Exhibit 99.2

UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549

FORM 8-K

CURRENT REPORT

Pursuant to Section 13 or 15(d)
of the Securities Exchange Act of 1934

January 4, 2024
Date of Report (Date of earliest event reported)

Aprea Therapeutics, Inc.

(Exact name of registrant as specified in its charter)

Delaware	**001-39069**	**84-2246769**
(State or other jurisdiction of incorporation)	(Commission File Number)	(IRS Employer Identification No.)

3805 Old Easton Road **Doylestown, PA**	**18902**
(Address of principal executive offices)	(Zip Code)

Registrant's telephone number, including area code: **(617) 463-9385**

(Former name or former address, if changed since last report): Not applicable

Check the appropriate box below if the Form 8-K filing is intended to simultaneously satisfy the filing obligation of the registrant under any of the following provisions:

☐ Written communications pursuant to Rule 425 under the Securities Act (17 CFR 230.425)

☐ Soliciting material pursuant to Rule 14a-12 under the Exchange Act (17 CFR 240.14a-12)

☐ Pre-commencement communications pursuant to Rule 14d-2(b) under the Exchange Act (17 CFR 240.14d-2(b))

☐ Pre-commencement communications pursuant to Rule 13e-4(c) under the Exchange Act (17 CFR 240.13e-4(c))

Securities registered pursuant to Section 12(b) of the Act:

Title of each class	**Trading Symbol(s)**	**Name of each exchange on which registered**
Common stock, par value $0.001 per share	APRE	The Nasdaq Stock Market LLC

Indicate by check mark whether the registrant is an emerging growth company as defined in Rule 405 of the Securities Act of 1933 (§230.405 of this chapter) or Rule 12b-2 of the Securities Exchange Act of 1934 (§240.12b-2 of this chapter).

Emerging growth company ☒

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 13(a) of the Exchange Act. ☒

Item 8.01 Other Events.

On January 4, 2024, Aprea Therapeutics, Inc. issued a press release announcing a corporate update and development plans for 2024 and updated its corporate presentation slide deck. A copy of the press release is filed as Exhibit 99.1 hereto and incorporated herein by reference. A copy of the corporate presentation slide deck is filed as Exhibit 99.2 hereto and incorporated herein by reference.

Item 9.01 Financial Statements and Exhibits.

(d) Exhibits.

Exhibit Number	Description
99.1	Press release dated January 4, 2024.
99.2	Corporate Presentation (January 2024)
104	Cover Page Interactive Data File (embedded within the inline XBRL document).

SIGNATURES

Pursuant to the requirements of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned hereunto duly authorized.

Aprea Therapeutics, Inc.

Dated: January 4, 2024

By: /s/ Oren Gilad
Name: Oren Gilad, Ph.D.
Title: President and Chief Executive Officer

Aprea Therapeutics Provides Corporate Update and Announces Development Plans for 2024

DOYLESTOWN, Pa., January 4, 2024 – Aprea Therapeutics, Inc. (Nasdaq: APRE) ("Aprea", or the "Company"), a clinical-stage biopharmaceutical company focused on precision oncology through synthetic lethality, today provided a corporate update highlighting recent developments and plans for advancement of its pipeline of DNA Damage Response (DDR) anti-cancer agents in 2024.

"Having made substantial progress over the past twelve months, we are well positioned for ongoing success in 2024 as we execute on our mission to be a global leader in synthetic lethality," said Dr. Oren Gilad, President and CEO of Aprea. "We continue to advance towards achieving our milestones in the ongoing dose-escalation Phase 1 study of our novel macrocyclic ATR inhibitor, ATRN-119, and are finalizing submission of the IND for our next-generation, best-in-class WEE1 inhibitor, APR-1051. This IND is supported by a compelling pre-clinical package showing highly potent and selective anti-tumor activity, limited off-target effects, and favorable pharmacokinetics."

Update on Phase 1/2a Ongoing Trial of ATR Program, ATRN-119

Enrollment of patients continues in the dose escalation portion of the Phase 1/2a clinical trial (study AR-276-01) evaluating ATRN-119 in patients with advanced solid tumors having mutations in defined DDR-related genes. The primary objective of the Phase 1 part of this trial is evaluating the tolerability and pharmacokinetics of ATRN-119 when administered orally on a continuous, once-daily schedule. The daily dosing of ATRN-119 provides continuous ATR inhibition that may be preferable to intermittent dosing for both efficacy and safety, potentially supporting an important competitive advantage over the current class of ATR inhibitors. The secondary objective is the evaluation of antitumor efficacy.

The most recent analysis of the data cut (January 2, 2024) shows that two patients have achieved stable disease – one each in the 50 mg and 200 mg cohorts. Importantly, both these patients' tumors have mutations that have been predicted to confer sensitivity to ATR inhibition. The dose-limiting toxicity period for cohort 4 (350 mg) has been completed. The most recent patient with stable disease from cohort 3 (200mg), with a history of five prior lines of therapy is at approximately four months of treatment duration with ATRN-119, and, following clearance of the 350 mg cohort, is expected to be increased from 200 mg to 350 mg daily, as per the dose escalation trial protocol.

ATRN-119 is being developed as the first and only macrocyclic ATR inhibitor. Macrocycles restrict the number of conformations that a molecule can form, potentially resulting in increased potency and increased selectivity. These properties are expected to permit higher dosing that is potentially more effective with increased tolerability and decreased off-target activity. The company plans to amend the design of the ongoing study beyond the current 800 mg high-dose cohort to incorporate additional higher dose groups.

Upon the addition of the higher dose cohorts, Aprea expects to determine the recommended Phase 2 dose (RP2D) in the second half of 2024. Following dose escalation, the Phase 2a dose expansion part of the study may include patients with NSCLC, breast, colorectal, prostate, and ovarian cancers with selected genetic mutations.

Importantly, the potential for reduced hematologic toxicity from ATRN-119 suggests it may be an ideal DDR inhibitor for novel combination therapies. These potential combinations include ATRN-119 with PARP inhibitors, WEE1 inhibitors, and Antibody-Drug Conjugates (ADCs). The latter of these possibilities could provide a significant breakthrough for the use of ADCs linked to standard chemotherapies, as these promising biopharmaceuticals are often constrained by aberrant drug release and dose-limiting toxicities. Combination with ATRN-119 would potentially amplify the DNA-damaging effects of these ADCs in the targeted tumor cells, thus affording greater efficacy at lower ADC doses.

A more comprehensive dataset from the Phase 1 part of AR-276-01 will be submitted for presentation at a medical meeting in the first half of 2024. For more information, please refer to clinicaltrials.gov NCT04905914.

Investigational New Drug (IND) for WEE1 Program, APR-1051

Aprea completed IND-enabling studies and is finalizing the submission of the IND application with the FDA to begin clinical trials of APR-1051 in the first half of the year. APR-1051 is being developed as a next-generation, potential best-in-class inhibitor of WEE1 kinase with the following properties:

- APR-1051 has a different molecular structure from all other WEE1 inhibitors currently in development with improved selectivity for the target. The improved properties of APR-1051 relative to the other WEE1 inhibitors include its limited effects on red blood cell counts, hERG inhibition, and body weight loss in pre-clinical studies.
- The selectivity of APR-1051 may solve a long-standing problem with WEE1 inhibitors. Preclinical studies have shown that APR-1051 is site-specific to WEE1 and does not significantly inhibit the PLK1, PLK2, and PLK3 family of kinases, potentially increasing the cancer-killing effects of WEE1i inhibition and reducing hematological toxicity caused by PLK off-targeting. PLK off-target activity has been a challenge for other WEE1 inhibitors. Recent studies indicate that PLK1 off-targeting partially counters the intracellular effects of WEE1 inhibition and could potentially contribute to the myelosuppression observed with other WEE1 inhibitors.
- Specific genetic mutations driving patient selection have been identified.

