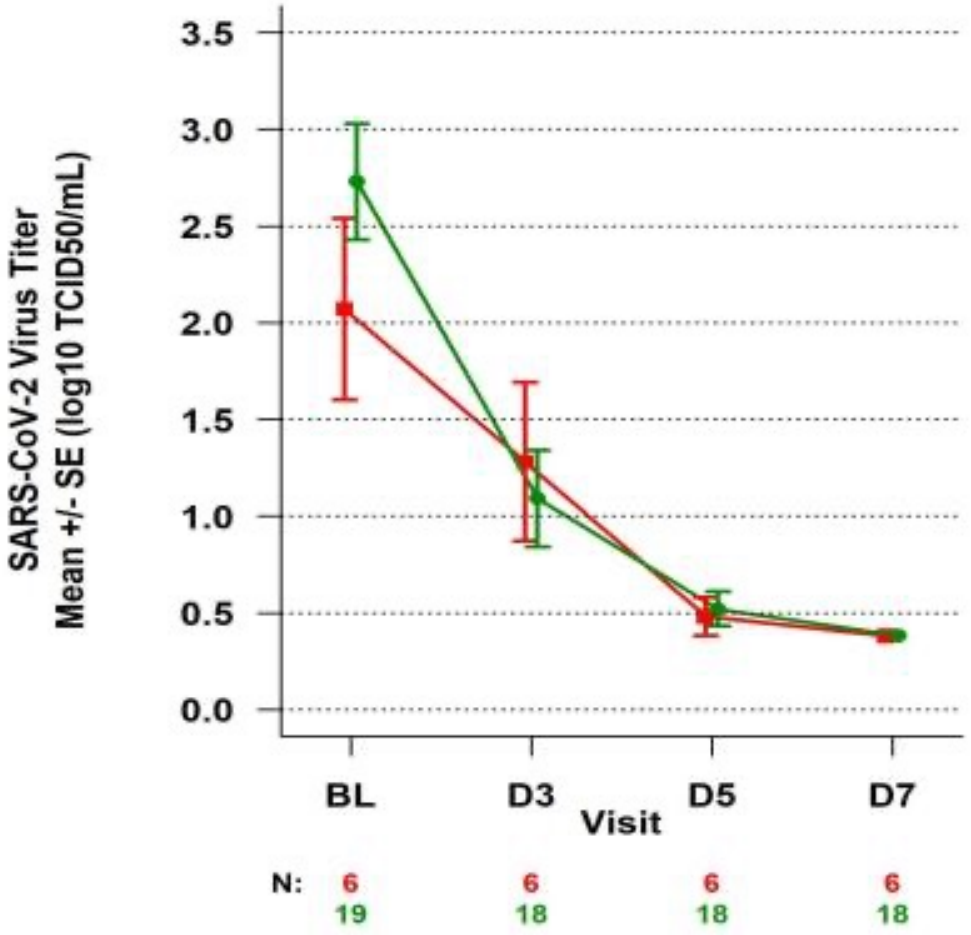
AT-527

New Data

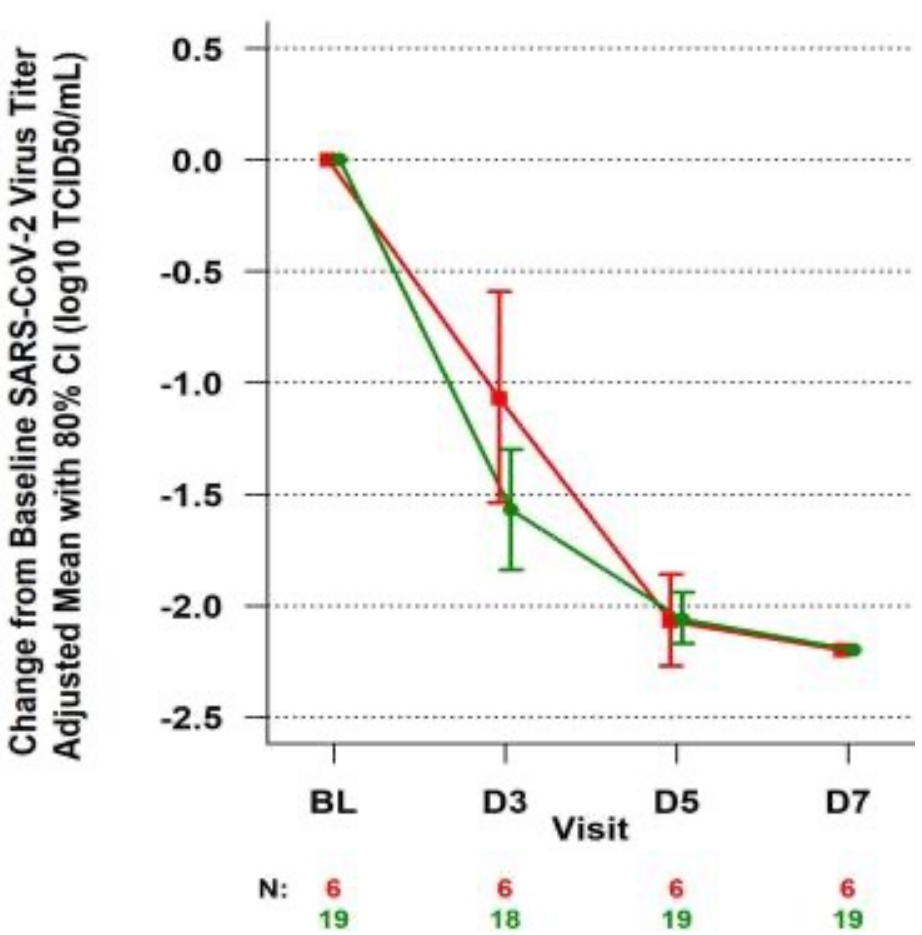
Phase 2 MOONSONG Exploratory Analyses of Infectious Virus

Rapid and Potent Reduction in Infectious Virus Observed in Cohort B Patients (High & Low Risk, Majority Seropositive)

Infectious Virus Titer Over Time Cohort B Overall Population



Infectious Virus Titer Change from Baseline* Cohort B Overall Population



AT-527

Placebo

AT-527 1,100 mg BID

Day 3

-0.5 log_{10} reduction vs. placebo

*Baseline adjusted (ANCOVA) considering differences in baseline virus titer between active/placebo.

