AB Science Webconference

Microtubule Destabilizer Agents (MDA)

16 March 2023

Disclaimer

This presentation, together with the material set forth herein, does not constitute an offer of securities for sale nor the solicitation of an offer to purchase securities in any jurisdiction. Distribution of such presentation in certain jurisdiction may constitute a breach of applicable laws and regulation. This document is solely for your information on a confidential basis and may not be reproduced, redistributed or sent, in whole or in part, to any other person, including by email or by any other means of electronic communication. In particular, neither this document nor any copy of it may be taken, transmitted or distributed, directly or indirectly, in the United States, Canada, Japan or Australia. The distribution of this document in other jurisdictions may be restricted by law and persons into whose possession this document comes should make themselves aware of the existence of, and observe, any such restrictions. Neither the Company, nor any of its advisors and representatives may accept any responsibility for any loss or damage incurred by the use of this document or the information set forth herein. Neither the Company, nor any of its advisors and representatives takes any undertaking nor guarantees, whether explicitly or tacitly, the accuracy or the completeness of the information set forth herein. Neither this document, nor any part of it, shall form the basis of, or be relied upon in connection with, any contract or commitment whatsoever. In particular, in France, any decision to purchase such securities shall rely solely on the documents that have been reviewed by the Autorité des Marchés Financiers (the "AMF") and/or published by the Company. This document does not constitute an offer to purchase any financial instruments in the United States. Securities mentioned in this document have not been and will not be registered under the Securities Act of 1933, as amended (the "Securities Act") and may not be offered or sold in the United States absent registration or an exemption from the registration requirements of the Securities Act. The Company does not intend to register any offering in all or in part or to make a public offer of securities in the United States. This document contains information on the objectives of the Company along with some projections and forward-looking statements. The reader's attention is drawn to the fact that these objectives may not be fulfilled, and the forecasts or information provided may prove erroneous, and the Company is not required to update such information. Past performance is no guide to future performance and persons needing advice should consult an independent financial adviser.

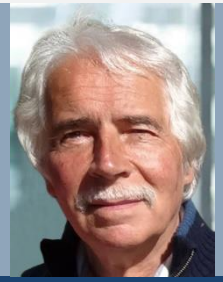
Speakers

ALAIN MOUSSY
Co-founder and CEO

Former strategic consultant at Booz, Allen & Hamilton and former Head of Corporate Development at Carrefour.
President of AFIRMM, association of mastocytosis patients

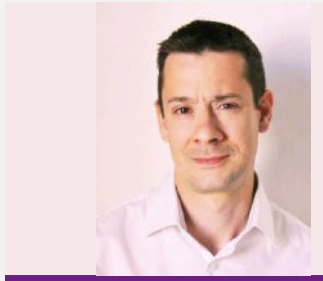
OLIVIER HERMINE, MD, PhD
Co-founder and Chairman of Scientific Committee

Head of the hematological department at the Necker-Enfants malades hospital. Member of the French Academy of science and pharmacy and author of 880 international publications



CHRISTIAN AUCLAIR, PhD
Co-founder and Member of Scientific Committee

Expert in Onco-pharmacology
Former head of Biology practice at Ecole Normale Supérieure de Cachan. Associate Director of the life sciences department at the CNRS, from 1996 to 2000.



LAURENT GROS, PhD
Head of Drug Discovery

PhD in Biochemistry and Pharmacology at Pierre et Marie Curie University (Paris)

Pipeline

AB Science has a diversified portfolio with masitinib and MDAs as the two main platforms

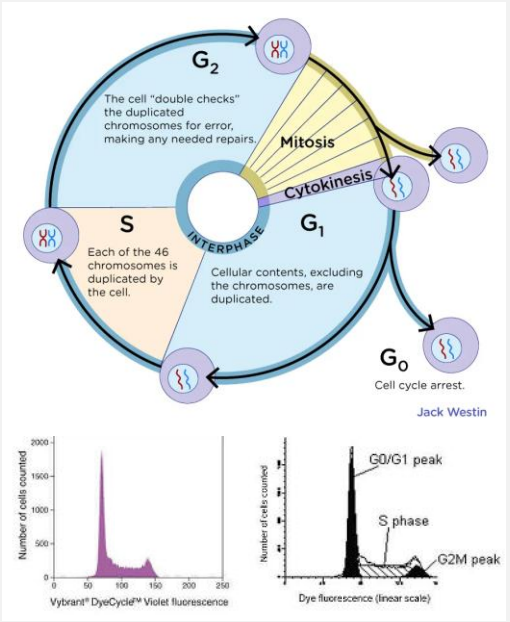
Platform	Drug	Main therapeutic area	Development Stage
Tyrosine Kinase Inhibitor (TKI)	▪ Masitinib (Oral)	▪ CNS	▪ Phase 3
		▪ Inflammatory diseases	▪ Phase 3
		▪ Oncology	▪ Phase 3
Microtubule Destabilizer Agents (MDA)	▪ AB8939 (IV)	▪ Hematology	▪ Phase 1/2
	▪ ABXXXX (Oral)	▪ Oncology	▪ Preclinical

