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): February 25, 2021

Syros Pharmaceuticals, Inc.

(Exact Name of Registrant as Specified in its Charter)

Delaware (State or Other Jurisdiction of Incorporation) 001-37813 (Commission File Number) 45-3772460 (IRS Employer Identification No.)

35 CambridgePark Drive Cambridge, Massachusetts (Address of Principal Executive Offices)

02140 (Zip Code)

Registrant's telephone number, including area code: (617) 744-1340

(Former Name or Former Address, if Changed Since Last Report)

	k the appropriate box below if the Form 8-K fil rovisions (see General Instruction A.2. below)		filing obligation of the registrant under any of the	
	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))			
Secui	rities registered or to be registered pursuant to	Section 12(b) of the Act.		
	Title of each class	Trading Symbol(s)	Name of each exchange on which registered	
Co	ommon Stock, \$0.001 par value	SYRS	Nasdaq Global Select 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 7.01 Regulation FD Disclosure.

From time to time, we intend to conduct meetings with third parties in which our current corporate slide presentation is presented. A copy of this slide presentation, dated February 2021, is furnished as Exhibit 99.1 to this Current Report on Form 8-K. The information responsive to Item 7.01 of this Form 8-K and Exhibit 99.1 hereto shall not be deemed "filed" for purposes of Section 18 of the Securities Exchange Act of 1934 (the "Exchange Act") or otherwise subject to the liabilities of that section, nor shall it be deemed incorporated by reference in any filing under the Securities Act of 1933 or the Exchange Act, except as expressly set forth by specific reference in such a filing.

Item 9.01 Financial Statements and Exhibits.

Exhibit No.	<u>Description</u>
99.1	Slide presentation dated February 2021
104	Cover Page Interactive Data File (embedded within the Inline XBRL document)

SIGNATURE

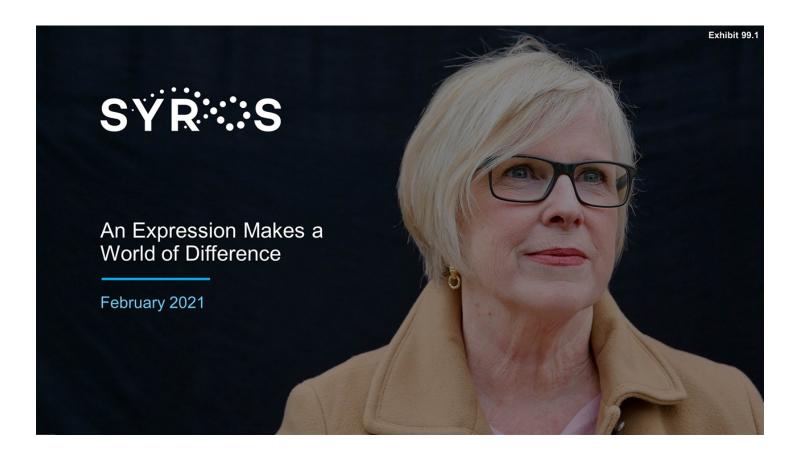
Pursuant to the requirements of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned hereunto duly authorized.

Date: February 25, 2021

SYROS PHARMACEUTICALS, INC.

By: /s/ Gerald E. Quirk

Gerald E. Quirk Chief Legal & Administrative Officer



Forward-looking statements

This presentation contains forward-looking statements within the meaning of the Private Securities Litigation Reform Act of 1995 that involve substantial risks and uncertainties. All statements, other than statements of historical facts, contained in this presentation, including statements regarding our strategy, research and clinical development plans, collaborations, future operations, future financial position, future revenues, projected costs, prospects, plans and objectives of management, are forward-looking statements. The words "anticipate," "believe," "estimate," "expect," "intend," "may," "plan," "predict," "project," "target," "potential," "will," "would," "could," "continue," and similar expressions are intended to identify forward-looking statements, although not all forward-looking statements contain these identifying words.