The company expects to receive FDA clearance on the IND during Q1 2024. Clinical development is in line with FDA requirements for a dose escalation trial to evaluate safety and pharmacokinetics. Leading institutions and a Principal Investigator have been identified for the trial.

Company to Participate in 2024 Corporate Access Event

Aprea will be hosting institutional investor and business development meetings at the Annual Corporate Access Event in San Francisco, hosted by our investor relations firm LifeSci Partners. Management will be available for meetings on Wednesday, January 10, 2024. To schedule a meeting, interested parties can register here or send an email to access@lifesciadvisors.com.

About Aprea

Aprea Therapeutics, Inc. is a clinical-stage biopharmaceutical company headquartered in Doylestown, Pennsylvania, focused on precision oncology through synthetic lethality. The Company’s lead program is ATRN-119, a clinical-stage small molecule ATR inhibitor in development for solid tumor indications. Aprea completed all IND enabling studies and is moving towards the submission of an oral, small molecule WEE1 inhibitor, APR-1051. For more information, please visit the company website at www.aprea.com.

The Company may use, and intends to use, its investor relations website at https://ir.aprea.com/ as a means of disclosing material nonpublic information and for complying with its disclosure obligations under Regulation FD.

Forward-Looking Statement

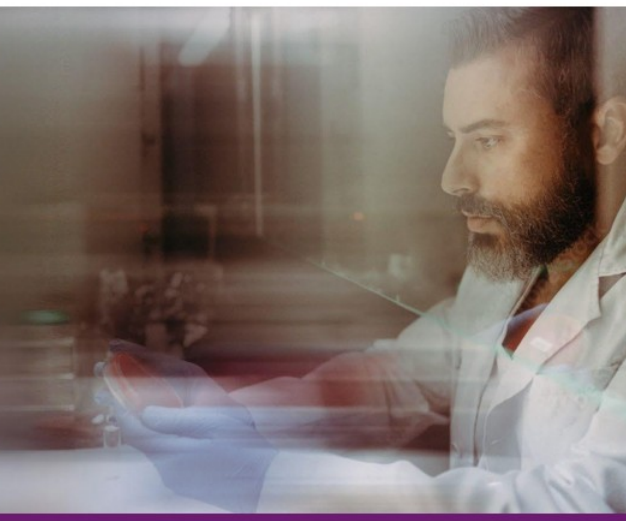
Certain information contained in this press release includes "forward-looking statements", within the meaning of Section 27A of the Securities Act of 1933, as amended, and Section 21E of the Securities Exchange Act of 1934, as amended related to our study analyses, clinical trials, regulatory submissions, and projected cash position. We may, in some cases use terms such as "future," "predicts," "believes," "potential," "continue," "anticipates," "estimates," "expects," "plans," "intends," "targeting," "confidence," "may," "could," "might," "likely," "will," "should" or other words that convey uncertainty of the future events or outcomes to identify these forward-looking statements. Our forward-looking statements are based on current beliefs and expectations of our management team and on information currently available to management that involve risks, potential changes in circumstances, assumptions, and uncertainties. All statements contained in this press release other than statements of historical fact are forward-looking statements, including statements regarding our ability to develop, commercialize, and achieve market acceptance of our current and planned products and services, our research and development efforts, including timing considerations and other matters regarding our business strategies, use of capital, results of operations and financial position, and plans and objectives for future operations. Any or all of the forward-looking statements may turn out to be wrong or be affected by inaccurate assumptions we might make or by known or unknown risks and uncertainties. These forward-looking statements are subject to risks and uncertainties including, without limitation, risks related to the success, timing, and cost of our ongoing clinical trials and anticipated clinical trials for our current product candidates, including statements regarding the timing of initiation, pace of enrollment and completion of the trials, futility analyses, presentations at conferences and data reported in an abstract, and receipt of interim or preliminary results (including, without limitation, any preclinical results or data), which are not necessarily indicative of the final results of our ongoing clinical trials, and the other risks, uncertainties, and other factors described under "Risk Factors," "Management's Discussion and Analysis of Financial Condition and Results of Operations" and elsewhere in the documents we file with the U.S. Securities and Exchange Commission. For all these reasons, actual results and developments could be materially different from those expressed in or implied by our forward-looking statements. You are cautioned not to place undue reliance on these forward-looking statements, which are made only as of the date of this press release. We undertake no obligation to update such forward-looking statements for any reason, except as required by law.

Investor Contact:

Mike Moyer
LifeSci Advisors
mmoyer@lifesciadvisors.com

APREA THERAPEUTICS

Precision Oncology Through Synthetic Lethality



January 2024

Forward-Looking Statements

Certain information contained in this presentation includes “forward-looking statements”, within the meaning of Section 27A of the Securities Act of 1933, as amend and Section 21E of the Securities Exchange Act of 1934, as amended, related to our clinical trials, regulatory submissions and strategic plans. We may, in some ca use terms such as “predicts,” “believes,” “potential,” “continue,” “anticipates,” “estimates,” “expects,” “plans,” “intends,” “may,” “could,” “might,” “likely,” “will,” “should other words that convey uncertainty of the future events or outcomes to identify these forward-looking statements. The forward-looking statements are based current beliefs and expectations of our management team that involve risks, potential changes in circumstances, assumptions, and uncertainties. Any or all of forward-looking statements may turn out to be wrong or be affected by inaccurate assumptions our management team might make or by known or unknown risks uncertainties. These forward-looking statements are subject to risks and uncertainties including, without limitation, risks related to the success and timing of our clin trials or other studies and the other risks set forth in our filings with the U.S. Securities and Exchange Commission, including our Annual Reports on Form 10-K Quarterly Reports on Form 10-Q. Forward-looking statements regarding our product candidates are also subject to additional risks and uncertainties, including with limitation, with respect to: our dependence on additional financing to fund our operations and complete the development and commercialization of our proc candidates, and the risks that raising such additional capital may restrict our operations or require us to relinquish rights to our technologies or product candidates; limited history and preclinical status of the assets we acquired from Atrin Pharmaceuticals Inc.; our business plan or the likelihood of the successful implementatio such business plan; the timing of initiation of planned clinical trials for our product candidates; the future success of such trials; the successful implementation of research and development programs and collaborations and the interpretation of the results and findings of such programs and collaborations and whether such res are sufficient to support the future success of our product candidates; the success, timing and cost of our anticipated clinical trials for our current product candida the timing of initiation, futility analyses, data presentation, reporting and publication and receipt of interim results (including, without limitation, any preclinical result data); any statements about our understanding of product candidates mechanisms of action and interpretation of preclinical and early clinical results from its clin development programs and any collaboration studies; and other factors, including legislative, regulatory, political and economic developments not within our cont For all these reasons, actual results and developments could be materially different from those expressed in or implied by our forward-looking statements. You cautioned not to place undue reliance on these forward-looking statements, which are made only as of the date of this presentation. We undertake no obligatio update such forward-looking statements to reflect subsequent events or circumstances, except to the extent required by law or regulation.