AB8939 – Mechanism of action

AB8939 is a microtubule destabilizer

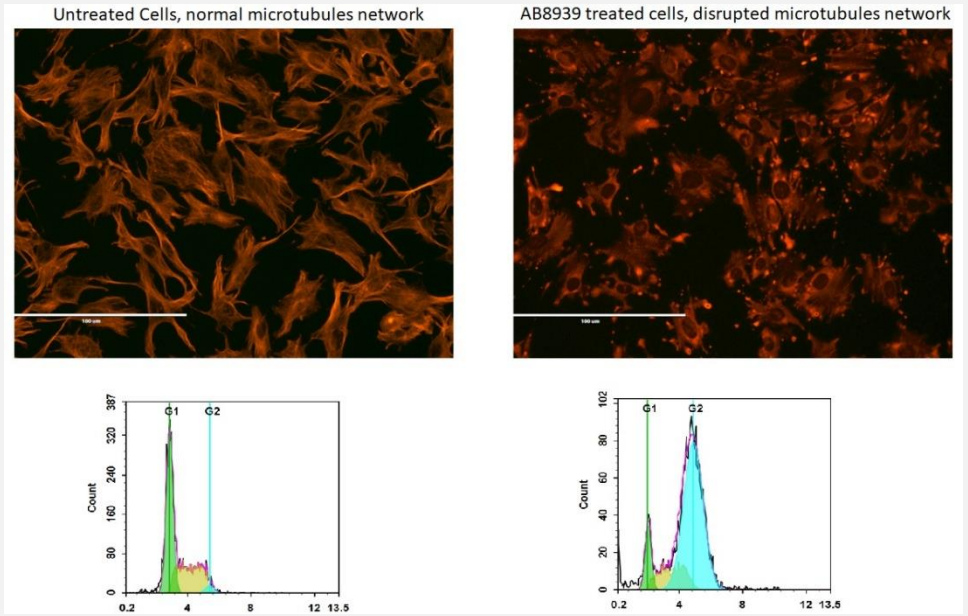
- Microtubules are critical for global cellular homeostasis and drive one of the most fundamental processes in the organism: mitosis and cell division.
- AB8939 is a synthetic drug that directly targets tubulin inducing a massive blockade of cell division at G2/M transition and subsequent cell death by Apoptosis.
- AB8939 is able to kill most of cancer cells (80 cell lines tested) with nanomolar to sub-nanomolar potency acting faster against highly dividing leukemia cells, than against cancer cell lines derived from solid tumors which divide slower.

Dividing Cancer cells



AB8939

Cell Cycle Arrest at G2/M



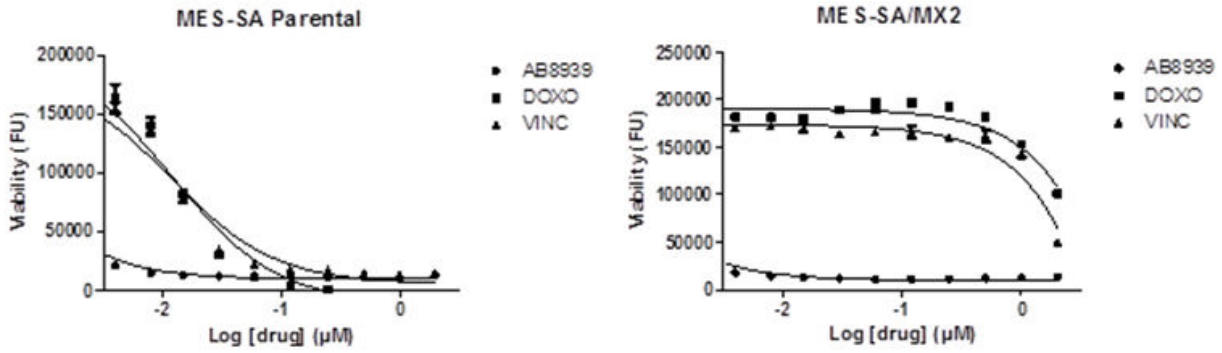
Massive Cell Cancer Death

AB8939 – Overcoming of resistances to clinical anti-tubuline agents

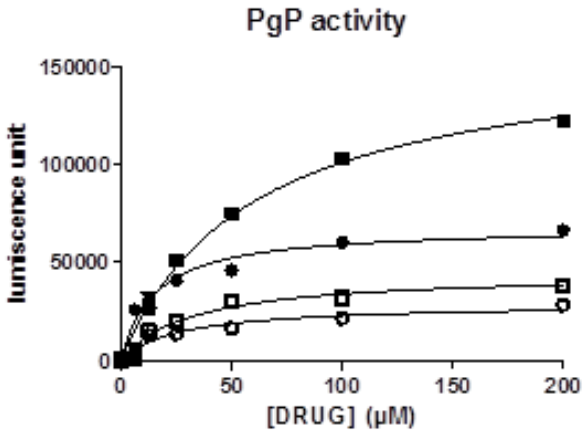
AB8939 strongly differs from clinical drugs targeting microtubule