We may not actually achieve the plans, intentions or expectations disclosed in our forward-looking statements, and you should not place undue reliance on our forward-looking statements. Actual results or events could differ materially from the plans, intentions and expectations disclosed in these forward-looking statements as a result of various important factors, including our ability to: advance the development of our programs, including SY-1425, SY-2101 and SY-5609, under the timelines we project in current and future clinical trials; demonstrate in any current and future clinical trials the requisite safety, efficacy and combinability of our drug candidates; replicate scientific and non-clinical data in clinical trials; successfully develop a companion diagnostic test to identify patients with the RARA biomarker; obtain and maintain patent protection for our drug candidates and the freedom to operate under third party intellectual property; obtain and maintain necessary regulatory approvals; identify, enter into and maintain collaboration agreements with third parties, including our ability to perform under our collaboration agreements with Incyte Corporation and Global Blood Therapeutics; manage competition; manage expenses; raise the substantial additional capital needed to achieve our business objectives; attract and retain qualified personnel; and successfully execute on our business strategies; risks described under the caption "Risk Factors" in our Annual Report on Form 10-K for the year ended December 31, 2019, our Quarterly Report on Form 10-Q for the quarter ended September 30, 2020, and our Current Report on Form 8-K filed on January 19, 2021, each of which is on file with the Securities and Exchange Commission (SEC); and risks described in other filings that we may make with the SEC in the future.

In addition, the extent to which the COVID-19 outbreak continues to impact our workforce and our discovery research, supply chain and clinical trial operations activities, and the operations of the third parties on which we rely, will depend on future developments, which are highly uncertain and cannot be predicted with confidence, including the duration and severity of the outbreak, additional or modified government actions, and the actions that may be required to contain the virus or treat its impact.

Any forward-looking statements contained in this presentation speak only as of the date this presentation is made, and we expressly disclaim any obligation to update any forward-looking statements, whether because of new information, future events or otherwise.



Accelerating our vision

Targeted hematology therapy franchise

Selective CDK inhibitor franchise

Gene control discovery engine





Rapidly advancing toward being a commercial-stage company



3 clinical programs



2 potential NDAs in 2024



Well-funded beyond multiple data readouts

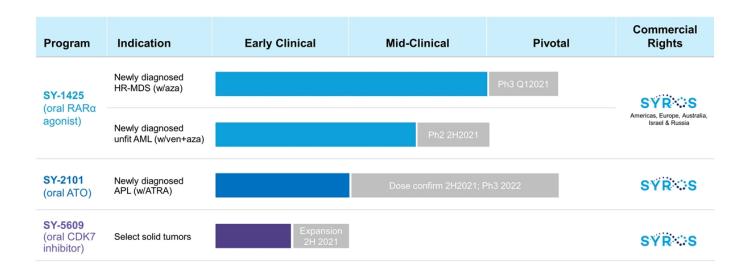


Experienced leadership team

Leading gene control platform



Advancing a growing clinical-stage pipeline for targeted patient populations



SY-1425 is approved in Japan as Amnolake® (tamibarotene) for patients with relapsed/refractory APL



SY-1425 Selective oral RAR α agonist

Clear vision for SY-1425 in RARA-positive cancers



Compelling data and clear path forward for SY-1425

Strong rationale in targeted subset

~ 30% of AML and MDS patients RARA+

SY-1425/aza induces high CR rates, rapid onset of action and meaningful durability in RARA+ ND unfit AML¹

SY-1425 safety profile supports multiple combination opportunities

New translational data suggest RARA biomarker selects for AML patients less likely to respond to ven/aza²

HR-MDS is closely related to AML with opportunity to set new standard of care

Phase 3 trial w/ aza in RARA+ ND HR-MDS

Phase 2 trial with ven/aza in RARA+ ND unfit AML

¹de Botton, ASH 2020; ²Fiore, ASH 2020



High CR rates, rapid onset of action, and clinically meaningful durability in RARA-positive ND unfit AML

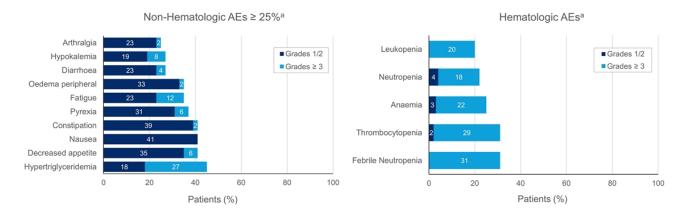


- 89% of CRs were deep molecular or cytogenetic CRs
- Responses seen irrespective of mutation or cytogenetic risk
- Response rates in RARA-negative patients comparable to historical rates for single-agent aza¹⁻³



Data from 18 response evaluable RARA-positive and 28 response evaluable RARA-negative patients presented at ASH 2020 meeting ¹Dombret, Blood 2015; ²Fenaux, JCO 2010; ³Thepot, American Journal of Hematology 2014