Aprea Therapeutics (NASDAQ: APRE)

Precision Oncology via Novel Synthetic Lethality Therapeutics

All programs address significant unmet medical need, are synergistic with other anticancer therapies, and potentially differentiated in safety and tolerability

ATR Inhibitor: ATRN-119

- First macrocyclic ATR inhibitor
- Highly selective with continuous daily dosing targeted
- Phase 1/2a – Ongoing Dose Escalation
  - Readout 4Q2024
  - Solid tumor with DDR mutation
- Pre-clinical proof-of-principle
  - Anti-tumor activity at nanomolar concentration
  - Preserved hematologic safety profile

WEE1 Inhibitor: APR-1051

- Best in class, next generation
- IND Clearance 1Q2024
- Pre-clinical proof-of-principle
  - Highly potent and selective anti-tumor activity
  - Limited off target effect
  - Ovarian cancer with Cyclin E over expression (OVCAR-3)
  - Stable hematologic function
  - Favorable pharmacokinetics

DDR Inhibitor: Undisclosed

- Lead optimization
- Target identified from our RepliBior discovery platform

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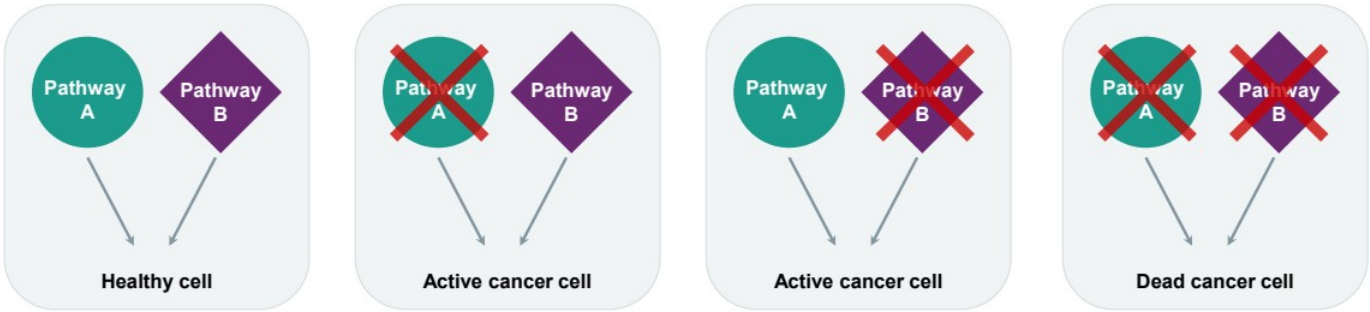
ATR - Ataxia telangiectasia and Rad3-related
DDR – DNA Damage Response

Synthetic Lethality



- Cancer cell death only upon the loss of function of two codependent pathways
- Single pathway loss of function is inconsequential
- DNA Damage Response (DDR) allows cells to pause and self repair during replication (mitosis)
- Inhibition of DDR leads to mitotic catastrophe and cell death
- ATR and WEE1 inhibitors are integral to stopping DDR and are emerging targets for cancer cell death
- Builds on scientific innovation led by Aprea founder and key personnel[1]

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[1] Gilad et al, (2010) Cancer Res.

Leadership with Strong Drug Development and Commercial Expertise

Pioneers in Synthetic Lethality

Management

Oren Gilad, Ph.D. President and CEO	John Hamill CFO	Nadeem Mirza, M.D., MPH Senior Medical Advisor	Ze'ev Weiss, CPA, B.Sc. Chief Business Advisor	Mike Carleton, Ph.D. Translational Medicine Advisor	Brian Wiley SVP, Corporate Strategy
ATRIN Pharmaceuticals Perelman School of Medicine	WINDTREE THERAPEUTICS Trevena SAVIENT PHARMACEUTICALS, INC. NephroGenex pharmanet	Salarius PHARMACEUTICALS Verastem Oncology TRIGR THERAPEUTICS abbvie sanofi	ATRIN Pharmaceuticals INTEC PHARMA pwc	iniphorm MERCK Bristol Myers Squibb presage Mavu PHARMA	Boston BioConsulting Gloucester PHARMACEUTICALS MILLENNIUM

Board of Directors

Richard Peters, M.D., Ph.D. Chairman of the Board	**Oren Gilad, Ph.D.** President and CEO	**Jean-Pierre Bizzari, M.D.** Director
Marc Duey Director	**Michael Grissinger** Director	**Gabriela Gruia, M.D.** Director
John Henneman Director	**Rifat Pamukcu, M.D.** Director	**Bernd R. Seizinger, M.D., Ph.D.** Director

ATR Inhibitor: ATRN-119

Clinical Proof-of-Concept

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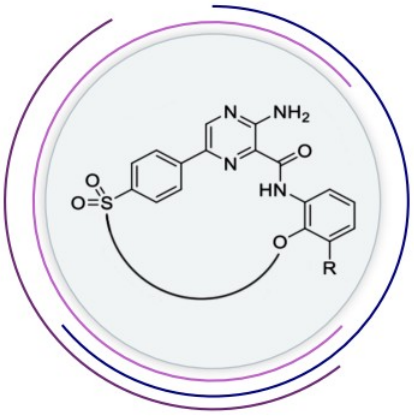
ATRN-119: First and Only Macrocyclic ATR Inhibitor[1]

Macrocycles: A Well-Evolved Approach for PIK-Related Kinase Inhibition (e.g., rapamycin and mTOR)[2]



Benefits of Unique Cyclic Skeleton Structure vs Competitors' First-Generation Acyclic Structure

Macrocycles restrict the number of conformations that can be formed, which can:

- Increase potency
- Increase selectivity

These effects can then promote:

- Increased tolerability by decreasing off-targeting
- Permit more efficacious dosing

[1] Based on company knowledge
[2] Brown, EJ et al, (1994) Nature
[3] Brown, EJ et al, (1995) Nature
[4] Brown, EJ and SL Schreiber, (1996) Cell

APREA THERAPEUTICS

AR-276-01: Aprea Phase 1/2a - Study Overview

A Phase 1/2a, Open-Label, Safety, Pharmacokinetic, and Preliminary Efficacy Study of Oral ATRN-119 in Patients with Advanced Solid Tumors

Sites:
4 US sites for dose escalation

- University of Pennsylvania
- Mary Crowley Cancer Research
- University Hospitals Cleveland Medical Center
- Yale Cancer Center

Patient enrollment:
48 patients in total

- Escalation phase: up to 18 patients
- Expansion phase: up to 30 patients

IMP: ATRN-119 is an oral ATR kinase inhibitor given daily

Patient Population:

Male or female subjects 12 years of age or older with solid tumors harboring specific DDR mutations per NGS

Part 1
Up to 18 patients
Dose escalation (6 dose levels)
3+3 design

→

Part 2
Up to 30 patients
Dose expansion, after MTD / RP2D established

Primary objectives:

- Safety, MTD, RP2D
- Pharmacokinetics

Secondary objectives:

- Antitumor activity (RECIST/PCWG3)

Exploratory objectives:

- Association between identified mutations and clinical outcomes

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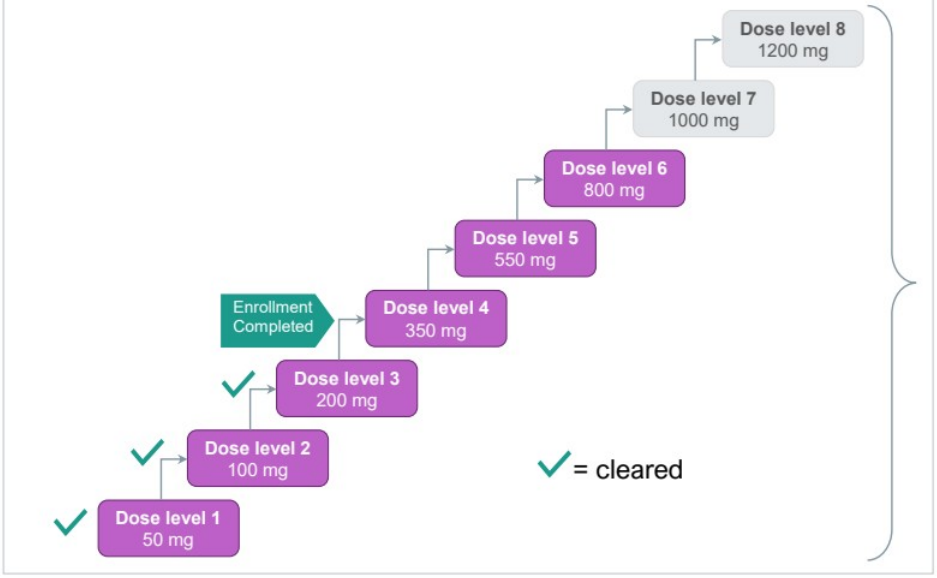
Aprea AR-276-01 Study Status

3+3 dose escalation with once-daily dosing (up to 24* patients)



MTD/RP2D

Dose expansion (up to 30 patients)

Potential indications
Breast
Colorectal
Ovarian

Mutations
Undisclosed RepliBion biomarkers

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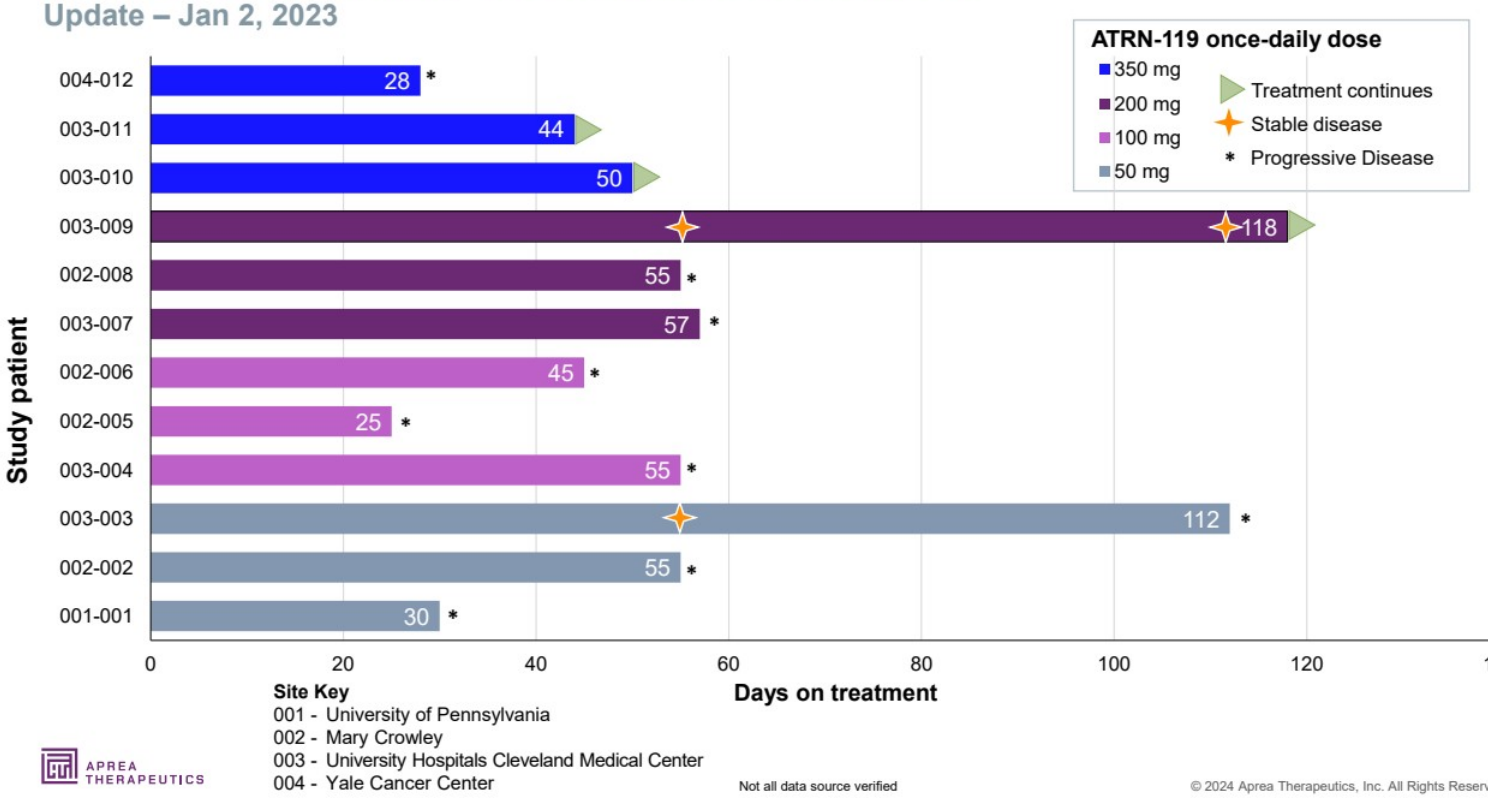
*Planned protocol amendment adding cohorts 7 and 8

AR-276-01 Summary of Duration of Treatment

Update – Jan 2, 2023



Site Key
001 - University of Pennsylvania
002 - Mary Crowley
003 - University Hospitals Cleveland Medical Center
004 - Yale Cancer Center

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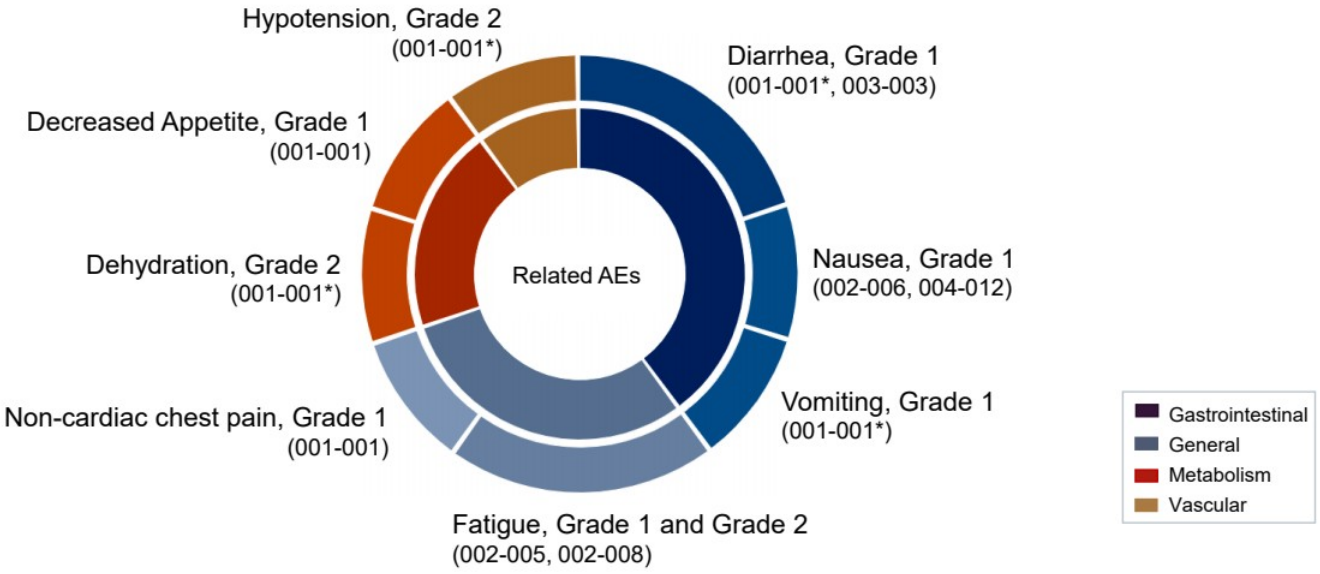
Not all data source verified

