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

Date of Report (Date of earliest event reported): July 19, 2022

APTOSE BIOSCIENCES INC.
(Exact name of registrant as specified in its charter)

Canada	**001-32001**	**98-1136802**
(State or Other Jurisdiction of Incorporation)	(Commission File Number)	(I.R.S. Employer Identification No.)

251 Consumers Road, Suite 1105
Toronto, Ontario, Canada M2J4R3
(Address of Principal Executive Offices) (Zip Code)

(647) 479-9828
(Registrant's telephone number, including area code)

(Former name or former address, if changed since last report)

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 Shares, no par value	APTO	NASDAQ Capital Market

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 9.01. Financial Statements and Exhibits.

99.1	Aptose Corporate Presentation - July 2022
104	Cover Page Interactive Data File (embedded within the Inline XBRL document)

SIGNATURE

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.

Aptose Biosciences Inc.

Date: July 19, 2022

By: /s/ William G. Rice, Ph.D.
William G. Rice, Ph.D.
Chairman, President and Chief Operating Officer

Disclosure

This presentation does not, and is not intended to, constitute or form part of, and should not be construed as, an offer or invitation for the sale or purchase of, or a solicitation of an offer to purchase, subscribe for or otherwise acquire, any securities, businesses and/or assets of any entity, nor shall it or any part of it be relied upon in connection with or act as any inducement to enter into any contract or commitment or investment decision whatsoever.

This presentation contains forward-looking statements, which reflect APTOSE Biosciences Inc.'s (the "Company") current expectations, estimates and projections regarding future events, including statements relating to our business strategy, our clinical development plans, our ability to obtain the substantial capital we require, our plans to secure strategic partnerships and to build our pipeline, our clinical trials and their projected timeline, the efficacy and toxicity of our product candidates, potential new intellectual property, our plans, objectives, expectations and intentions; and other statements including words such as "anticipate", "contemplate", "continue", "believe", "plan", "estimate", "expect", "intend", "will", "should", "may", and other similar expressions. Such statements constitute forward-looking statements within the meaning of securities laws.

Although the Company believes that the views reflected in these forward-looking statements are reasonable, such statements involve significant risks and uncertainties, and undue reliance should not be placed on such statements. Certain material factors or assumptions are applied in making these forward-looking statements, and actual results may differ materially from those statements. Those factors and risks include, but are not limited to, our ability to raise the funds necessary to continue our operations, changing market conditions, the successful and timely completion of our clinical studies including delays, the demonstration of safety and efficacy of our drug candidates, our ability to recruit patients, the establishment and maintenance of corporate alliances, the market potential of our product candidates, the impact of competitive products and pricing, new product development, changes in laws and regulations, uncertainties related to the regulatory approval process and other risks detailed from time to time in the Company's ongoing quarterly filings and annual reports.

Forward-looking statements contained in this document represent views only as of the date hereof and are presented for the purpose of assisting potential investors in understanding the Company's business, and may not be appropriate for other purposes. The Company does not undertake to update any forward-looking statements, whether written or oral, that may be made from time to time by or on its behalf, except as required under applicable securities legislation. Investors should read the Company's continuous disclosure documents available at www.sedar.com and EDGAR at www.sec.gov/edgar.shtml, especially the risk factors detailed therein.

Aptose Biosciences (NASDAQ: APTO)

Building a pipeline of "Best in Class" targeted therapies to serve cancer patients with hematologic malignancies

- Precision therapeutics designed to provide **single agent efficacy** and to be used in combination with conventional anti-cancer therapies and other targeted therapies
- Targeting key drivers of disease in cancer cells without overlapping toxicities to provide **efficacy with safety to improve the quality of life for cancer patients**

Investor highlights

- **Experienced leadership team** with deep expertise in kinase inhibitors & orphan hematologic diseases
- Clinical stage oncology company with **two highly differentiated myeloid kinase inhibitors**

HM43239 lead precision medicine as primary value driver

  - Safely achieved single agent efficacy
  - **Multiple complete responses (CR); response rates up to 40%+**
  - Profile supports **single agent accelerated path**; clinical development progressing to combination therapy
  - Positioned to become a preferred agent for broad commercial use

- **Value-driving clinical updates and milestones through 2022 and 2023**
- Value potential: Market Cap. $75M, $294M June 2021; 52-Week range: high $3.13, low $0.73

APTOSE BIOSCIENCES

Aptose Biosciences: Clinical Stage Pipeline of Differentiated Myeloid Kinase Inhibitors