Generally well-tolerated combination in ND unfit AML patients



- · No increase in neutropenia, anemia and thrombocytopenia compared to single-agent aza
- · Majority of non-hematologic AEs are low grade and reversible

^aIncludes all enrolled ND unfit patients, N=51. Data presented at ASH 2020 meeting



ND HR-MDS represents ideal opportunity for SY-1425 in combination with azacitidine

HR-MDS is closely related to AML

- HR-MDS and AML on a disease continuum; distinguished only by % blasts in marrow
- More than half of patients progress to AML¹
- Neutropenia may lead to infection-related complications, including death²

Opportunity to set new standards of care

- · HMAs are only approved agents
- Low CR rates ranging from 5-25%, with OS estimated between 15-25 months^{1, 3-4}
- Only 45% of patients achieve transfusion independence³

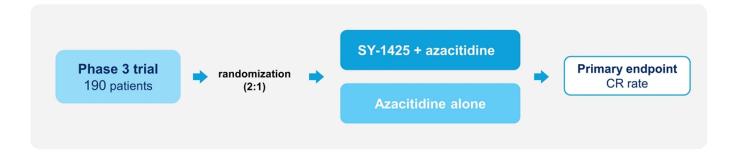
Our data suggest strong potential for SY-1425 in MDS

- Single-agent SY-1425 demonstrated clinical activity in R/R HR-MDS
- Analyses of RARA+ "low blast count" AML patients in Phase 2 trial demonstrated CR/CRi rate of 67% (n=6)
- No additive neutropenia/anemia

¹Greenberg, Blood 2012; ²Toma, Haematologica 2012; ³VIDAZA (azacitidine) USPI; ⁴DACOGEN (deitabine) USPI



Initiating Phase 3 trial in ND RARA-positive HR-MDS patients



- FDA feedback supports:
 - Focus on RARA+ population
 - CR as primary endpoint for accelerated/ full approval
 - Azacitidine as appropriate comparator

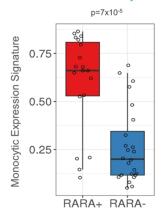
Key Milestones

Initiate registration trial	1Q 2021
Potential NDA	2024



New translational data support the potential for the RARA biomarker to enrich for patients unresponsive to standard of care

Analysis of SY-1425 Trial Patient Samples

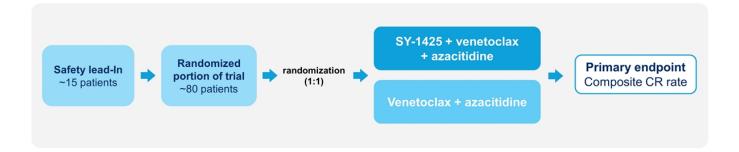


- 30% of patients do not respond to upfront treatment with ven/aza
- Venetoclax resistance associated with monocytic phenotype,¹⁻³ which includes low BCL2 and high MCL-1 expression
- Most RARA+ patients, including those who achieved CR/CRi in SY-1425 trial, have this monocytic phenotype⁴

 $^1\mathrm{Zhang},$ Nature 2018; $^2\mathrm{Kuusanmäki},$ Haematologica 2019; $^3\mathrm{Pei},$ Cancer Discovery 2020; $^4\mathrm{Fiore},$ ASH 2020



Initiating randomized Phase 2 trial of triplet regimen in ND RARA-positive unfit AML patients



Plan to also evaluate triplet as salvage strategy for patients in control arm who don't respond to ven/aza

Key Milestones

Initiate Phase 2 trial w/safety lead-in	2H 2021
Initial data from Phase 2 trial	2022



ND HR-MDS and unfit AML represent significant market opportunities

~30% of all AML and MDS patients are RARA-positive



Newly diagnosed HR-MDS

- ~15,000 new cases annually in US and EU
- Expected to grow into \$1B+ market
- No new approved agents, aside from HMAs, in a decade
- · Existing options offer limited efficacy

Newly diagnosed unfit AML

- Over 18,000 new cases annually in US and EU
- · Expected to grow into \$2B+ market
- ~1/3 of patients don't respond to SOC ven/aza and have poor prognosis

Sources: Epidiemology and Sales projections from DRG Myelodysplastic Syndromes-Landscape & Forecast-Report 2020 and from DRG Acute Myelogenous Leukemia-Landscape & Forecast-Report 2020; Prevalence of RARA-positive patients based on data presented at ESH 2017 and ESH 2019; Resistant Ven population - Dinardo, NEJM 2020; Dinardo, Blood 2019