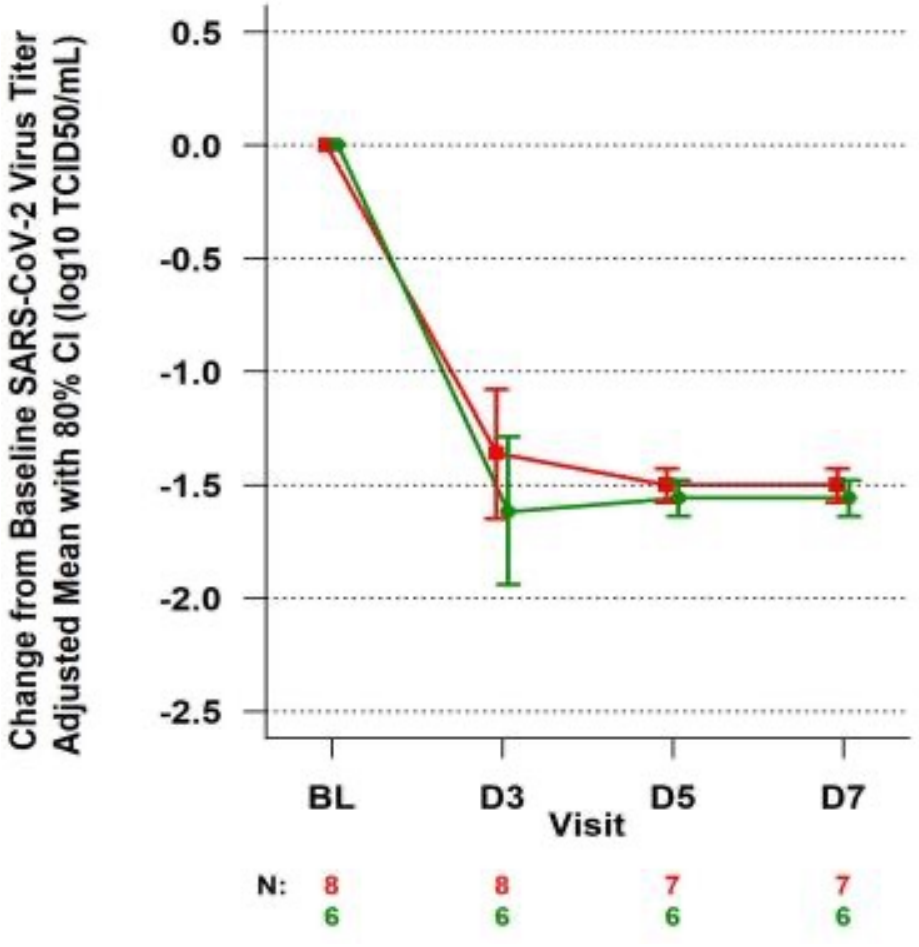
AT-527

New Data

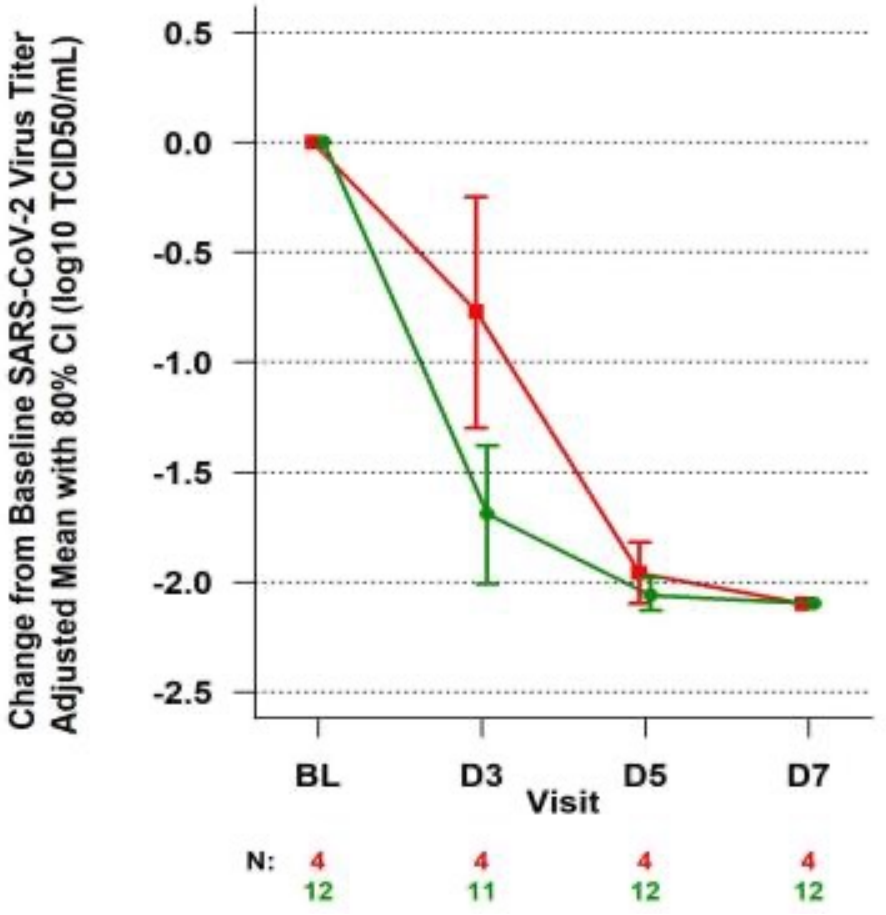
Phase 2 MOONSONG Exploratory Analyses of Infectious Virus: High-Risk Patients