HM43239 oral myeloid kinase inhibitor clinically validated for R/R AML patients

Clinically Safe & Effective	**25-44% ORR** in Phase 1/2 Trial with **CRs in diverse & difficult to treat R/R AML patients**
Near-term Value Creation	Expansion Trials begin 2022 as passage into Registrational Studies planned for 2023
Orphan and **Fast Track**	Designations earned with impressive clinical responses across AML populations
Broad Market Opportunities	Across R/R and front line, fit and unfit, induction and maintenance therapies

LUXEPTINIB (CG-806) dual lymphoid and myeloid kinase inhibitor

High Value Targets	B-cell cancers, AML/MDS and inflammation: BTK, FLT3, LCK, LYN, Others
Activity in Ill Patients	Difficult to treat R/R B-cell lymphoma/CLL and R/R AML patients
Improved Formulation	G3 formulation being explored to reduce drug substance and increase plasma exposure

APTOSE BIOSCIENCES

Aptose Leadership Team: Multifaceted Expertise in Therapeutic Development

Rafael Bejar, MD, PhD

Sr. VP & Chief Medical Officer

William G. Rice, PhD

Chairman, President & Chief Executive Officer

Fletcher Payne

Sr. VP & Chief Financial Officer

Philippe Ledru

Sr. VP & Chief Commercial Officer

UC San Diego Moores Cancer Center

mds Myelodysplastic Syndromes (MDS) Foundation

Dana-Farber Cancer Institute

BRIGHAM AND WOMEN'S HOSPITAL

NIH National Cancer Institute

EMORY University School of Medicine

ACHILLION

CYLENE Pharmaceuticals

CATALYST BIOSCIENCES

CYTOMX

Plexxikon

Abgenix

RINAT Neuroscience

CELL GENESYS

Syapse

IBM

Sun microsystems

MERCK

NOVARTIS

APTOSE BIOSCIENCES

Aptose SAB: Distinguished Opinion Leaders with Deep Oncology Expertise

Daniel Von Hoff, MD, FACP

- Former President of AACR
- Board Member of ASCO
- Former Presidential Cancer Advisory Board
- Physician in Chief, TGen
- Medical Director of Research for McKesson Specialty Health
- Chief Scientific Officer for US Oncology Research
- Professor of Medicine, Mayo Clinic Scottsdale

Brian J. Druker, MD

- Pioneer in the field of precision medicine
- Key Role in development of Gleevec - the first targeted kinase inhibitor for cancer
- Member, National Academy of Medicine, National Academy of Sciences & American Academy of Arts & Sciences
- Winner of Karnofsky Award, Lasker Award, Japan Prize in Healthcare and Medical Technology, Tang Prize in Biopharmaceutical Science, Sjöberg Prize
- Leader of Inter-institutional Beat AML Initiative

Michael Andreeff, MD, PhD

- Renowned hematology specialist
- Professor of Medicine
  Paul and Mary Haas Chair in Genetics
  Chief, Section of Molecular Hematology and Therapy
  MD Anderson Cancer Center
- Expert in AML and other hematologic malignancies
- Expert in drug resistance and drug mechanisms

APTOSE BIOSCIENCES

APTOSE BIOSCIENCES

HM43239 "239"

Oral, Daily, Myeloid Kinase Inhibitor

AML in the US: Estimated 20,240 new cases and 11,400 deaths in 2021
Continued Unmet Need for More Effective and Safe Therapies

Epidemiology	US (2021)	EU5 (2020)	Japan (2021)	China (2020)
Leukemia Incidence[3]	61,090[1]	51,820[3]	14,600[7]	85,400
AML Incidence	**20,240[2]**	16,580[3a]	6,570[7c]	31,430[3b]
5-Year Prevalence (Leukemia) (2020)[3]	187,560	152,230	41,280	241,750
Mortality (Leukemia)	**11,400 (AML)[2]**	31,690	8,700[7]	61,690

Deadly and heterogeneous cancer with 5-year survival rate at diagnosis of approx. 29%

Relapsed AML patients have a median life expectancy of < 6 months* with approved therapies

Need more effective & better tolerated targeted agents

- **DURABILITY** to achieve **lasting remissions** and **extend meaningful/quality life**
- **SAFETY** for **maintenance / MRD+ therapy** and for drug **combination therapy**
- **BREADTH** to **better treat** R/R AML patients and **overcome resistance** to current agents