SY-2101 Novel oral form of arsenic trioxide

Our vision for SY-2101



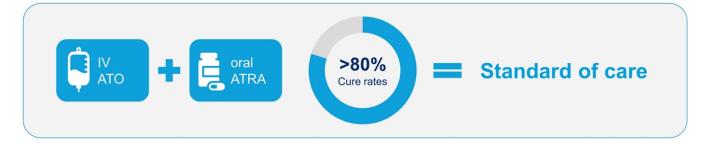
SY-2101: Highly synergistic with our advancing targeted heme franchise

- Strategic opportunity as we accelerate toward becoming a commercial-stage company
- Potential to become standard of care in APL
 - Novel oral capsule of arsenic trioxide (ATO)
- · Clinical-stage asset with opportunity for accelerated approval based on molecular CR
 - Potential NDA filing in 2024
- Orphan drug designation granted in US and EU
- Issued patents provide opportunity to extend exclusivity

Capitalizes on our expertise to build a leadership position in targeted therapies for hematologic disorders



IV ATO is transformative therapy for APL patients but comes with heavy treatment burden



- · Current course of treatment involves up to 140 two- to four-hour infusions over nearly a year
 - Induction up to 60 days of daily infusions until CR is achieved
 - Consolidation 80 days of 5 days/week for 4 weeks/cycle for 4 cycles/treatment course

Significant opportunity to reduce treatment burden, increase access and reduce health care costs and utilization

NCCN AML treatment guidelines (Nov 2020) Trisenox (arsenic trioxide) USPI



Opportunity for SY-2101 to become standard of care in significant market

Newly diagnosed APL

- · Genetic fusion of RARA and PML genes
- ~2,000 patients diagnosed in US and Europe annually^{1,2}
- ~\$250 million overall market opportunity³
- · Opportunity to become the standard of care and be served with targeted sales force

¹Tallman 2008 Semin Hematol ²NCI Surveillance, Epidemiology and End Results Program – 2020 Acute Myeloid Leukemia ³IBM Truven Redbook pricing for Trisenox



Completed Phase 1 PK study of SY-2101

Dosing

Three dosing cohorts: 5, 10 and 15 mg orally

Once daily

Patient population

12 patients with advanced hematologic malignancies

Median age: 76.5

Prior lines of therapy: Up to 5

Safety

Generally well-tolerated with low-grade AEs

Lower adverse events in liver enzymes (8.3%) compared to IV ATO (~44%)

Lower QTc prolongation (8.3%) compared to IV ATO (25%)

Pharmacokinetics

Good bioavailability, with generally dose proportional PK Achieves exposure levels (AUC and Cmax) in range of approved IV ATO dose



Ravandi et al 2020 Haematologica Trisenox (arsenic trioxide) USPI

Advancing SY-2101 toward registration-enabling Phase 3 trial



FDA feedback supports:

- Molecular CR as primary endpoint for accelerated approval
- Event-free survival (EFS) as primary endpoint for full approval

Key Milestones

Initiate dose confirmation study	2H 2021
Confirmatory dose/PK data	1H 2022
Initiate Phase 3	2022
Potential NDA	2024



SY-5609
Selective oral CDK7 inhibitor

Our vision for SY-5609



Selective CDK7 inhibition attacks two fundamental processes in cancer

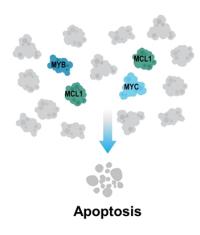
Transcription

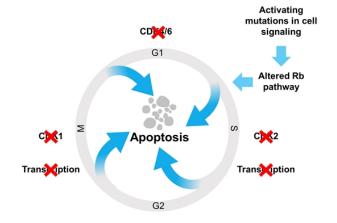
CDK7i

Cell Cycle

CDK7i has been shown preclinically to decrease expression of these transcription factors and proteins

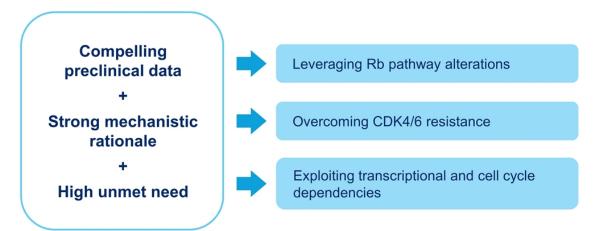
CDK7i disrupts the CDK and transcriptional activity needed to progress through the cell cycle