*Potent and Rapid Antiviral Activity **Suggesting Dose Response** between Cohort A and B*

Infectious Virus Titer Change from Baseline*
Cohort A (550 mg BID) High Risk Subgroup**



Infectious Virus Titer Change from Baseline*
Cohort B (1,100 mg BID) High Risk Subgroup**



AT-527
Placebo

Potent viral load reduction in high-risk patients at Day 3

AT-527 Cohort A (550 mg BID): **-0.3 log_{10}** vs. placebo

AT-527 Cohort B (1,100 mg BID): **-0.9 log_{10}** vs. placebo

*Baseline adjusted (ANCOVA) considering differences in baseline virus titer between active/placebo. **Exploratory subgroup analysis.

AT-527

Phase 2 MOONSONG Infectious Virus Data Summary

New Data

Additional Data Support Rapid and Potent Antiviral Effect of AT-527

- Additional data from Phase 2 MOONSONG support ***rapid and potent antiviral effect of AT-527*** as measured by an infectious virus assay (detects live virus capable of replication)
  - ***Rapid and potent reduction in viral load of -0.5 log_{10}*** observed in overall patient population (high and low risk, with ***majority seropositive***) in Cohort B (1,100 mg BID) versus placebo at Day 3
  - ***Rapid and potent reduction in viral load of -0.9 log_{10}*** observed in high-risk patient subgroup* in Cohort B (1,100 mg BID) versus placebo at Day 3 ***with dose response*** suggested between Cohort A and Cohort B

- These results ***support the findings observed*** in the Phase 2 high risk hospitalized patient population

*All exploratory subgroup analysis

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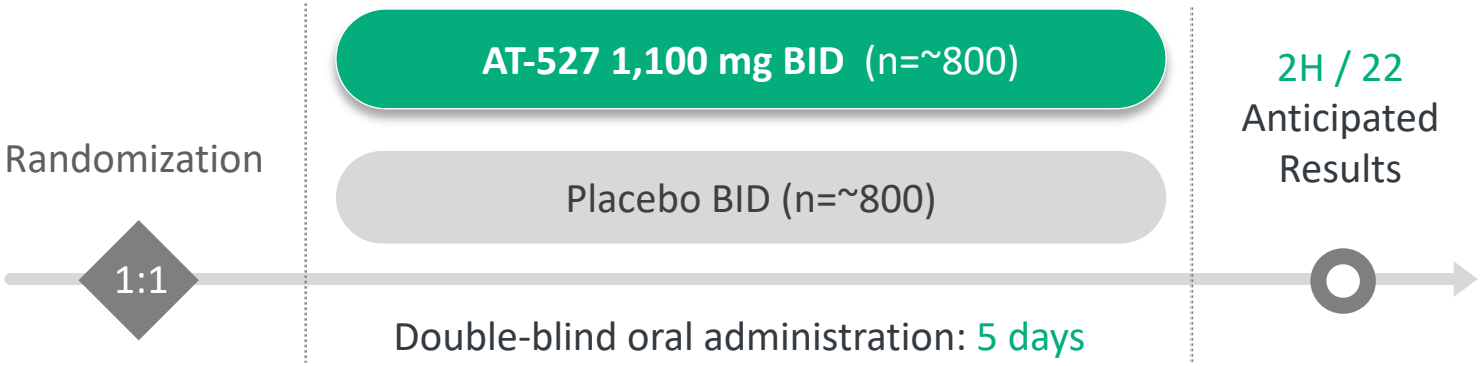
AT-527 Amendment to Global Phase 3 MORNINGSKY Trial Protocol: Plan to Accelerate Completion by Leveraging Existing Global Infrastructure Plus Footprint Expansion