No ATRN-119 Related Grade 3 or 4 Adverse Events Reported

As of January 2, 2023: Six Of Twelve Patients Experienced AEs# Possibly/probably Related to ATRN-11



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No grade 3 or 4 AEs were observed
* Resulted in treatment interruption
Not all data source verified

ATRN-119
2024-2025 Anticipated Clinical Milestones

Milestone	Timeline
Phase 1/2a – Monotherapy Dose Escalation	
Complete Dose Escalation	2H 2024
Phase 1/2a – Monotherapy Dose Expansion	
First Patient Enrolled	4Q 2024

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Planned protocol amendment adding cohorts 7 and 8 to monotherapy dose escalation 1Q2024

ATR Inhibitor: ATRN-119

Preclinical
Proof-of-Principal

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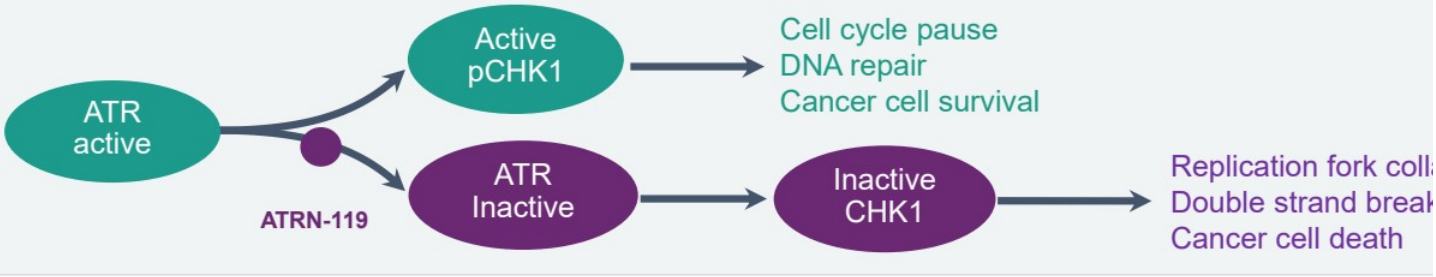
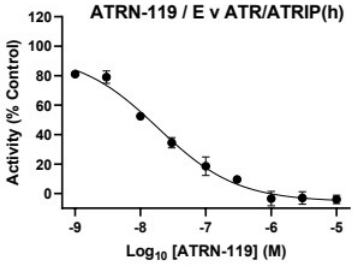
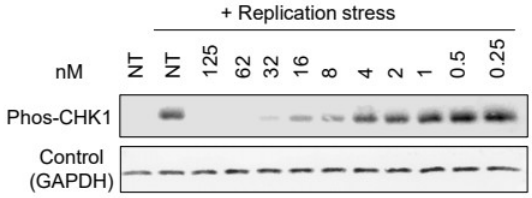
ATR Inhibitor – ATRN-119
Mechanism of Action – Prevent CHK1 Phosphorylation by ATR Kinase



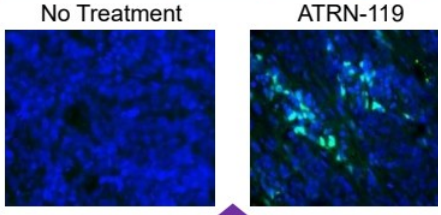


ATRN-119 binds to ATR



…inhibits its biological activity…

Tumor Samples
Pharmacodynamics - γH2AX (green)



…and triggers replication fork collapse and double-strand breaks (γH2AX)

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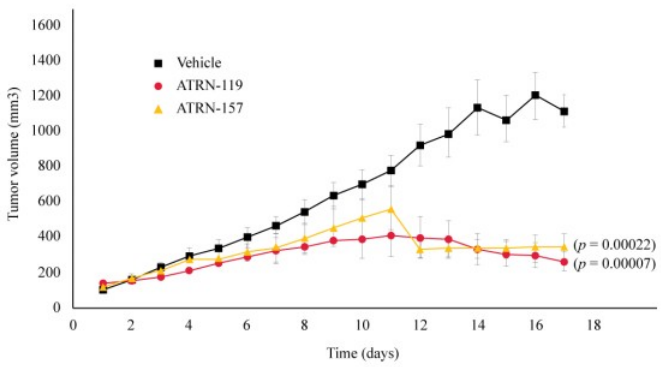
pCHK1 – Phosphorylated Checkpoint kinase 1
Data on file

ATRN-119 Preclinical Profile

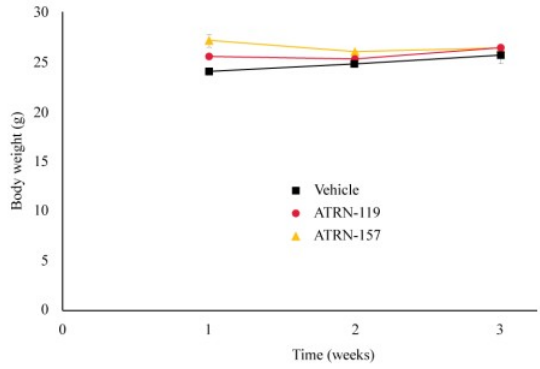
Nanomolar potency in vitro across a broad spectrum of cancer cell lines

Strong tumor control observed in vivo, including in challenging genetic backgrounds

Tumor Growth Inhibition
HCT-116 (KRAS^{G13D}, p53 null)



Body Weight
HCT-116 (KRAS^{G13D}, p53 null)