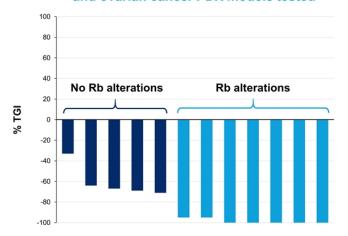
Three-pronged development strategy to maximize potential of SY-5609





Rb alterations associated with deeper and more sustained responses in preclinical studies of breast, lung and ovarian cancers





Supports Phase 1 trial enriched for populations with Rb alterations

29% of basal breast cancer patients1

~1/3 of HR+ breast cancer patients post CDK4/6 inhibitors²

75-90% of small cell lung cancer patients³

67% of high-grade serous ovarian cancer patients⁴

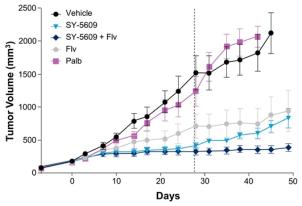
¹TCGA Breast Cancer Integrated Analysis, Nature 2012 ²Spring et al., San Antonio Breast Cancer Symposium 2018 ³Cancer Med. 2019 Apr; 8(4): 1459–146 ⁴TCGA Ovarian Cancer Integrated Analysis, Nature 2011

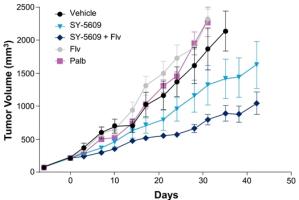


Data presented in October 2019 at EORTC-NCI-AACR Conference

Overcoming treatment resistance: SY-5609 induces robust responses in preclinical HR+ breast cancer models

CDK4/6 inhibitor resistant model





CDK4/6 inhibitor and hormonal resistant model

Palb: palbociclib, 50mg/kg once daily, oral; FIv: fulvestrant, 2.5mg/kg once weekly, sub-cutaneuous, SY-5609: 6 mg/kg once daily, oral



Data presented in October 2019 at EORTC-NCI-AACR Conference

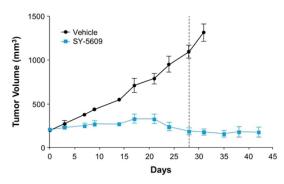
Targeting dependencies on transcription and cell cycle control induces robust responses in preclinical colorectal and pancreatic cancer models

Colorectal Cancer

- 67% (20/30) of models demonstrated ≥ 50% TGI
- 23% (7/30) demonstrated deep responses of ≥ 90% TGI
- · Deep responses enriched in BRAF-mutant (5/10) models

Pancreatic Cancer





- 75% (6/8) of models demonstrated ≥50% TGI
- Regressions seen in 50% (4/8) of models
- Responses observed in CDKN2A-mutant and non-mutant and TP53-mutant and non-mutant models



CRC data presented in May 2020 at ASCO Virtual Symposium; pancreatic cancer data is internal company data

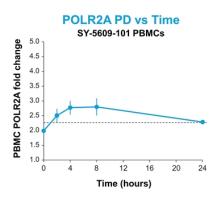
Ongoing Phase 1 dose-escalation trial in select solid tumors



- · Advanced solid tumor populations- breast, colorectal, lung, ovarian, pancreatic, and tumors with Rb alterations
- Established MTD for continuous daily dosing
- Additional dose escalation data, including clinical activity, expected in Q3 2021
- Expansion phase of Phase 1 trial expected to start in second half of 2021



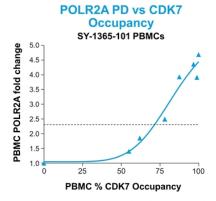
SY-5609 induced biological activity associated with tumor regressions in preclinical models and clinical activity with first-generation CDKi



 POLR2A fold-change measured at steady state (day 15) with 3 mg continuous daily dosing

POLR2A PD vs Tumor Growth Inhibition SY-5609 CRC PDX 5.0 Tumor POLR2A fold change 4.5 4.0 3.5 3.0 2.5 2.0 1.5 1.0 75 100 125 Tumor Growth Inhibition (%)

- POLR2A fold-change measured at trough (24h) after single dose
- Tumor growth inhibition measured at end of 28 day cycle (cycle = SY-5609 qdx21d, 7d off)