New Info

Inclusion Criteria: High-risk, unvaccinated patients eligible for management in an outpatient setting



Amendment to Phase 3 MORNINGSKY Trial Protocol:

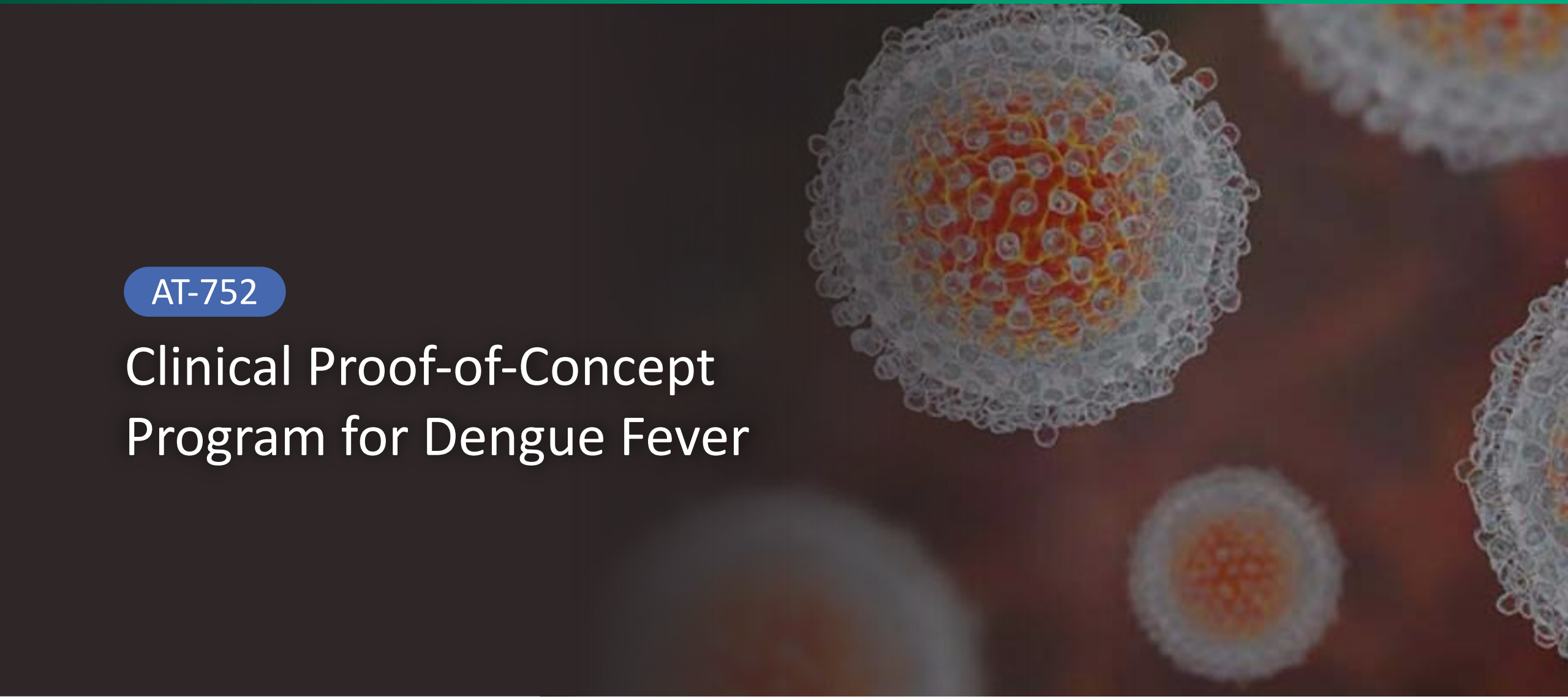
- Refine population: unvaccinated patients with risk factors for COVID-19 progression
- Update primary endpoint: hospitalization or death
- Increase dosage: 1,100 mg BID
- Increase sample size (n): ~1,600 with 1:1 randomization
- Interim analysis at 50% enrollment