- Microtubule targeting chemotherapies, including vinca-alcaloides and taxanes that derived from natural compounds, have been registered and became gold standard in many cancers (paclitaxel, vincristine, vinblastine…)
- The main limit of these drugs is that patients develop resistance through expression of efflux pumps (PgP, BRCP) that transport these drugs outside the cells, through aberrant expression of tubulin isoforms (β3) that impair the drug binding to tubuline or through enzymatic deactivation (Myeloperoxydase MPO/Vincristine)
- AB8939 is not a transported by PgP/BRCP efflux pumps, its activity is totally independent of the tubulin-β3 status as well as of the MPO expression level (same activity in MPO-expressing or MPO-deficient cells).

In-vitro Efficacy in MDR drug resistant cells



AB8939 is a poor substrate of PgP Efflux Pump

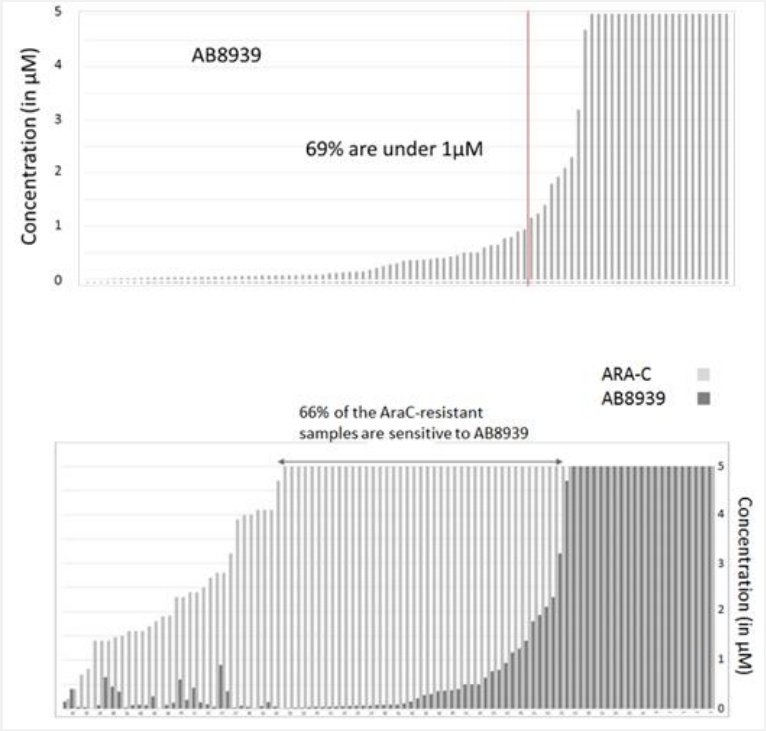


AB8939 – *In vitro* efficacy against AML patients blasts

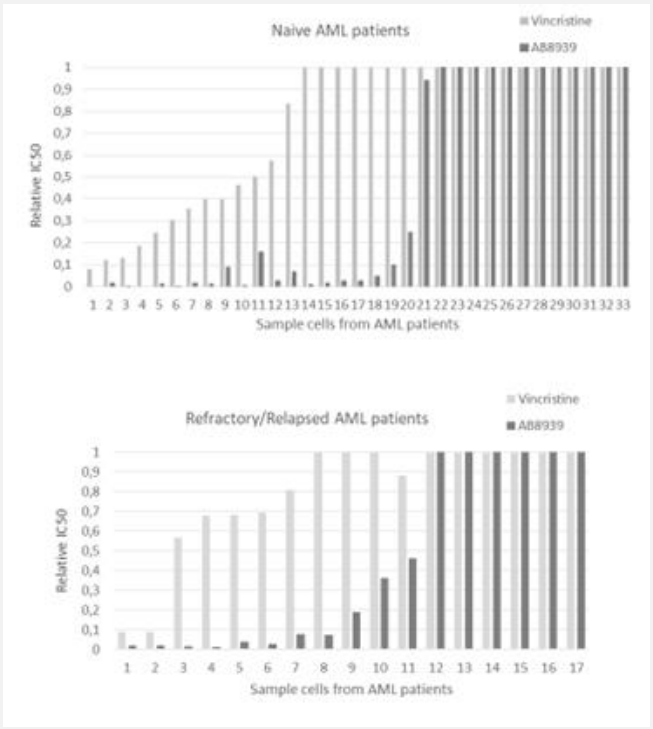
AB8939 is active against chemotherapy naive or chemotherapy refractory/relapse patient's AML cancers cells ex vivo.