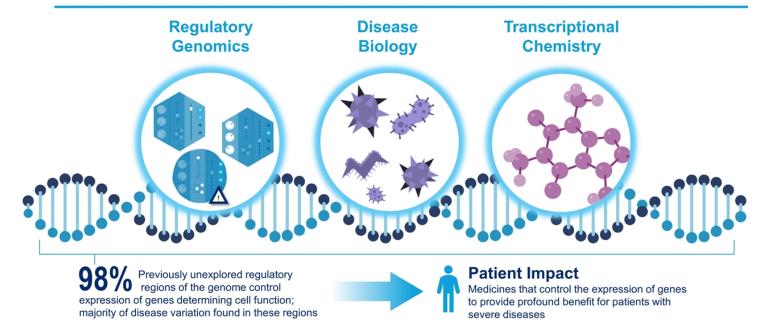
- POLR2A fold-change similar between PBMCs and tumor biopsies
- · AEs predominantly low grade; most frequent related AEs include nausea, diarrhea, fatigue, platelet count decrease and vomiting
- In patients treated in combination with fulvestrant, safety profile was consistent with single-agent treatment with SY-5609



Data presented in October 2020 at EORTC-NCI-AACR Virtual Symposium

Gene Control Discovery Engine	

Redefining the power of small molecules to control expression of genes



SYR:S

Robust early-stage pipeline to fuel long-term growth

Therapeutic Area	Program	Target Development	Drug Discovery	IND-Enabling	Commercial Rights
Cancer	CDK12 inhibitor				SYR
	Target 1				SYR
	Target 2				SYR
	Myeloproliferative neoplasms				Incyte
Cancer/Immune modulation	Macrophage target				SYR
Monogenic Disease	Sickle cell disease & beta thalassemia				GBT Syros US co-promote option
	Myotonic dystrophy type 1				SYR



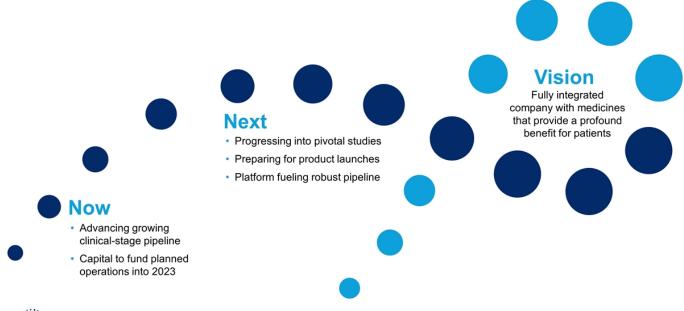
Multiple expected value-driving milestones and strong cash position

SY-1425 w/ aza	Initiate Phase 3 registration trial in ND HR-MDS Potential NDA filing in ND HR-MDS	Q1 2021 2024
SY-1425 w/ ven+aza	Initiate Phase 2 trial w/ safety lead-in in ND unfit AML Initial data from Phase 2 trial in ND unfit AML	2H 2021 2022
SY-2101	Initiate dose confirmation study Confirmatory dose/PK data Initiate Phase 3 registration trial in ND APL Potential NDA filing	2H 2021 1H 2022 2022 2024
SY-5609	Additional dose-escalation data, including clinical activity Initiate expansion phase of Phase 1	Q3 2021 2H 2021
Discovery	Name next development candidate	2022