Action Plan:

- Continue to expand in countries/regions with limited access/uptake of vaccines
  - Rapid expansion to ~300 clinical sites
- Submit amended MORNINGSKY trial protocol to health authorities outside US; feedback to be obtained from US FDA
- Patients have option to roll over to Phase 3 MEADOWSPRING follow-on study to evaluate AT-527 impact on long-COVID

AT-752

Clinical Proof-of-Concept Program for Dengue Fever



AT-752

Phase 1 and Phase 2 Clinical Studies for the Treatment of Dengue Fever

New Info

Phase 1: SAD and Two MAD Cohorts Completed; Third & Last MAD Cohort Initiated

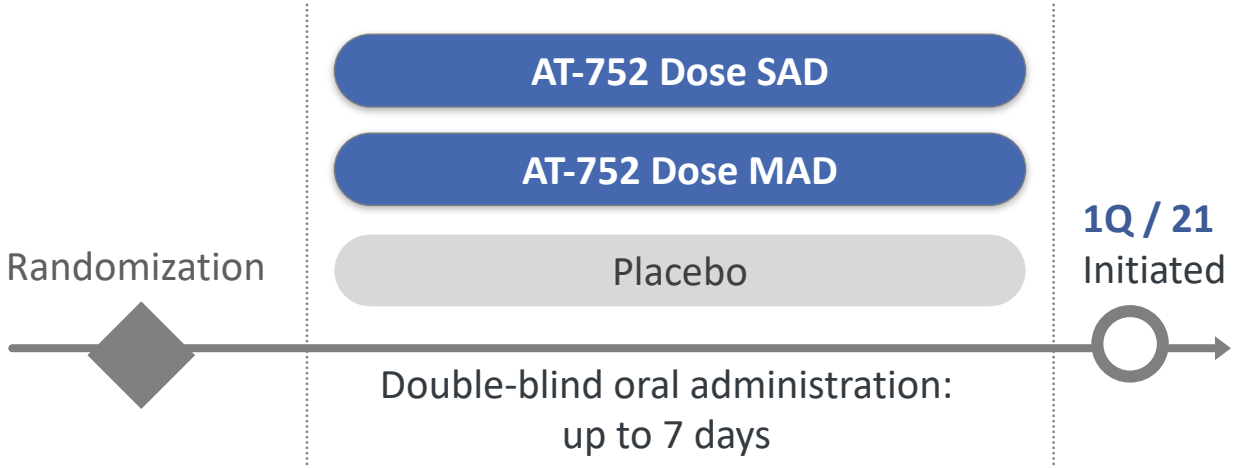
Phase 1

Inclusion Criteria: healthy volunteers, sequential dose-escalation

Country: Australia

Objectives: Safety and PK (with embedded food effect)

- Initiated March 2021
- Part 1: Single ascending dose cohort completed
- Part 2: Multiple dose QD/BID/TID ongoing



