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): **September 7, 2022**

Blueprint Medicines Corporation
(Exact name of registrant as specified in its charter)

Delaware	**001-37359**	**26-3632015**
(State or other jurisdiction of incorporation)	(Commission File Number)	(I.R.S. Employer Identification No.)

45 Sidney Street **Cambridge, Massachusetts** (Address of principal executive offices)	**02139** (Zip Code)

Registrant's telephone number, including area code: **(617) 374-7580**

(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))

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.

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

Title of each class	Trading symbol(s)	Name of each exchange on which registered
Common stock, par value $0.001 per share	BPMC	Nasdaq Global Select Market

Item 7.01 Regulation FD Disclosure.

Blueprint Medicines Corporation (the "Company") from time to time presents and/or distributes to the investment community at various industry and other conferences slide presentations to provide updates and summaries of its business. The Company is posting to the "Investors & Media" portion of its website at http://ir.blueprintmedicines.com/ a copy of its current corporate slide presentation. A copy of the presentation is furnished as Exhibit 99.1 to this Current Report on Form 8-K.

The information in Item 7.01 of this Current Report on Form 8-K, including Exhibit 99.1 attached hereto, is intended to be furnished and shall not be deemed "filed" for purposes of Section 18 of the Securities Exchange Act of 1934, as amended (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, as amended, or the Exchange Act, except as expressly set forth by specific reference in such filing.

Item 9.01 Financial Statements and Exhibits.

(d) Exhibits.

Exhibit No.	Description
99.1	Corporate slide presentation of Blueprint Medicines Corporation dated September 7, 2022
104	Cover Page Interactive Data File (embedded within the Inline XBRL document and incorporated as Exhibit 101)

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.

BLUEPRINT MEDICINES CORPORATION

Date: September 7, 2022

By: /s/ Kathryn Haviland
Kathryn Haviland
Chief Executive Officer

Pioneering the Science of Time

BLUEPRINT MEDICINES COMPANY OVERVIEW

SEPTEMBER 2022

Not for promotional use.

Forward-looking statements

This presentation contains forward-looking statements within the meaning of the Private Securities Litigation Reform Act of 1995, as amend limitation, to submit a supplemental new drug application (sNDA) to the U.S. Food and Drug Administration (FDA) for AYVAKIT in non-advanced S submission of a type II variation marketing authorization application to the European Medicines Agency (EMA); plans and timing for presenting PIONEER trial of AYVAKIT in patients with non-advanced SM, and, expectations regarding the potential benefits of AYVAKIT in treating patier SM; statements regarding plans and expectations for Blueprint Medicines' current or future approved drugs and drug candidates; the poten Blueprint Medicines' current or future approved drugs or drug candidates in treating patients; and Blueprint Medicines' strategy, goals and a business plans and focus. The words "aim," "may," "will," "could," "would," "should," "expect," "plan," "anticipate," "intend," "believe," "estimate "potential," "continue," "target" and similar expressions are intended to identify forward-looking statements, although not all forward-looking sta identifying words. Any forward-looking statements in this presentation are based on management's current expectations and beliefs and are s risks, uncertainties and important factors that may cause actual events or results to differ materially from those expressed or implied by any forwa contained in this report, including, without limitation, risks and uncertainties related to the impact of the COVID-19 pandemic to Blueprint operations, strategy, goals and anticipated milestones, including Blueprint Medicines' ongoing and planned research and discovery activities, abil and planned clinical trials, clinical supply of current or future drug candidates, commercial supply of current or future approved products, and lau selling current or future approved products; Blueprint Medicines' ability and plans in continuing to establish and expand a commercial infrastruc launching, marketing and selling current or future approved products; Blueprint Medicines' ability to successfully expand the appr AYVAKIT/AYVAKYT and GAVRETO or obtain marketing approval for AYVAKIT/AYVAKYT in additional geographies in the future; the delay of a clinical trials or the development of Blueprint Medicines' current or future drug candidates; Blueprint Medicines' advancement of multiple early-s Medicines' ability to successfully demonstrate the safety and efficacy of its drug candidates and gain approval of its drug candidates on a tim preclinical and clinical results for Blueprint Medicines' drug candidates, which may not support further development of such drug candidates eithe in combination with other agents or may impact the anticipated timing of data or regulatory submissions; the timing of the initiation of clinical tria clinical trial sites and patient enrollment rates; actions of regulatory agencies, which may affect the initiation, timing and progress of clinical trials ability to obtain, maintain and enforce patent and other intellectual property protection for AYVAKIT/AYVAKYT, GAVRETO or any drug candi Blueprint Medicines' ability to develop and commercialize companion diagnostic tests for AYVAKIT/AYVAKYT, GAVRETO or any of its cu candidates; Blueprint Medicines' ability to successfully expand its operations, research platform and portfolio of therapeutic candidates, and thereof; and the success of Blueprint Medicines' current and future collaborations, partnerships or licensing arrangements. These and other risks described in greater detail in the section entitled "Risk Factors" in Blueprint Medicines' filings with the Securities and Exchange Commission (SE Medicines' most recent Annual Report on Form 10-K, as supplemented by its most recent Quarterly Report on Form 10-Q and any other filings th has made or may make with the SEC in the future. Any forward-looking statements contained in this presentation represent Blueprint Medicines date hereof and should not be relied upon as representing its views as of any subsequent date. Except as required by law, Blueprint Medicines e obligation to update any forward-looking statements.