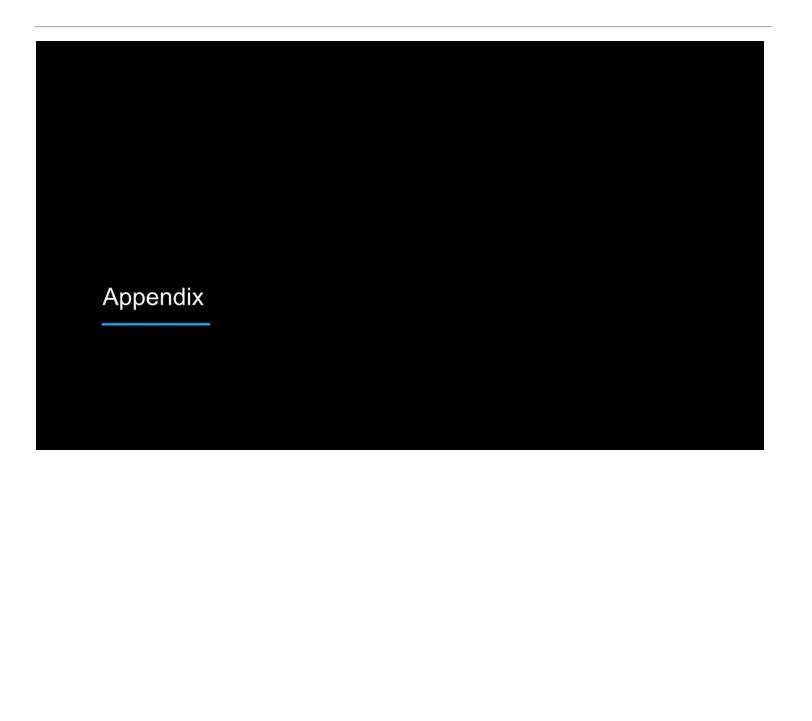


Cash into 2023 through multiple expected value drivers

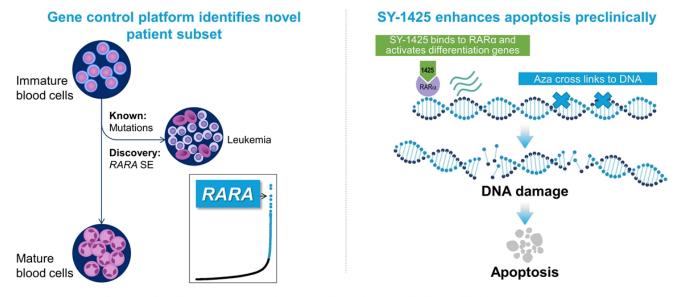
Rapidly advancing toward our vision







SY-1425: Novel, first-in-class RARα agonist with broad combination potential



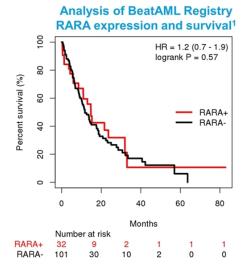
Distinct MOA, tolerability and preclinical synergy with multiple AML agents

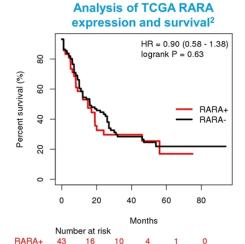
38



Data published in October 2017 in Cancer Discovery

RARA is not a prognostic biomarker in AML patients





Independent analyses of BeatAML¹, TCGA², and AML patient sample analyses3 show that prognosis is similar regardless of levels of RAR α expression

RARA-

118

45

20

13

data from PanCancerAtlas portal on GDC: https://gdc.cancer.gov/about-data/publications/pancanatlas
McKeown et al., Superenhancer Analysis Defines Novel Epigenomic Subtypes of Non-APL AML, Including an RARa Dependency Targetable by SY-1425, a Potent and Selective RARa Agonist, Cancer Discovery 2017



¹ Tyner et al., Functional Genomic Landscape of Acute Myeloid Leukaemia, Nature 2018 ² TCGA Research Network, Genomic and Epigenomic Landscapes of Adult De Novo Acute Myeloid Leukemia, NEJM 2013; Expression and survival

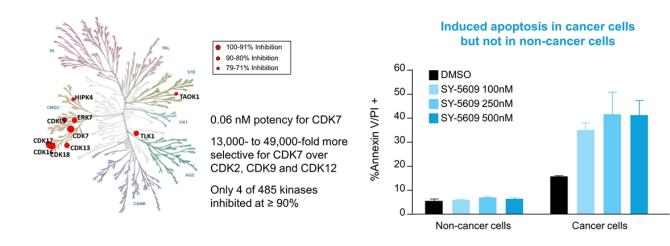
SY-1425/azacitidine combination: Clinical activity observed in heavily pretreated RARA-positive R/R AML

- ORR of 19% (4/21) with 2 responding patients continuing on treatment at months 8 and 9, respectively
 - 1 CRc
 - 2 CRi
 - 1 MLFS
- Higher ORR of 43% (3/7) in HMA and ven naïve patients
- Transfusion independence in 30% (6/20)
- Median OS of 5.9 months (95% CI: 3.1, 9.9)

Data presented at ASH 2020 meeting



SY-5609: Highly selective and potent oral CDK7 inhibitor

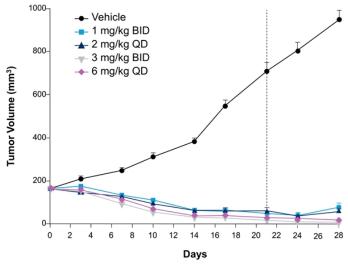




Data presented in October 2019 at EORTC-NCI-AACR Conference

SY-5609: Tumor growth inhibition observed below MTD in preclinical models

Triple negative breast cancer model



 Regressions observed at 5-fold below MTD of ≥10 mg/kg QD

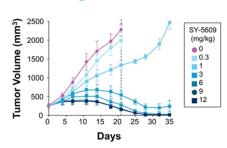
> --- Dashed lines represent end of treatment