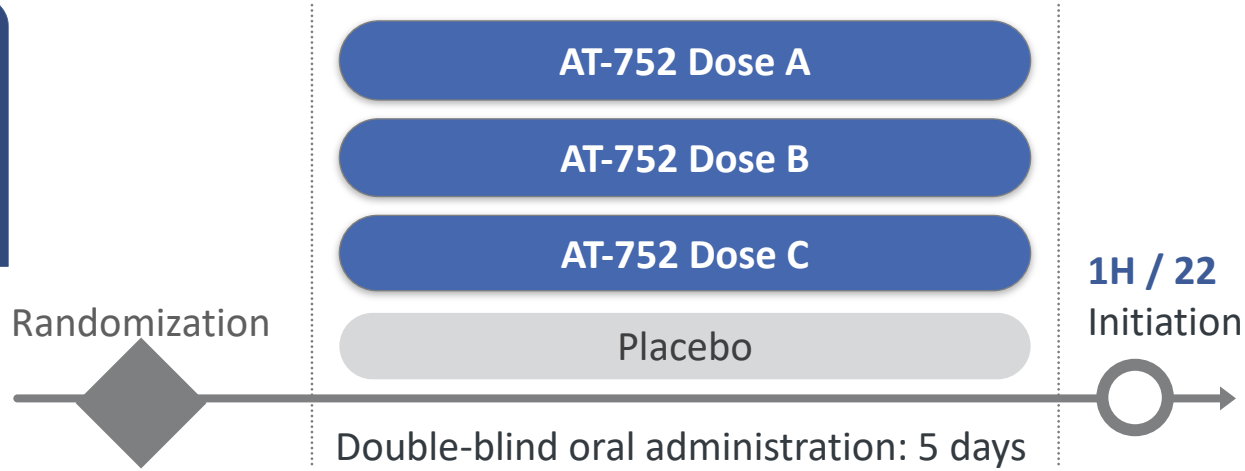
Phase 2

Inclusion Criteria: adults with fever (≥38°C) within 48 hour with probable dengue infection and positive result on NS1 antigen test or RT-PCR assay

Location: Asia, South America

Objectives: Antiviral activity, safety, PK

Primary endpoint: Change in DENV viral load from baseline



Financial Summary and Closing Remarks

Financial Update

Consolidated Statement of Operations and Comprehensive Income
(in thousands, except share and per share data)
(Unaudited)