- AB8939 is ~70% of blasts isolated from a cohort of 99 AML patients at diagnosis are sensitive to AB8939 (IC_{50}<1 µM), but only ~30% are sensitive to standard Ara-Cytidine-based chemotherapy **(A)**.
- Among the blasts isolated from this cohort that are resistant to Ara-C, 66% remain sensitive to AB8939 **(A bottom)**.
- ~70% of the blasts isolated from 33 naive AML patients are resistant to the anti-tubuline agent Vincristine, while the same proportion is sensitive to AB8939 **(B Top)**.
- Most of the blasts isolated from 17 refractory/relapse AML patients are resistant to Ara-C while ~70% remain sensitive to AB8939 **(B bottom)**.

A.



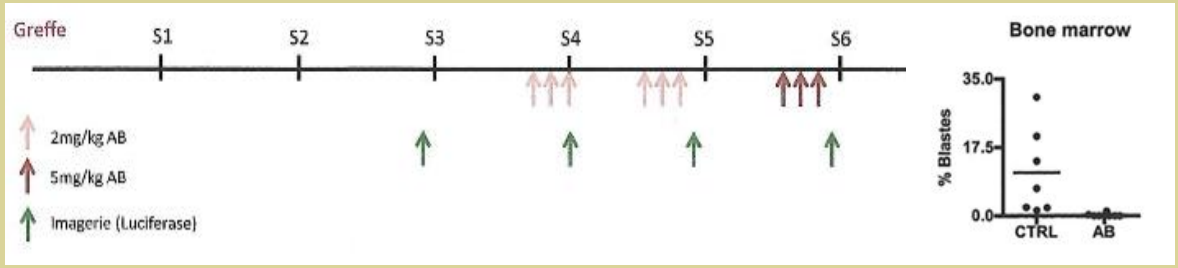
B.

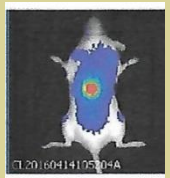


AB8939 – *In Vivo* efficacy in AML PDX Model

AB8939 ability to kill blasts in various compartments (blood, spleen, bone marrow) was systematically observed in all our AML PDX models

- AB8939 eradicates blasts in BM in human aggressive PDX#AMKL26 (IGR) mouse model





33

42

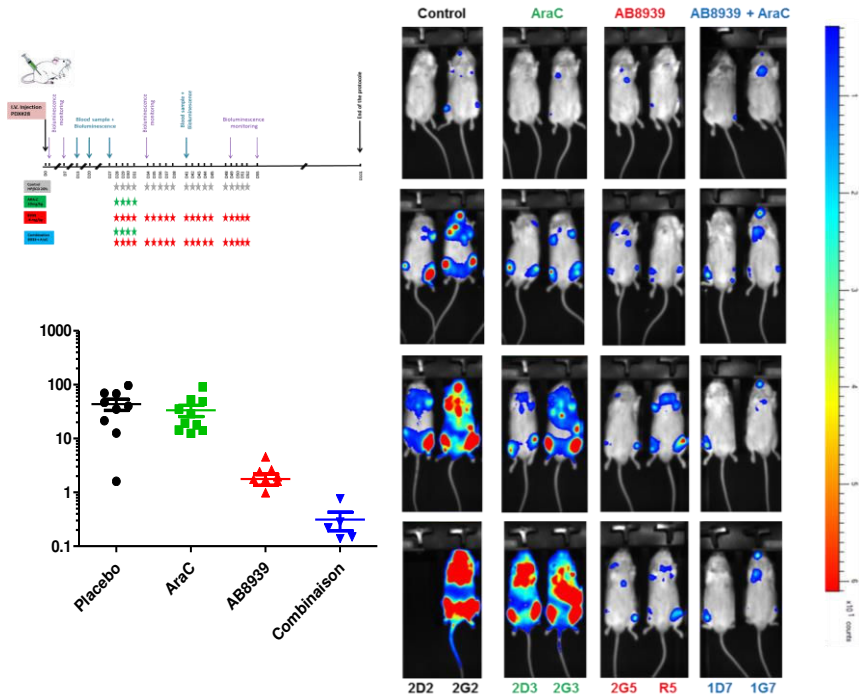
- AB8939 as single agent increases survival in a dose-dependent manner in MOLM14 xenograft mouse model (Study P487)
- AB8939 significantly decreases blasts in blood in ARA-C-sensitive human AML PDX#21 (IPC) mouse model (Study P524)
- AB8939 in combination with ARA-C decreases blasts in blood, spleen and BM in human moderately ARA-C-resistant AML PDX#13 (IPC) mouse models (Study P650)
- AB8939 eradicates blasts in blood and BM in human ARA-C-resistant AML PDX#5 (IPC) mouse models (Study P504)
- AB8939 alone or in combination with ARA-C increases survival in human ARA-C- resistant AML PDX#5 mouse model (Study P674)
- AB8939 alone (Study P917) or in combination with Azacytidine (Vidaza) (Study P970) decreases blasts in blood, spleen and BM and in human AML PDX#C1005 mouse model.