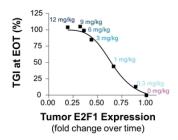
Data presented in October 2019 at EORTC-NCI-AACR Conference

SY-5609: Dose-dependent tumor growth inhibition and PD effects in tumor tissue in preclinical colorectal cancer models

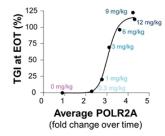
Tumor growth inhibition



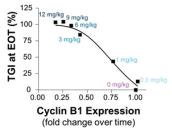
Dose-dependent decrease in E2F1



Dose-dependent increase in POLR2A



Dose-dependent decrease in cyclin B1

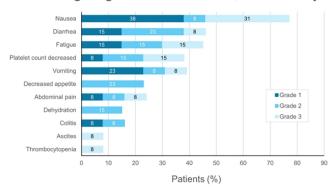




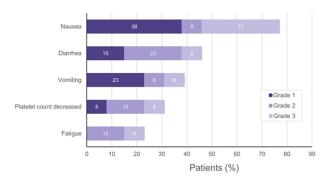
Data presented in May 2020 at ASCO Virtual Symposium

SY-5609: Safety overview from early dose-escalation data (n=17)

Single Agent Adverse Events; All Causality



Single Agent Related Adverse Events

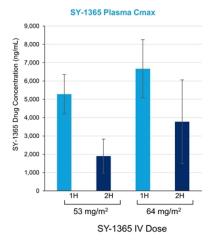


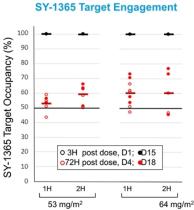
- · Predominantly low grade; most frequent related AEs include nausea, diarrhea, fatigue, platelet count decrease and vomiting
- DLTs: nausea and thrombocytopenia (5 mg); fatigue and abdominal pain (4 mg)
- MTD for continuous daily dosing defined as 3 mg
- · In patients treated in combination with fulvestrant, safety profile was consistent with single-agent treatment with SY-5609



Data presented in October 2020 at EORTC-NCI-AACR Virtual Symposium

SY-1365: Peri-infusional AEs in Phase 1 trial were associated with peak blood concentrations and not CDK7 target engagement





Infusion-associated Adverse Events (≥ 20%)*

Preferred Term		rades %)	≥ Grade 3 n (%)		
Termi	N = 31	N = 24	N = 31	N = 24	
	1 hour	2 hour	1 hour	2 hour	
Headache	19 (61)	12 (50)	2 (6)	0 (0)	
Nausea	12 (39)	5 (21)	1 (3)	0 (0)	
Vomiting	10 (32)	1 (4)	1 (3)	0 (0)	

*Includes AEs experienced in patients treated with 53 mg/m² and 64 mg/m²

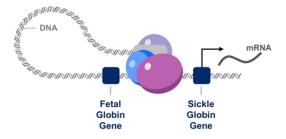
Longer infusions maintained CDK7 target engagement while lowering peak drug concentrations and decreasing frequency and severity of peri-infusional AEs



Applying our platform to monogenic diseases: sickle cell disease and beta thalassemia

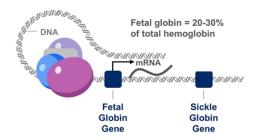
Clinical and genetic data point to therapeutic benefit of elevated fetal globin

- SCD and beta thalassemia caused by mutated adult globin gene
- · Fetal globin gene typically turned off at birth
- In some SCD and beta thalassemia patients, fetal globin stays on and is associated with milder disease



Using gene control platform to elevate fetal globin expression

- Characterized transcriptional programs that determine globin expression in fetal and adult states
- Identified and targeting LRF and components of the NuRD complex with small molecules





SY-2101 transaction overview and \$90.5 million strategic financing

Asset acquisition

- Upfront cash payment of \$12 million
- Additional regulatory milestone of \$6 million in APL indication
- Aggregate sales milestones of up to \$10 million

Strategic financing

- Completed strategic financing yielding \$90.5 million in gross proceeds
- Led by Bain Capital Life Sciences with participation from additional new and existing investors



SYR:::S