Safe and effective agents expected to expand AML market and command significant market share

Sources: 1. SEER. 2021 Leukemia. 2. SEER 2021 AML. 3. The Global Cancer Observatory (GLOBOCAN) - IARC (2020) - Projections. 4. Chihara et al. Br J Haematol. 2014. 5. Chen et al. J Hematol Oncol. 2010; 21. 6. Cancer.net. 7. Ganjoho Cancer Statistics in Japan 2021. *https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7486485/. *https://www.frontiersin.org/articles/10.3389/fonc.2021.649209/full

[a]EU5 incidence calculated by applying 32% (AML) on leukemia to obtain incidence of AML. [b]In China, AML accounted for ~36.8% of all leukemias. [c]In Japan, AML accounted for ~45% of all leukemias in 2008.

APTOSE BIOSCIENCES

HM43239 Effective and Well Tolerated Targeted Agent
Proven Broad Clinical Activity in AML Patients to Treat Significant Unmet Needs

Validated AML Targets
SYK, FLT3$^{WT/MUT}$, JAK1/2, cKIT^{MUT}

Single Agent CRs
CR and No DLT at 3 dose levels

ORR 25% in TP53^{MUT} R/R AML
Harboring adverse mutations

HM43239
AML Kinase Inhibitor

ORR 43% in FLT3^{MUT} R/R AML
CRs in patients failed prior FLT3i

Broad Therapeutic Window
No drug-related SAE, QTc toxicities, or CK increases

Accelerated Paths to Market in R/R Disease

Broad Market Potential
R/R, 1L, Maintenance/MRD+/Combination

APTOSE BIOSCIENCES

Emerging Clinical Data Support HM43239 as Potential Superior Therapy

APTOSE BIOSCIENCES

HM43239 Phase 1/2 Study in R/R AML: Ongoing Dose Escalation & Dose Exploration

PART A : DOSE ESCALATION			PART B : DOSE EXPLORATION	
Cohort 6	200 mg QD	Ongoing		
Cohort 5	160 mg QD	Completed	160 mg QD	9 Treated → 20 Planned
Cohort 4	120 mg QD	Completed	120 mg QD	12 Treated → 20 Planned
Cohort 3	80 mg QD	Completed	80 mg QD	20 Treated
Cohort 2	40 mg QD	Completed		
Cohort 1	20 mg QD	Completed		

Favorable safety profile: No drug related SAE or death and no observed relation between delta-QTc throughout the trial. And no DLT through 160 mg dose level.

Dose Exploration continues across several cohorts: currently enrolling patients at 120 mg and 160 mg dose levels and plan to explore 40 mg dose level

Data as of July 14, 2022

APTOSE BIOSCIENCES

HM43239 Safety and Efficacy Data Revealed a Broad Therapeutic Window as a Single Agent in R/R AML Patients

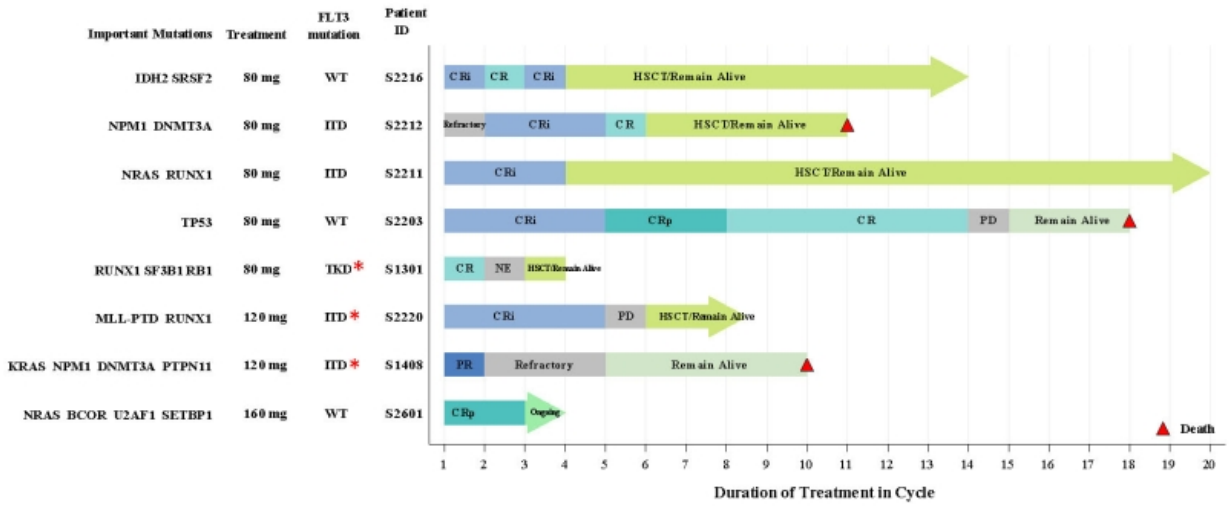
- **Safety Profile Favorable to Date**
  - No drug related SAE, deaths, or AE of elevated CK (creatine kinase)
  - No drug related AE of QT prolongation – No observed relation between ΔQTc and dose
  - No DLT up to 160 mg and one DLT of muscle weakness (not rhabdomyolysis) at 200 mg
- **Demonstrated Efficacy Across a Diverse Set of R/R AML Patients**
  - **CRc in AML with Adverse Mutations ($FLT3^{WT}$)** incl. TP53-Mutant and Complex Karyotype)
  - **CRc in FLT3-Mutant AML (Fast Track)** incl. Prior Failure of Other FLT3 Inhibitors
- **Identified a Broad Therapeutic Window**
  - **Safely achieved efficacy at 3 separate dose levels** (80 mg, 120 mg, 160 mg) with no DLT
  - Demonstrated **broad therapeutic range** across safe dose levels
  - Safety profile supports **combination therapy with other agents**