AB8939 – Efficacy in AML PDX and combination with Ara-C or with Azacytidine

AB8939 has strong activity in Ara-C resistant PDX model

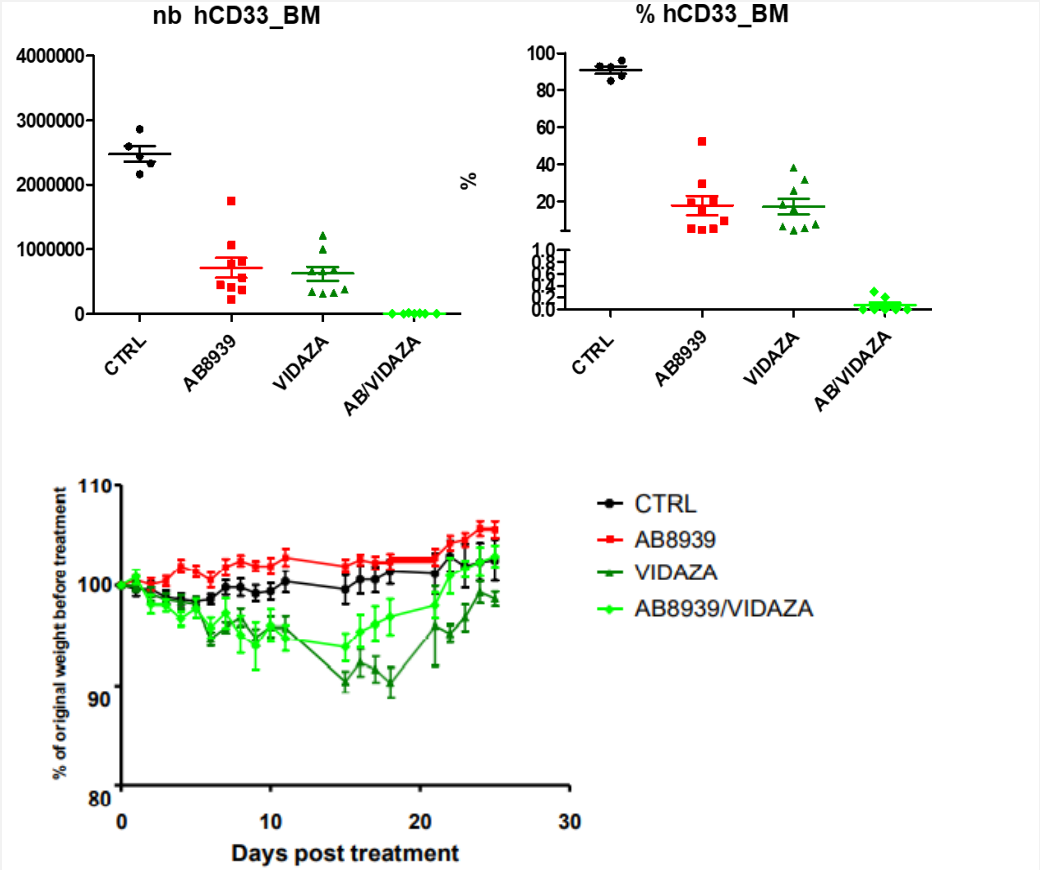
AB8939 plus Ara-C: significant decrease in disease burden (D55 post graft; D27 treatment) (Study P674)

Bioluminescence (days post graft)	D10	D17	D24	D31	D38	P value*
Control	1	10.8	66.6	373.9	2191.6	-
Ara-C 10 mg/kg (bid)	1	11.6	49.6	659.5	2144.6	NS
AB8939 6 mg/kg/day	1	10.6	19.8	50.6	151.3	< 0.001



AB8939/azacitidine combination allows the clearing of leukemia blasts in bone marrow without adding toxicities

Combination AB8939 and azacitidine: eradication of leukemia blasts in bone marrow (Study P970)



AB8939 – Proof of concept in dog with real malignancy

Proof of concept indicates AB8939 has a positive therapeutic index with good tolerance in dogs and suggest efficacy on leukemia stem cells