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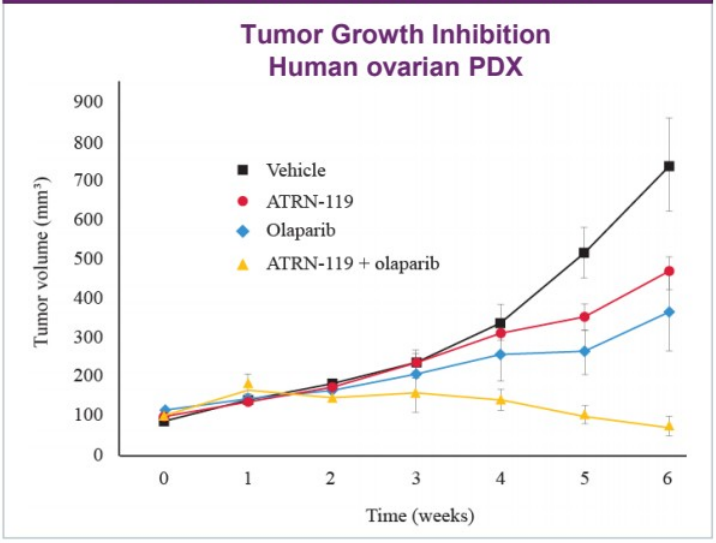
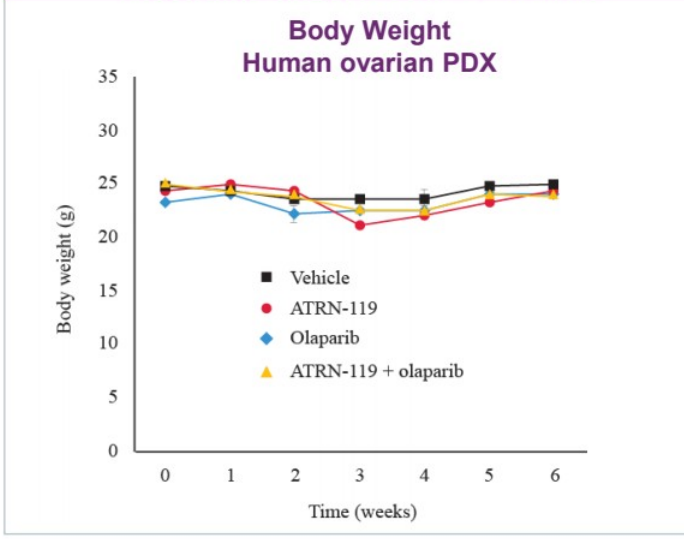
N=4 female mice per group, ATRN-119 - 100 mg/kg/day P.O, ATRN-157 - 20 mg/kg/day SQ.
ATRN-157 is an active metabolite identified in dogs receiving ATRN-119 P.O.. In vitro metabolism studies in dog and human hepatocytes and liver microsomes indicated formation of ATRN-157 in both species. Potency and selectivity of ATRN-157 was comparable to ATRN-119.
Pre-clinical studies with ATRN-119 and ATRN-157.

ATRN-119 + Olaparib:
Regression of BRCA2-Deficient Ovarian (HGSOC) Tumors

ATRN-119 + Olaparib Inhibits Ovarian Tumor Growth Over Time



ATRN-119 + Olaparib Shows Negligible Weight Loss Over Time



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N=6-8 mice per group, ATRN-119 - 90 mg/kg P.O BID, Olaparib - 50 mg/kg/day P.O, ATRN-119+Olaparib at the same doses and schedules.
Pre-clinical studies with ATRN-119.
Data on file

ATR Inhibitor: ATRN-119

A Potentially Differentiated ATRi

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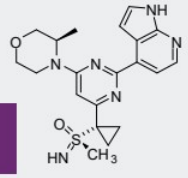
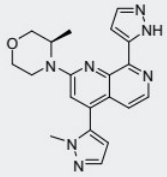
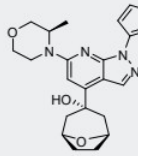
Reported Challenges with Other ATR Inhibitors

First Generation Compounds Share Similar Core, Backbone, Toxicity, and Intermittent Dosing Schedu

Parameter	AstraZeneca AZD6738[1,2] 	Bayer BAY1895344[3] 	Repare / Roche[4] RP-3500[5] 
Route of Administration	**Oral**	**Oral**	**Oral**
MTD/RP2 Dose Schedule	160mg BID, **2-weeks-on, 2-weeks-off**, or: Continuous dosing[1]	40mg BID, **3-days-on/4-days-off**	160mg QD, **3-days-on/4-days-off**
Main Grade ≥3 Hematological toxicities	Patriot 1, Escalation Phase, 160mg, BID[2]: **Anemia** (1/6, 17%) Patriot 2, Expansion Phase[1]: **Fatigue, anemia, nausea, and thrombocytopenia (not differentiated)** (4/6, 67%) with continuous dosing (3/15, 20%) with 2-week-on, 2-week-off	**Anemia** (2/2, 100%) **Neutropenia** (1/2, 50%)	**Anemia** (23/95, 24%) **Neutrophil count decreased** (10/95, 11%) **Platelet count decreased** (5/95, 5%)

Note: Head-to-head studies with ATRN-119 have not been conducted

[1] Phase I study of ATR inhibitor, AZD6738, as monotherapy in advanced solid tumors (PATRIOT part A, B), Dillon et al, Volume 30, October 2019, Pages v165-v166

[2] Poster CT084: A Phase I dose-escalation study of ATR inhibitor monotherapy with AZD6738 in advanced solid tumors (PATRIOT Part A), AACR 2017

[3] First-in-Human Trial of the Oral Ataxia Telangiectasia and RAD3-Related (ATR) Inhibitor BAY 1895344 in Patients with Advanced Solid Tumors, Yap et al, Cancer Discov 2021;11:80-91 and 2019 ASCO Poster, De-Bono et al.

[4] Repare announced a worldwide license and collaboration agreement with Roche on June 1, 2022

[5] Preliminary Phase 1 Data From Ongoing First-in-Human Phase 1/2 TRESR Study of RP-3500, AACR 2022

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ATRN-119 Daily Dosing Means Continuous Tumor Reduction

Intermittent Dosing May Lead to Tumor Resistance

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Daily Dosing Is Clinically Superior Based on Other ATRi in Development

Artios ATR Inhibitor: ART0380
Initial Results From Phase 1 Dose Escalation[1]

Dose Escalation Phase	• 49 patients • Continuous dosing: QD; Range 200-400mg, (n=10) • Intermittent dosing: 3D on/4D off; Range 100 - 1,200mg, (n=39)
RP2D	• Continuous = 200mg • Intermittent dosing = 600mg
Efficacy Among Measurable Patients	• Continuous – **ORR 29%** (2/7). One of two responders treated at twice the RP2D. • Intermittent – **ORR 8%** (2/26). One of two responders treated at twice the RP2D.
Safety	• 36% Anemia Grade 3 at doses considered tolerable

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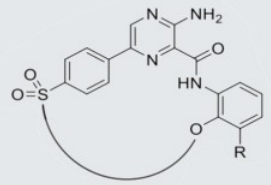
[1]ART0380-ESMO-Poster-2023

ATRN-119: Potential Best-in-Class Oral ATR Inhibitor with Structurally Differentiated Core, Backbone, and Toxicity Profile

Parameter	ATRN-119 (1) 
Route Of Administration	**Oral**
Clinical Studies Chosen (MTD/RP2D), Dose Schedule	Continuous daily dosing (RP2D TBD in Phase 1)[1]
Hematological toxicities in **preclinical studies**	**Pre-Clinical, Toxicology Studies:** • In 28-day GLP tox study in dogs, hematological changes were of small magnitude and within normal ranges • In a head-to-head comparative tolerability study, ATRN-119 demonstrated significantly less toxicity than another oral ATRi that is currently in clinical development[2]

ATRN-119 potential for reduced toxicity could make it a preferred ATR inhibitor as a single agent, as well as a candidate for combination with standard-of-care therapies.

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Note: ATRN-119 has not yet been tested clinically
[1] ATRN-119, Phase 1/2a Clinical Study Protocol
[2] Internal pre-clinical head-to-head tolerability study in male beagle dogs.