Data as of July 14, 2022

CONFIDETIAL

APTOSE BIOSCIENCES

HM43239 Diversity of R/R AML Patients Who Achieved a Clinical Response to Date in Phase 1/2 Study



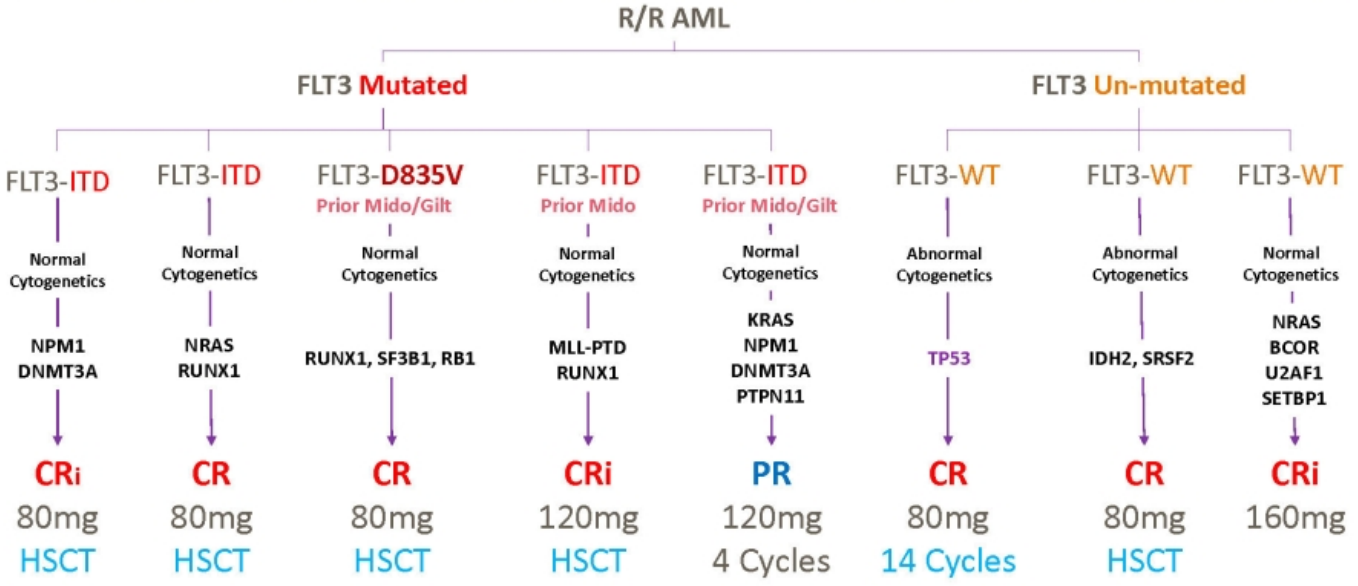
Abbreviation: CR, complete response; CRi, complete response with incomplete hematologic recovery; CRp, complete response with incomplete platelet recovery; HSCT, hematopoietic stem cell transplantation; NE, not evaluable; PD, progressive disease; PR, partial remission.
Note: 'Ongoing' means treatment is still ongoing; 'Remain Alive' indicates patients' status in follow-up after treatment termination; The right arrow at the end of horizontal bar indicates patients are still on study, whereas without the right arrow indicates patients discontinued from study.
Note: Each response assessed at a regular visit is considered to have started 1 cycle before the assessment, however the start of the response is considered the integer part of (study day/28) if the response occurred at the End of Treatment visit.