Blueprint Medicines is a global leader in precision therapy

Ongoing global collaboration with Roche and Genentech for the development and commercialization of GAVRETO

OUR FIRST DECADE OF ACHIEVEM

2 internally discovered medici

FDA & EMA approved across **5** ind

within **10** years, and with

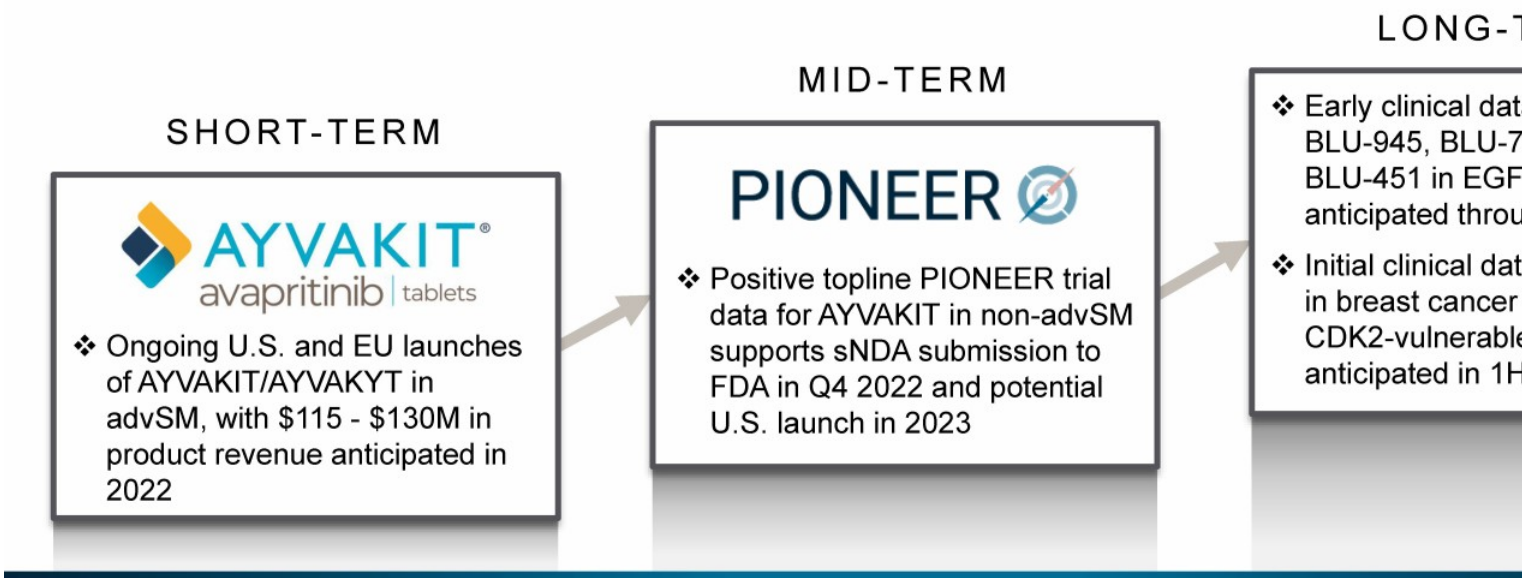
5 breakthrough therapy designa

blueprint MEDICINES

AYVAKIT is approved for the treatment of adults with unresectable or metastatic GIST harboring a PDGFRA exon 18 mutation, including PDGFRA D842V mutations, and adult patie including aggressive SM, SM with an associated hematologic neoplasm and mast cell leukemia. GAVRETO is approved for the treatment of adult patients with RET-fusion positive l patients with advanced or metastatic RET-mutant medullary thyroid cancer who require systemic therapy and adult, and pediatric patients with advanced or metastatic RET fusion-p require systemic therapy and who are radioactive iodine-refractory. FDA, U.S. Food and Drug Administration; GIST, gastrointestinal stromal tumor; NSCLC, non-small cell lung canc

Not for promotional use.