Baseline characteristics

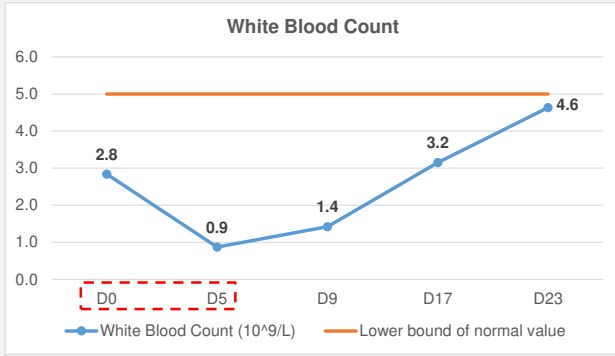
- Female dog of 12 years old with acute lymphoblastic leukemia
- In failure to several cycles of standard treatment (vincristine, L-asparaginase, prednisone)
- 90% blasts in bone marrow and no blasts in blood at the beginning of AB8939 treatment.

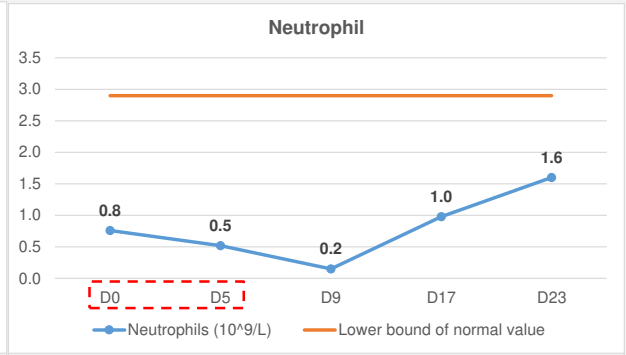
A8939 treatment

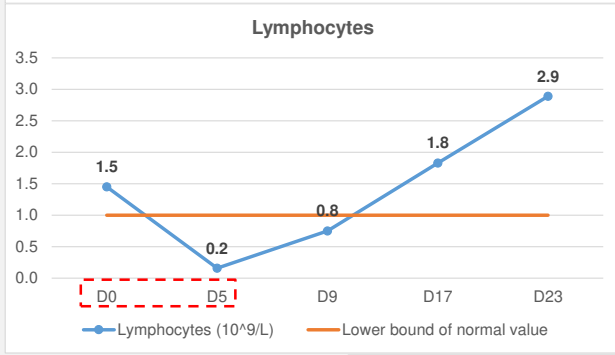
- Cycle 1 : iv bolus, 0.5mg/kg for 5 days (D0 – D5)

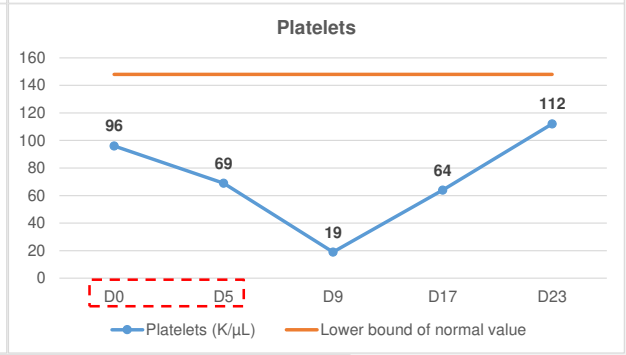
Outcome

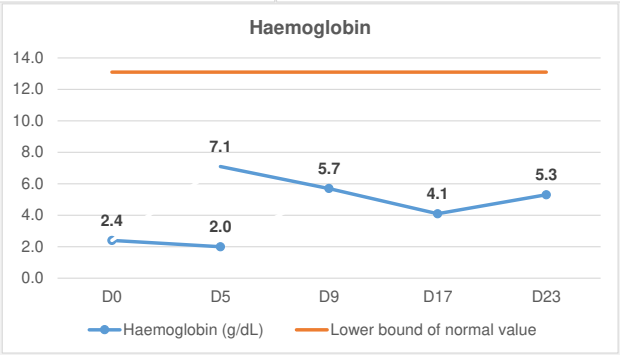
- From D9 continuous improvement.
- At D23, good appetite and shape, no weight loss, no fever, no edema, move easily.
- Continuous Improvement of all hematologic parameters











Source : Courtesy from Dr Didier Lanore – Clinique Vétérinaire Alliance - Bordeaux

AB8939 – Positioning

AB8939 has a potential to improve treatment of relapse/refractory AML, especially patients with adverse cytogenetic risk (e.g. MECOM gene rearrangement) and who are ineligible to high-dose chemotherapy.