*Indicates patients who received prior FLT3 inhibitors, including gilteritinib and/or midostaurin.

Data as of July 14, 2022

APTOSE BIOSCIENCES

HM43239 AML Patients with Best Clinical Responses to Date Observed 7 CRc and 1 PR in Diverse and Challenging Patient Populations



Data as of July 14, 2022

APTOSE BIOSCIENCES

HM43239 Overall Response Rate (CRc + PR)
7 CRc and 1 PR to Date in Phase 1 as a Single Agent in R/R AML Patients

Mutation Status	All Patients			Evaluable Patients		
	N = 45 Patients	Number Responders	Response Rate	N = 41 Patients	Number Responders	Response Rate
FLT3+	20	5	25%	19	5	26.3%
FLT3+ with prior FLT3i	**7**	**3**	**42.9%**	**7**	**3**	**42.9%**
FLT3-WT	25	3	12%	22	3	13.6%
TP53+	**4**	**1**	**25%**	**3**	**1**	**33.3%**

Overall Response Rate for "All Patients" and "Evaluable Patients" Receiving ≥ 80mg HM43239

- Findings represent a snapshot in time: The reported safety, tolerability, PK, PD and efficacy findings reported herein represent the data available may change as additional patients are assessed and more data are collected.
- "Evaluable Patients" removes those non-evaluable patients who did not have a response evaluation and had no other evidence indicating refractory disease in the peripheral blood.
- Most CRc patients went to HSCT and cannot be evaluated for transfusion independence assessment.

Abbreviation: CR, complete remission; CRc, composite complete remission; CRp, complete remission with incomplete platelet recovery; CRi, complete remission with incomplete hematological recovery; PR, partial remission.
Note: efficacy evaluable patients include all patients with at least 80% drug compliance during Cycle 1 or who had reported a DLT during Cycle 1, and who reported relevant data for efficacy interpretation such as bone marrow assessment, CBC counts, reason for treatment termination.
[1] Overall response includes CRc and PR.
[2] CRc includes CR, CRh, CRp and CRi.
[3] The reported prior FLT3 inhibitors include gilteritinib, midostaurin and sorafenib.

Data as of July 14, 2022

APTOSE BIOSCIENCES

HM43239 Potential for Accelerated Path Supported by Expansion & Registration Trials

Current Dose Escalation/Dose Exploration Phase 1/2 Trial in R/R AML Patients

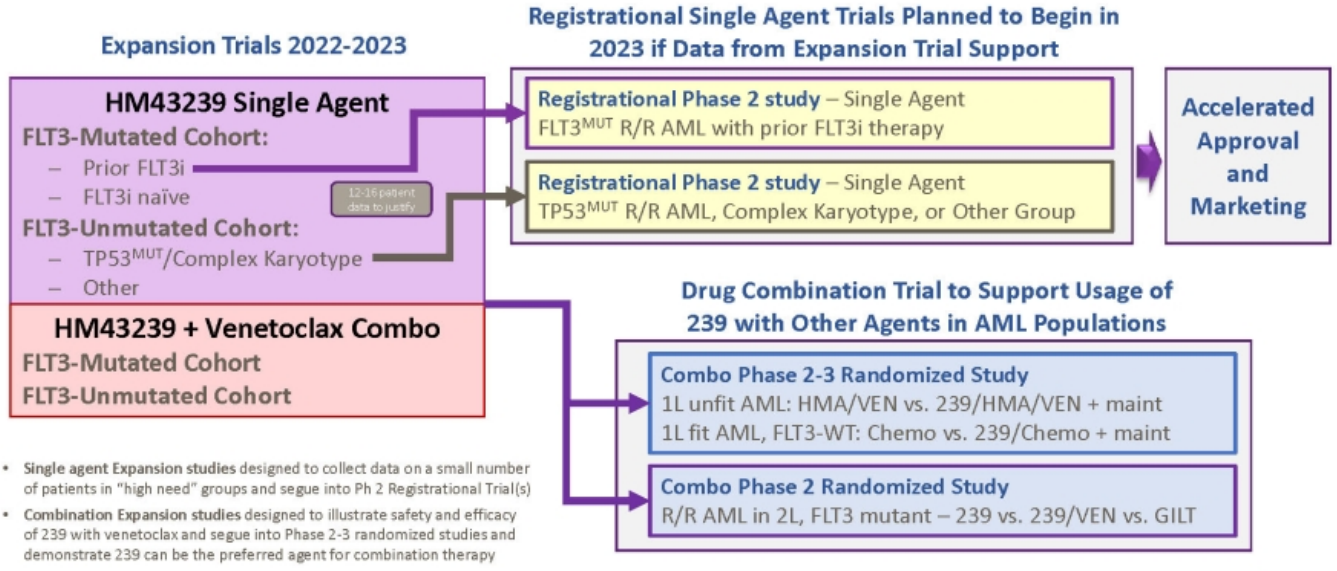
- Continue **Exploration of Molecular Subgroups (Genotypes)** for **Potential Fast Track Designations**
  - Expect Continued Dose Exploration at 120 mg and 160 mg to **Deliver Rolling News Flow**
- Selected **3 Expansion Doses** (80 mg, 120 mg, 160 mg) and **Patient Populations** for Expansion Trials