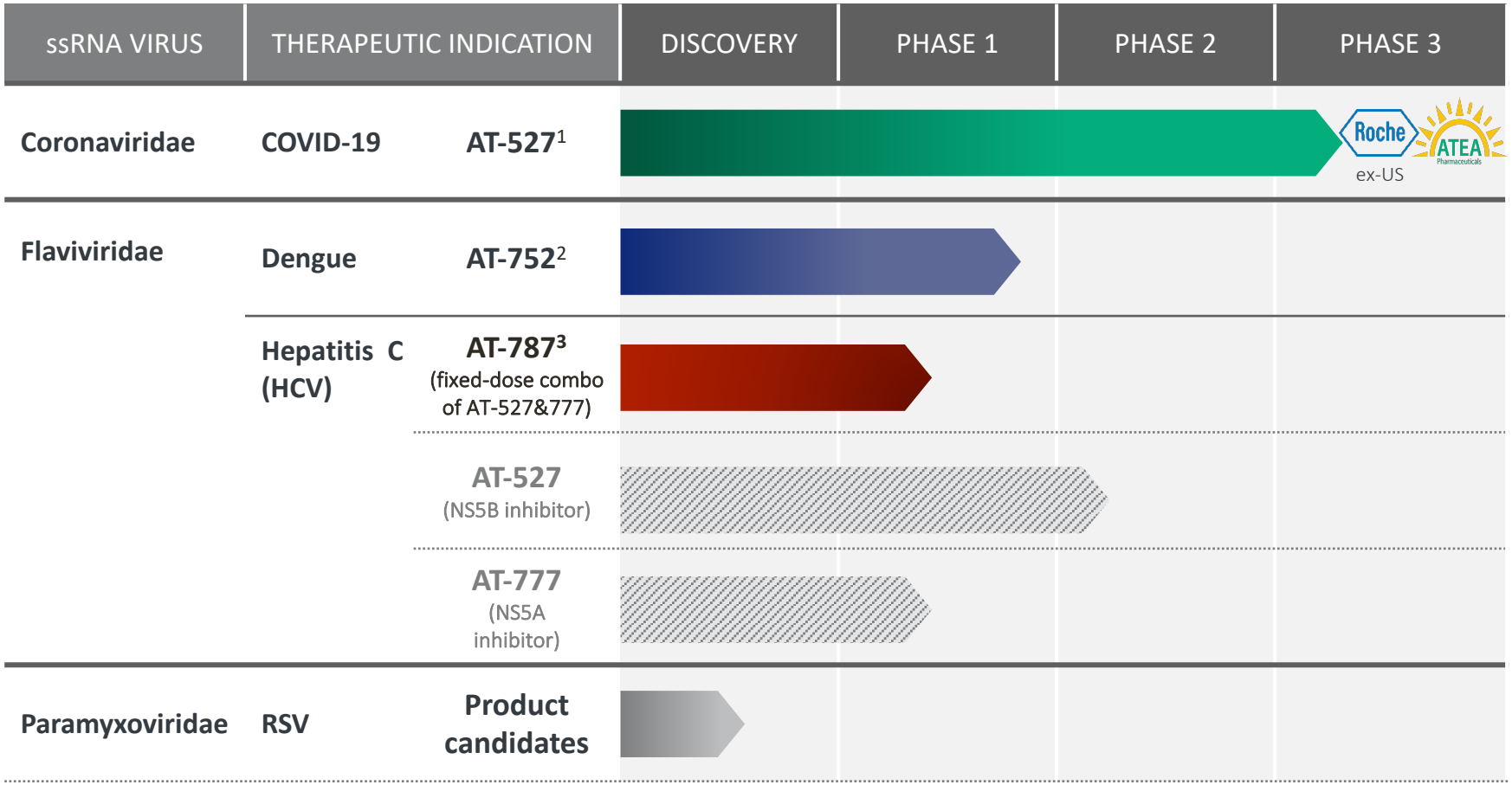
	Three Months Ended September 30,		Nine Months Ended September 30,	
	2021	2020	2021	2020
Collaboration revenue	$ 32,811	$ ---	$ 159,187	$ —
Operating expenses				
Research and development	43,019	13,601	109,394	24,177
General and administrative	11,939	4,028	32,597	7,500
Total operating expenses	54,958	17,629	141,991	31,677
Income (loss) from operations	(22,147)	(17,629)	17,196	(31,677)
Interest income and other, net	53	7	162	74
Income (loss) before income taxes	$ (22,094)	(17,622)	17,358	(31,603)
Income tax expense	(6,100)	—	(13,300)	—
Net Income (loss) and comprehensive income (loss)	$ (28,194)	$ (17,622)	$ 4,058	$ (31,603)
Net income (loss) per share attributable to common stockholders				
Basic	$ (0.34)	$ (1.74)	$ 0.05	$ (3.13)
Diluted	$ (0.34)	$ (1.74)	$ 0.05	$ (3.13)
Weighted-average shares outstanding				
Basic	82,815,636	10,109,847	82,727,268	10,099,134
Diluted	82,815,636	10,109,847	88,462,074	10,099,134

Financial Update

Selected Condensed Consolidated Balance Sheet Data
(Unaudited)

	September 30, 2021	December 31, 2020
Cash and cash equivalents	$ 839,660	$ 850,117
Total assets	843,504	863,632
Total liabilities	262,052	315,831
Total stockholders' equity	581,452	547,801

Proprietary Platform Generates Deep Antiviral Pipeline



HIGHLIGHTS

- AT-527 efficacy results 2021-2022
- Projected near-term launch of AT-527, an oral DAA for COVID-19
- Multiple value-driving milestones over the next 18-months in several therapeutic indications
- $839.7 million in cash & cash equivalents as of 9/30/21
- Cash runway through 2023

[1] Ex-US development and commercialization rights (other than for certain hepatitis C virus uses) licensed to Roche.
[2] Rights to develop and manufacture globally and to commercialize in the US for Dengue, among other viruses, retained. Ex-US commercialization subject to agreement with Roche.
[3] AT-787 is our selected product candidate for the treatment of HCV.

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