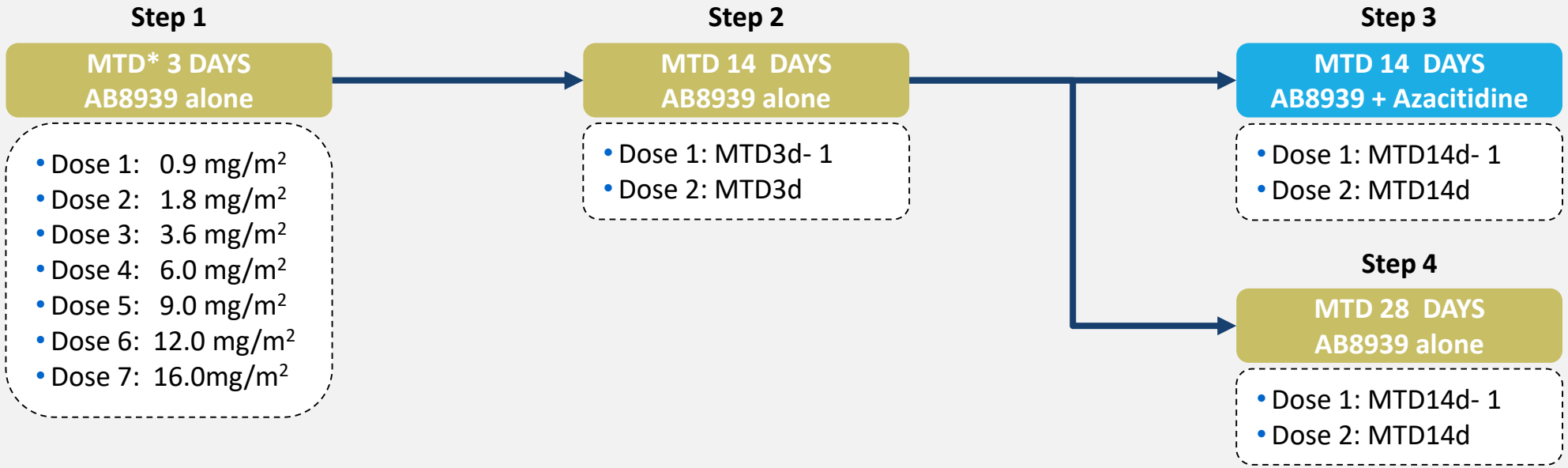
	Line 1	Line 2	Line 3
Patients eligible to high dose chemotherapy	Anthracyclines + Ara-C (Patients without FLT3 AML)	High dose chemotherapy	**No approved drug** **Salvage therapy or low dose chemotherapy**
	Anthracyclines + Ara-C + FLT3 inhibitor (Patients with FLT3 AML)		
Patients ineligible to high dose chemotherapy	Hypomethylating agents (azacitidine / decitabine / venetoclax)	**No approved drug** **Salvage therapy or low dose chemotherapy**	**No approved drug** **Salvage therapy or low dose chemotherapy**

AB8939 current positioning in AML

- AML treatment historically relied on anthracycline and cytarabine-based regimens. Since 2017 the AML treatment landscape has expanded to include several additional approved medications and/or regimens, including drugs that target specific molecular or cellular subgroups.
- AB8939 is currently positioned in relapse/refractory (R/R) AML patients who are ineligible to high-dose chemotherapy, where there is a lack of effective treatments and an unmet medical need.
- AB8939 is not currently positioned against existing first-line treatments, mutation specific treatments (e.g. FLT3-ITD), or post-remission (maintenance) treatments, which account to the vast majority of approved and late phase treatments.

AB8939 – Phase 1 Design

Study AB18001 Phase 1/2 in refractory Acute Myeloid Leukemia is authorized by FDA and key European countries and actively enrolling patients



Main inclusion criteria:

- Patients with refractory or relapsed AML
- Patients in 2nd or 3rd line of treatment (if eligible in 1st line to high dose chemotherapy) OR in 2nd line of treatment (if not eligible to high dose chemotherapy)
- Patients with refractory high risk myelodysplastic syndrome in 2nd or 3rd line of treatment
- Patients not eligible to hematopoietic stem cell transplantation (HSCT) at the time of inclusion

Design

- Clinical 3+3 design with a dose escalation following a modified Fibonacci sequence

*MTD : Maximum Tolerated Dose

AB8939 – Case Report

First case Report is available of a response in refractory AML patient with intermediate-risk prognosis receiving low dose of AB8939

Step 1, 3 days, single agent AB8939 Dose

- **Dose 1 : 0.9 mg/m²**
- Dose 2 : 1.8 mg/m²
- Dose 3 : 3.6 mg/m²
- Dose 4 : 6.0 mg/m²
- Dose 5 : 9.0 mg/m²
- Dose 6 : 12.0 mg/m²
- Dose 7 : 16.0 mg/m²

Case Report in patient with intermediate risk-prognosis

Baseline characteristics

- Patient (81 years old) with De novo AML
- Intermediate-risk prognosis
- Refractory to Azacitidine, Venetoclax, Aracytine treatments