Transitioning to Expansion Trials in AML Patients as Run-up to Registrational Trials

- **120 mg** planned as **Primary** Single Agent Expansion Dose with **80 mg** and **160 mg** as Bracketing Doses
- **FLT3 Mutated R/R AML Expansions** (**Fast Track Designation**), including Prior FLT3i Failure
  - Plan Single Agent to begin 2H2022 and Combination (239+Ven) to begin 1H2023
- **FLT3-Unmutated R/R AML Expansions** (with Adverse Mutations), including TP53-Mutated
  - Plan Single Agent to begin 2H2022 and Combination (239+Ven) to begin 1H2023
- **Registrational Trial(s)** planned to begin 2H2023 via segue from Expansions

APTOSE BIOSCIENCES

HM43239 Global Dose Expansion Trial Planned to Support Phase 2 Registrational Trials for Accelerated Approval and Drug Combination Trials for Broad Commercialization



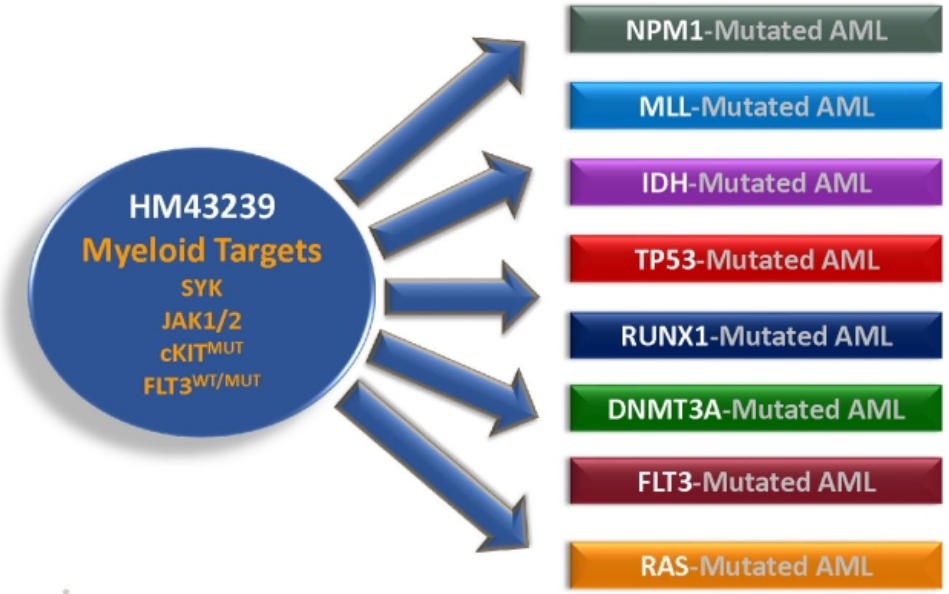
- **Single agent Expansion studies** designed to collect data on a small number of patients in "high need" groups and segue into Ph 2 Registrational Trial(s)
- **Combination Expansion studies** designed to illustrate safety and efficacy of 239 with venetoclax and segue into Phase 2-3 randomized studies and demonstrate 239 can be the preferred agent for combination therapy