WEE1 Inhibitor: APR-1051

Preclinical Proof-of-Principle

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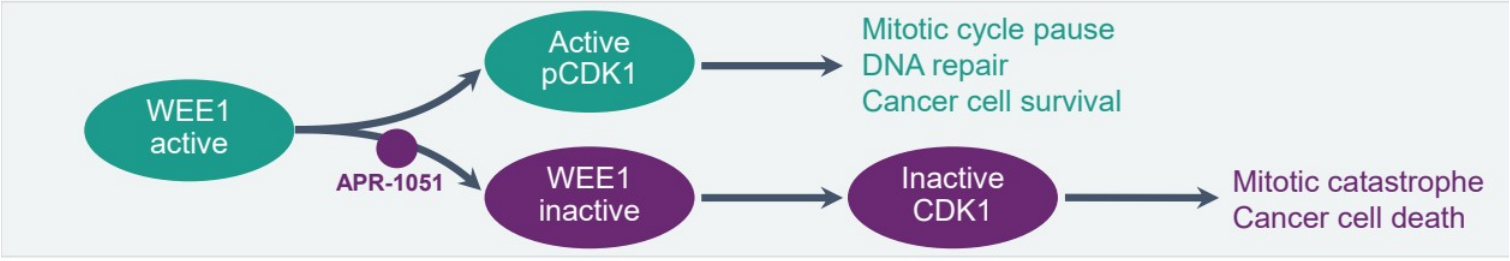
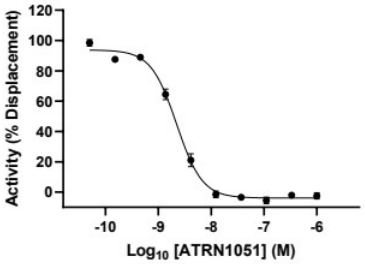
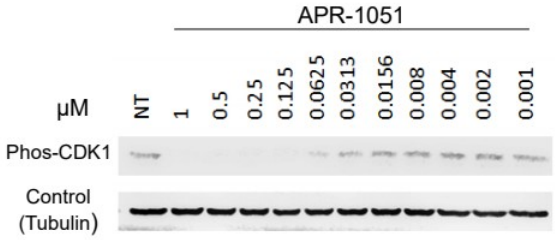
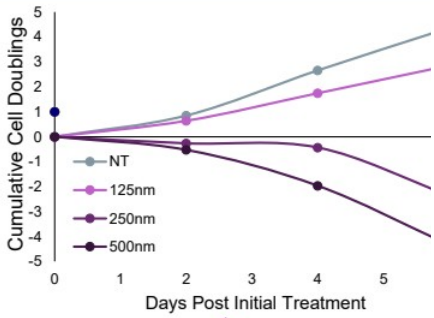
WEE1 Inhibitor – APR-1051
Mechanism of Action – Prevent CDK1 Phosphorylation by WEE1 Kinas









APR-1051 binds to WEE1

…inhibits its biological activity…

…and triggers mitotic catastrophe and cancer cell death

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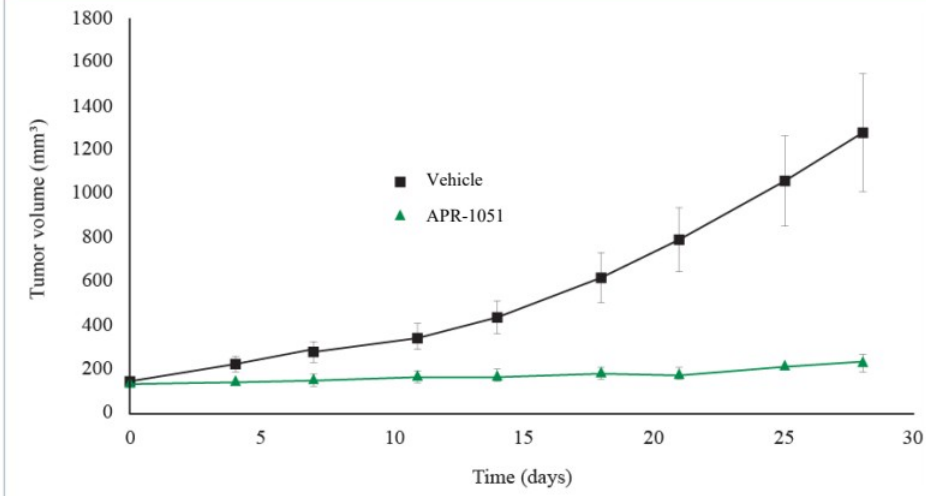
pCDK1- Phosphorylated Cyclin Dependent Kinase 1
Data on file

APR-1051 Demonstrated Potentially Compelling Anti-tumor Activity

IND Clearance 1Q2024

Tumor Growth Inhibition
OVCAR-3



N=7 mice per group, APR-1051, exploratory formulation - 30 mg/kg/day

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Pre-clinical studies with APR-1051
Data on file

WEE1 Inhibitor: APR-1051

A Potentially Differentiated Wee1i

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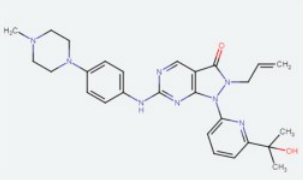
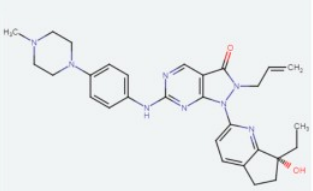
APR-1051 Potentially Differentiated from Other WEE1 Inhibitors

APR-1051 Potent and Structurally Differentiated, with High Selectivity to Limit Off-target Toxicity

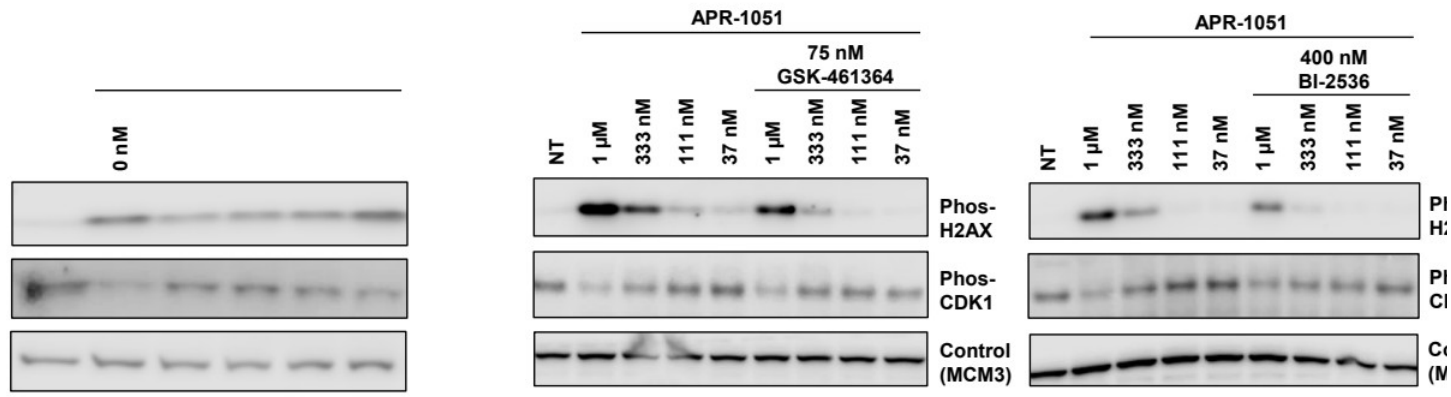
				
		AstraZeneca Adavosertib (AZD-1775)[1,2]	**Zentalis Azenosetrib (ZN-c3)[1]**	**Aprea APR-1051**
On-Target IC_{50} (nM)	**WEE1**	3.8	3.8	2.2
Off-Target Inhibition at 1 μM (%)	**PLK1**	70	79	17
	PLK2	101	96	33
	PLK3	91	92	12

Note: Head-to-head studies have not been conducted
[1] Huang et al, (2021) J Med Chem
[2] AstraZeneca announced in July 2022 the discontinuation of development of AZD-1775

AACR-NCI-EORTC Meeting, Poster C147, 20

PLK1 Inhibition Reduces Cytotoxic Effects of WEE1 Inhibitors

Minimal PLK1 Co-inhibition Enables Full Therapeutic Potential APR-1051



Dose range of PLK inhibitor GSK-461364 in combination with a single dose of APR-1051 in OVCAR-3 cells