Partial response achieved after 2 cycles of 28 days with 3 consecutive daily injections at 1.8mg/m² and 3.6mg/m²

- Decrease of % blasts in bone marrow after 2 cycles : **from 15%** at baseline **to 8%**
- Decrease of % blasts in blood after 2 cycles: **1.5% to 0.9%**
- Stability of neutrophils: **From 1,960/µL to 2,100/µL** after 2 cycles
- Increase of platelets: **From 70,000/µL to 110,000/µL** after 2 cycles

Safety

- No Adverse Event related to AB8939

AB8939 – Case Report

Second Case Report shows a response in a refractory AML patient with MECOM rearrangement receiving low dose of AB8939

Step 1, 3 days, single agent AB8939 Dose

- Dose 1 : 0.9 mg/m²
- **Dose 2 : 1.8 mg/m²**
- Dose 3 : 3.6 mg/m²
- Dose 4 : 6.0 mg/m²
- Dose 5 : 9.0 mg/m²
- Dose 6 : 12.0 mg/m²
- Dose 7 : 16.0 mg/m²

Case Report in patient with MECOM AML

Baseline characteristics

- Patient (65 years old) with Secondary AML
- Adverse prognostic factors with MECOM rearrangement
- Refractory to Azacitidine treatment

Response achieved after 2 cycles of 28 days with 3 consecutive daily injection at 1.8 mg/m²

- Drastic decrease of blasts in bone marrow after 1 cycle: **from 55%** at baseline **to 5%** at the end of the cycle
- Stability of blasts in bone marrow after a second cycle: **10%** at the end of the cycle
- Increase of neutrophils: **From 200 to 260/µL** after 1 cycle and **to 480/µL** after the end of the second cycle
- Increase of platelets: **From 3,000 to 11,000/µL** after 1 cycle and **to 12,000/µL** after the end of the second cycle

Safety

- No Adverse Event related to AB8939

AB8939 – Phase 1 Preliminary Results

Preliminary results from first cycle of three days treatment suggest high potency of AB8939 with low toxicity profile

Step 1, 3 days, single agent AB8939 Dose	
Dose 1 : 0.9 mg/m²	Completed
Dose 2 : 1.8 mg/m²	Completed
Dose 3 : 3.6 mg/m²	Completed
Dose 4 : 6.0 mg/m²	Completed
Dose 5 : 9.0 mg/m²	On-going
Dose 6 : 12.0 mg/m²	
Dose 7 : 16.0 mg/m²	

Preliminary findings from step 1 of 3 days treatment, measured at day 28

1/ No drug related adverse reactions (SAE, ≥ Grade 2)

2/ No dose limiting toxicity

3/ 40% of patients with stable disease / response and asking for extension beyond the first cycle

4/ 70% of patients had increase in platelets

5/ 90% of patients had increase in neutrophils

AB8939 – Expert Opinion from Pr Olivier Hermine

Early clinical results are promising

- No extra-hematologic toxicity
- No hematological toxicity and even improvement of bone marrow failure (increase of platelets and neutrophils)+++
- Significant reduction or stability of blasts count even at low dose and in AML difficult to treat like MECOM (EVI-1) rearranged AML
- Perspectives may change paradigm of treatment
  - Chronic (Blast control and improvement of Bone marrow failure) vs Acute (killing of all blasts, and bone marrow recovery)
  - Focus on difficult to treat AML (Poor prognosis Karyotype)
  - Higher dose and combination will determine the best use of AB8939

AB8939 – Patent protection

AB8939 intellectual property rights in AML are secured until 2036 through a 'composition of matter' patent and potentially until 2044 in AML with chromosome abnormality through a 'second medical use' patent.

AB Science is the sole proprietary holder of AB8939 and its family of compounds.

Protection	Item	Duration of protection	Status
Patent on composition of matter	Patent on composition of matter has been filed and delivered.	Until 2036	Delivered
Patent on Phase 1 'second medical use'	Provisional patent application filed for AML subpopulation with chromosome abnormality	Until 2044	Filed
Orphan drug status	AB8939 has been granted orphan drug designation by the FDA	Exclusivity of 7 years	Delivered

Any registered indication has a 10 years data protection period, regardless of patent status.

AB8939 – Next step

AB Science is planning initiation of phase 2

- Completion of phase 1 : 2023
- Initiation of phase 2 : 2023 - 2024
- Planned design for phase 2
  - Patient selection based on genetic profile (MECOM and others?)
  - Single arm (historical control in genetic subtype associated with poor prognosis)
  - < 100 patients
- AML indication fits the criteria for accelerated approval pathway based on compelling phase 2 (FDA), hematological response being a validated surrogate endpoint of efficacy (https://www.fda.gov/media/86377/download)