APTOSE BIOSCIENCES

Clinical Development Plan Sets the Stage for Broad Commercial Success

APTOSE BIOSCIENCES

HM43239: Safely Delivers Clinical CRs in AML Patients with Diverse Mutations Broad Commercial Potential Unlike Any Other Targeted Agent for AML



Suppression of a constellation of validated myeloid kinases by HM43239 safely delivers deep clinical responses in a broad array of AML genotypes

Broad Commercial Potential

APTOSE BIOSCIENCES

HM43239 TPP: Safe, Oral, Daily, Targeted Agent for Diverse AML Patients

Proven Broad Clinical Activity to Deliver Complete Remissions (CRs) in Diverse R/R AML Patients

- **Genetic diversity** (FLT3, TP53, NRAS, KRAS, IDH1, IDH2, MLL, NPM1, PTPN11, DNMT3A, RUNX1, etc.)
- **FLT3-unmutated** (with complex karyotype and adverse mutations, incl. $TP53^{MUT}$)
- **FLT3-mutated** (incl. prior failure by other FLT3i)
- **Three dose levels** rendering CR with no DLT

Developing as Single Agent (For Accelerated Approval)

- FLT3-Mutant R/R AML Failed Prior FLT3i | Fast Track Designation Awarded in FLT3 Mutated Patients
- TP53-Mutant AML / Complex Karyotype | Potential for Fast Track Designation if Data Continue to Support

Developing in Combination with Venetoclax -/+ HMA

- Global Phase 2-3 Randomized Drug Combination Trials in Earlier Lines of Therapy

Efficacy with Strong Safety Profile Suggests Preferred Agent for Broad Commercial Usage

- R/R Therapy in FLT3+/-
- 1L Therapy in Fit/Unfit and FLT3+/-
- Combination Therapy
- Maintenance / MRD(+) Therapy

APTOSE BIOSCIENCES

HM43239 Potential Commercial Opportunity in the AML Market

AML Patient Population Segment	Estimated Treatable Population with HM43239	Estimated Median Duration of Treatment	Estimated Peak Market Share (%)	US Sales Potential (2035) - USD
FLT3(+) RR AML / Prior FLT3i (Gilt)	~ 400	3 months	60%	**~$25 mil**
FLT3(+) RR AML / No Prior FLT3i	~ 1,500	3 months	50%	**~$185 mil**
FLT3(WT) RR AML*	~ 1,500	7 months	60%	**~$55 mil**
FLT3(+) 1L AML Unfit	~1,600	9 months	65%	**~$160 mil**
FLT3(WT) 1L AML* Fit	~ 5,000	10 months	45%	**~$420 mil**
FLT3(+/WT) Maintenance / MRD(+)	~5,000	Continuous	65%	**~$450 mil**

- The global AML market is experiencing strong growth and is predicted to grow to > $1.8 billion in 2026 Acute Myeloid Leukemia Global Market Report 2022
- Effective and safe agents have the potential to expand the market further

* Population with IDH1&2-WT and either NPM1 and/or Chromatin mutations representing ~50% of the AML patient population. This segment excludes FLT3 and/or IDH1/2 mutant patients.

APTOSE BIOSCIENCES

HM43239 Clinically Validated, Once Daily, Oral Myeloid Kinase Inhibitor Confidence of Clinical Investigators and KOLs

Targets Constellation of Kinases Important in AML

- Potent inhibitor of myeloid kinases SYK, FLT3$^{WT/MUT}$, JAK1/2 and mutant forms of c-KIT associated with transformation and resistance
- Potential to treat genetically defined AML patients across multiple lines of therapy & populations
- Safety & efficacy foretell significant market potential for R/R, 1L, FLT3-/+, Fit/Unfit AML populations

Clinical Validation Supports Path of Rapid Development for Breadth of AML Patients