PLK inhibitor, GSK-461364 interferes with the effects of APR-1051 in OVCAR-3 cells

PLK inhibitor, BI-2536, interferes with the effects of APR-1051 in OVCAR-3 cells

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AACR-NCI-EORTC Meeting, Poster C147, 20

APR-1051 Preclinical Data Highlight Potentially Favorable PK Properties

Based on Pre-clinical Studies, APR-1051 Shows Potentially Favorable Drug Exposure

	APR-1051[1]	Zentalis Azenosertib (ZN-c3)[2]			AstraZeneca Adavosertib (AZD-1775)[2]		
Dose (mg/kg/d)	**10**	20	**40**	80	20	40	**80**
C_{max} ng/ml	1,460	1,167	1,997	5,100	635	2,460	4,703
T_{max} hr	3	1	1	1	1	1	1
AUC_{0-24}, ng*hr/ml	**16,739**	4,863	**17,088**	39,722	1,494	6,313	**13,408**

Note: Head-to-head studies have not been conducted

[1] Data from an exploratory formulation of APR-1051 administered to fasted Balb/c mice

[2] Data from study in A-427 NSCLC xenograft model as reported in Zentalis Corporate Overview, March 2022

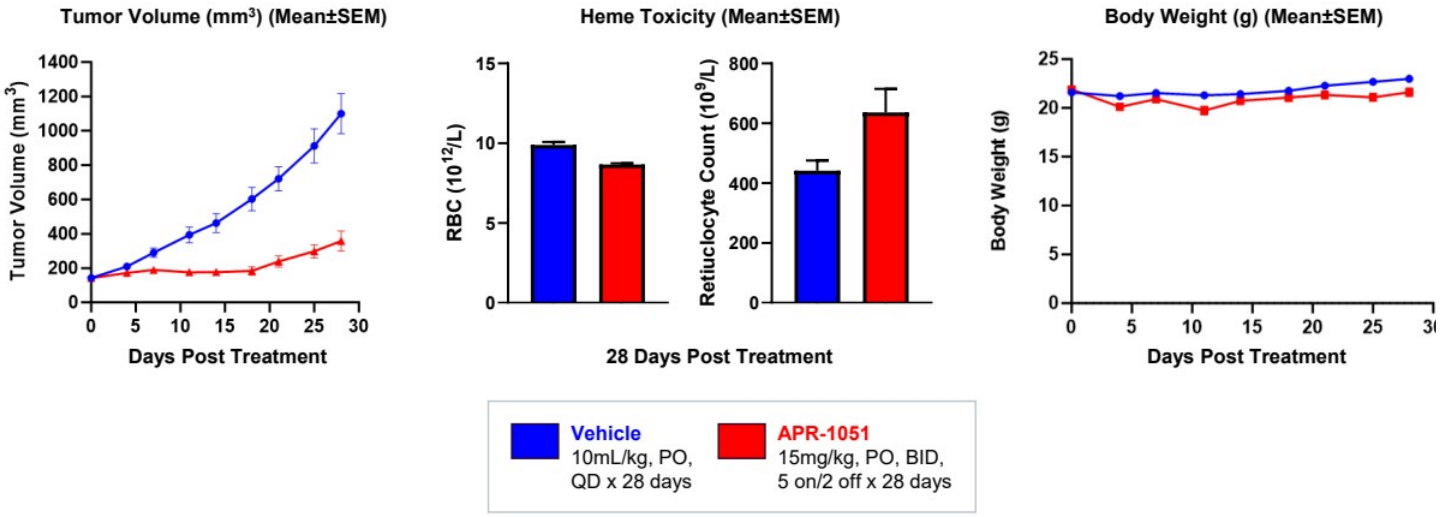
APR-1051 Shows Negligible Inhibition of hERG Channels

QT prolongation AEs were reported with some competitor WEE1 inhibitors

In vitro kinase assays IC50		Average WEE1 kinase IC50	hERG inhibition IC50		Average hERG IC50	Fold difference betw kinase IC50 and hE IC50
LanthaScreen (Thermo)	Hotspot (Reaction Biology)		HEK293 cells (Medicilon)	CHO cells (WuXi)		hERG inhibition over W kinase inhibition
2.2 nM	41.4 nM	**21.8 nM**	8,840 nM	660 nM	**4,750 nM**	**218-fold (range 16- to 3,946-fo**

APR-1051 Suppresses Tumor Growth While Causing Little Effect on RBCs and Body Weight

OVCAR Xenograft Tumor Model in Female Nude Mice



APR-1051
2024-2025 Anticipated Preclinical and Clinical Milestones

Milestone	Timeline
IND	
Clearance	1Q 2024
Phase 1/2a – Monotherapy Dose Escalation	
First Patient Enrolled (subject to funding)	1H 2024

APREA THERAPEUTICS

Strong Intellectual Property Portfolio

Family 1: Ataxia Telengiectasia and Rad3-Related (ATR) Protein Kinase Inhibitors

- Macrocyclic inhibitors of ATR & methods of using them to treat various cancers, filed on Oct. 13th, 2015
- Patents granted in AU, CA, CN, EP, IL, JP, MX, HK. National phase examinations ongoing in BR, IN, KR
- 1.1: Issued on May 30, 2017 as U.S. Patent 9,663,535
- 1.2: Issued on May 29, 2018 as U.S. Patent 9,981,989
- 1.3: Issued on Feb. 5, 2019 as U.S. Patent 10,196,405

Family 2: ATR Inhibitors and Methods of Use

- Carboxylic acid-containing macrocyclic ATR inhibitors, and prodrugs; methods of using these inhibitors to treat various cancers; filed on Apr. 12th, 2017
- Issued on May 28th, 2019 as U.S. Patent 10,301,324

Family 3: ATR Inhibitor Pharmaceutical Composition and Methods

- International application filed on Apr. 14th, 2023
- Pharmaceutical formulation and composition of our lead molecule in the clinic

Family 4: WEE1 Inhibitor Pharmaceutical Compositions and Methods

- International Application filed on Jun. 3rd, 2022
- Composition of our lead WEE1 inhibitor compounds

Family 5: Methods of Treating Cancer

- U.S. Provisional Application filed on Oct. 20th, 2023
- Clinical methods of treating advanced solid cancer tumors using lead molecule

Aprea Therapeutics (NASDAQ: APRE)
Financial Summary & Capitalization

Cash & Equivalents of $25.4M as of September 30, 2023

Closed $4.9M (net) public offering in February 2023

Obtained $2.0M non-dilutive funding via research grant from National Cancer Institute (NCI)

Securities	Common Equivalents as of Nov. 9, 2023
Preferred Stock (as converted)	28,112
Common Stock	3,736,673
Options	586,466
Restricted Stock Units	23,870
Fully Diluted Equivalents	4,375,121

APREA THERAPEUTICS

Investment Highlights

Technology developed by pioneers in synthetic lethality

- Management with strong drug development and commercial expertise

Diversified portfolio with best in class, de-risked clinical and preclinical programs

- Highly potent and selective ATR and WEE1 inhibitors
- Opportunities in ovarian, colorectal, prostate, and breast cancers
- Single agent and combination therapies

Near term catalysts

- Phase 1/2a dose escalation ATRN-119 readout 4Q 2024
- IND clearance APR-1051 1Q2024

Financed through end of 2024

- Reach short term inflection points and catalysts
- Evaluate optimal strategic partnerships

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