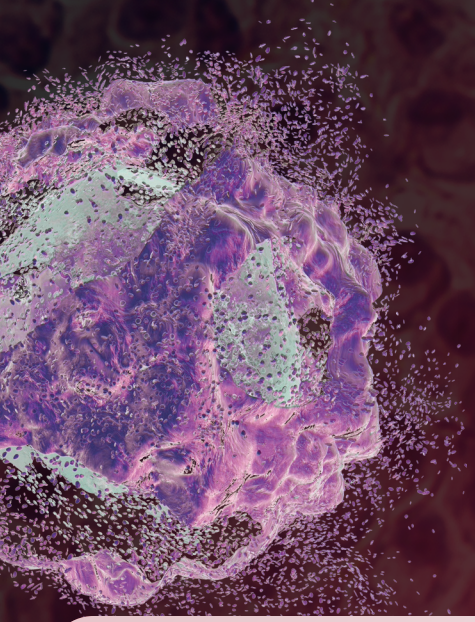


Precision Oncology for Therapies of Tomorrow

APTOSE BIOSCIENCES

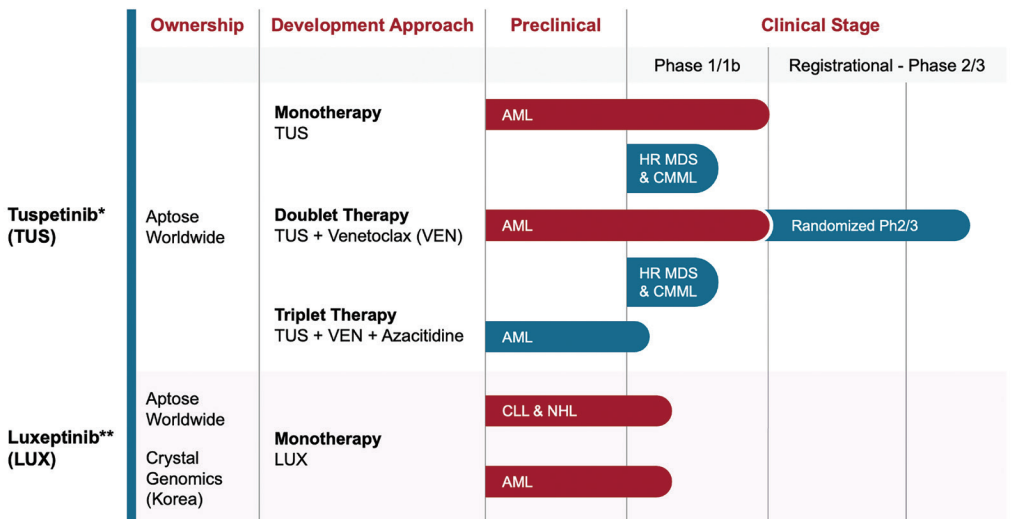
Aptose Biosciences is a science-driven clinical-stage biotechnology company committed to precision medicines addressing the unmet clinical needs in oncology, with an initial focus on hematology. We are building a pipeline of novel and targeted oncology therapies with the potential to serve specific populations of cancer patients with great unmet needs. The Company's small molecule cancer therapeutics pipeline includes products designed to provide single agent efficacy and to enhance the efficacy of other anti-cancer therapies and regimens without overlapping toxicities, thus preserving the quality of life in hematology patients.

Aptose Biosciences Inc. is listed on NASDAQ under the symbol APTO and on the TSX under the symbol APS.