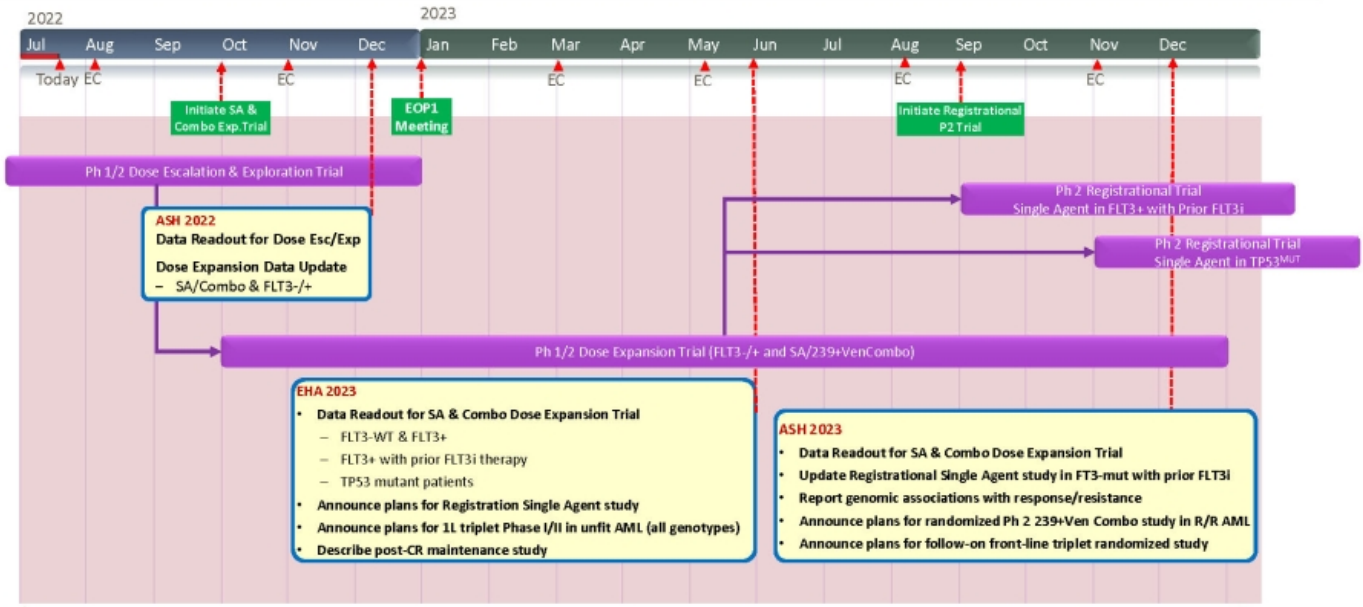
- **FLT3-Mutated Patients**
  - CRc in patients who failed prior FLT3 inhibitors (midostaurin and gilteritinib)
  - CRc in patients with ITD and TKD mutated FLT3
  - FDA Fast Track received for FLT3^{MUT} R/R AML
- **FLT3-Unmutated Patients**
  - CRc in patients harboring diverse mutations: NPM1, DNMT3A, N/KRAS, MLL, TP53, IDH2, U2AF1, RUNX1, Others
- **Broad Therapeutic Window**
  - Well tolerated across three active & safe doses
- **Preferred Agent Profile for Combination Therapy**

Program Goals Supporting Rapid Development

- *Explore Molecular Subgroups* for Potential Fast Track Designations
- *Single Agent* Expansion Trial (239) planned 2H2022
- *Combo* Expansion Trial (*239+Ven*) planned 2H2022
- Registrational Ph2 study(ies) planned 2023 from Expansions
- Broad commercialization goals supported by clinical development in diverse patient populations

APTOSE BIOSCIENCES

HM43239 Potential Timelines of Value Driving Milestones



APTOSE BIOSCIENCES

Aptose Biosciences (NASDAQ: APTO)

Building a pipeline of "Best in Class" targeted therapies to serve cancer patients with hematologic malignancies

- Precision therapeutics designed to provide **single agent efficacy** and to be used in combination with conventional anti-cancer therapies and other targeted therapies
- Targeting key drivers of disease in cancer cells without overlapping toxicities to provide **efficacy with safety to improve the quality of life for cancer patients**

Investor highlights

- **Experienced leadership team** with deep expertise in kinase inhibitors & orphan hematologic diseases
- Clinical stage oncology company with **two highly differentiated myeloid kinase inhibitors**

HM43239 lead precision medicine as primary value driver

  - Safely achieved single agent efficacy
  - **Multiple complete responses (CR); response rates up to 40%+**
  - Profile supports **single agent accelerated path**; clinical development progressing to combination therapy
  - Positioned to become a preferred agent for broad commercial use

- **Value-driving clinical updates and milestones through 2022 and 2023**
- Value potential: Market Cap. $75M, $294M June 2021; 52-Week range: high $3.13, low $0.73

APTOSE BIOSCIENCES

APTOSE BIOSCIENCES

PRECISION ONCOLOGY FOR
THERAPIES OF TOMORROW