Investment Highlights

- **Precision oncology company developing oral targeted agents to treat hematologic malignancies**
- **Tuspetinib (TUS) lead agent has demonstrated robust single agent activity and excellent safety as a once daily, oral treatment for relapsed/refractory acute myeloid leukemia (R/R AML)**
  - Tuspetinib is a multi-kinase inhibitor that targets SYK,FLT3WT/MUT, KITMUT, JAK1/2, RSK2, TAK1-TAB1 and indirectly suppresses MCL-1 expression
  - Potential application in the large higher-risk myelodysplastic syndromes (HR-MDS) indication
- **Tuspetinib favorable safety and activity profiles create ideal compound for commercial success in combination therapies**
- **TUS/VEN (tuspetinib combined with venetoclax) shows strong safety and activity in the growing AML population with VEN resistance**
  - Tuspetinib targets escape mechanisms associated with VEN resistance
- **TUS/VEN presents potential accelerated approval path in R/R AML**
- **Multiple value-creating milestones ahead with >140 AML patients dosed to date**
  - Incremental TUS/VEN data readout with Nov 30 data cut: ASH 2023
  - Planned expansion beyond AML into HR-MDS and CMML: 4Q2023
  - Expect further TUS/VEN data on duration of response in AML: 1Q2024
  - Planned initiation of TUS/VEN/HMA pilot study in frontline AML: 1H2024

Product Pipeline



* Formerly HM43239, ** Formerly CG-806 ● In planning

"We are really pleased by our growing safety and efficacy data on tuspetinib in very difficult-to-treat AML patient populations. This includes activity in FLT3-unmutated patients, a population that accounts for more than 70% of AML and has few effective treatment options. Additionally, tuspetinib's significant activity with venetoclax (TUS/VEN) in patients who previously have failed venetoclax treatment – a rapidly-emerging population of particularly high unmet medical need – provides a clear development pathway for tuspetinib with the potential for accelerated approval. In addition, the strong data from the TUS/VEN doublet gives us confidence to move tuspetinib forward into a TUS/VEN/HMA triplet for the treatment of frontline newly-diagnosed AML patients."

Dr. Rafael Bejar, Chief Medical Officer, Aptose

Tuspetinib Addresses a Growing Unmet Need in AML: VEN Failure Population

- Tuspetinib (TUS) is a once-daily, oral, precision targeted kinase inhibitor that suppresses select kinases that drive the proliferation of AML, including the SYK, FLT3, JAK1/2, mutant forms of KIT, RSK2, and the TAK1-TAB1 kinases operative in AML, while other kinases are avoided to promote safety
- Tuspetinib's superior safety, activity, mechanism of action, and convenient dosing make it ideal for combination therapy
- AML care has shifted toward venetoclax (VEN) containing combination regimens and a new population of difficult-to-treat VEN relapsed patients ("VEN failures") is emerging
- Importantly, TUS directly targets VEN resistance mechanisms and may lead to re-sensitizing VEN-resistant cells to VEN when given in combination
- TUS/VEN may safely and successfully treat these VEN failures, as we already have observed clinically, and an accelerated approval path may be available for VEN failure relapsed or refractory (R/R) AML patients treated with TUS/VEN

TUS/VEN Overall Response Rates

TUS/VEN Doublet has shown activity across broad populations of R/R AML, including in $FLT3^{WT}$ AML (representing ~70% of AML patients), and in difficult-to-treat prior-venetoclax and prior-FLT3 inhibitor exposed AML patients. As of October 23, 2023, the data in the table below reflect a short median follow-up time of only 2 months with 49 patients dosed, of which 36 are considered evaluable (31 completed Cycle 1 and 5 discontinued in Cycle 1) with 13 patients ongoing in Cycle 1 and not yet evaluable. Among the 36 evaluable patients, 81% received prior venetoclax, representing a growing population of R/R AML patients.

COMPOSITE COMPLETE REMISSION (CRc) IN EVALUABLE PATIENTS

FLT3 Status	ALL	VEN-Naïve	VEN-Prior	FLT3i-Prior
ALL	25% (9/36)	43% (3/7)	21% (6/29)	
$FLT3^{WT}$	20% (5/25)	33% (2/6)	16% (3/19)	
$FLT3^{MUT}$	36% (4/11)	100% (1/1)	30% (3/10)	44% (4/9)

EXECUTIVE MANAGEMENT TEAM

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President &
Chief Executive Officer

Rafael Bejar, M.D., Ph.D.
Senior Vice President
Chief Medical Officer

Fletcher Payne
Senior Vice President
Chief Financial Officer &
Chief Business Officer

Philippe Ledru
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Corporate Presentation

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