Diverse drivers uniquely position Blueprint Medicines for long-term gr as a leading global precision therapy company



PLAN TO SHARE GO-TO-MARKET PLAN FOR AYVAKIT IN NON-ADVS AND R&D VISION AT INVESTOR DAY ON NOVEMBER 1, 2022

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advSM, advanced systemic mastocytosis; EGFRm, EGFR mutant; FDA, U.S. Food and Drug Administration; non-advSM, non-advanced SM; NSCLC, non-small cell lung cancer

Not for promotional use.

Driving near-term value in systemic mastocytosis

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AYVAKIT is the current standard of care for advanced SM in the U.S.

GLOBAL NET REVENUES ($, MILLIONS) BY FULL QUARTER SINCE ADVANCED SM LAUNCH

Q2 2022 U.S. PERFORMANCE

- **>50%** share of all advanced SM patie
- **>70%** share of new patient starts and
- **~300** new accounts since advanced S new accounts activated in Q2

ANTICIPATE $115 TO $130 MILLION IN AYVAKIT NET PRODUCT REVENUES IN 2

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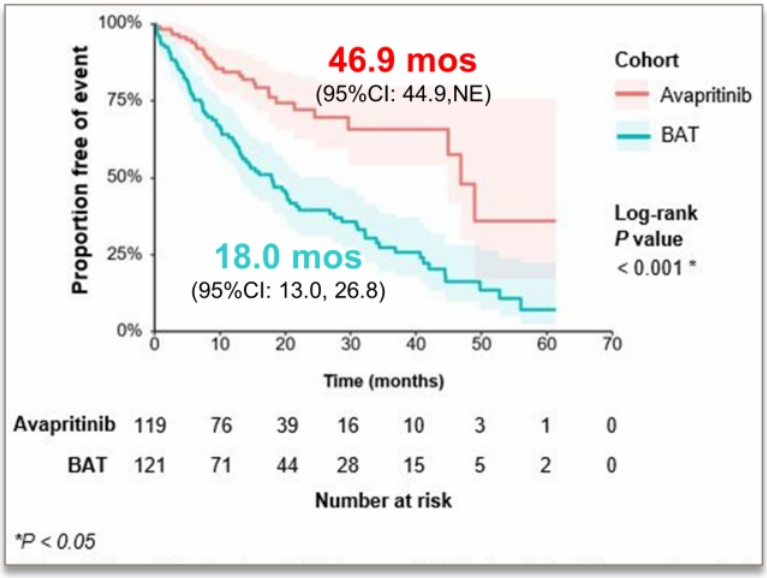
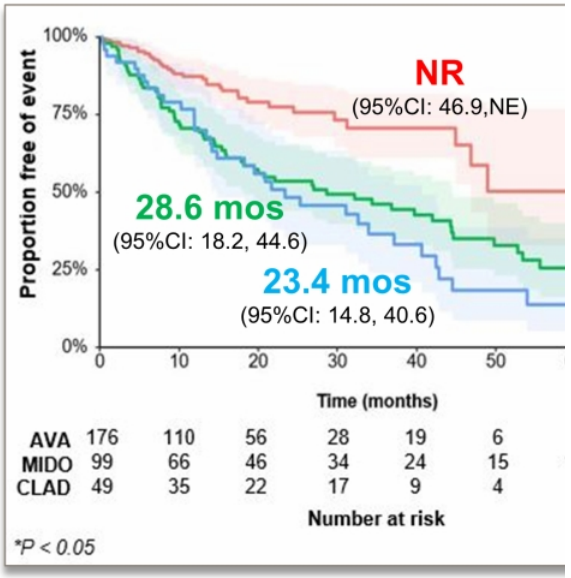
1. Reported data represent estimations. Analysis based on US claims data from Komodo Health. SM, systemic mastocytosis.

Retrospective analysis showed longer OS in AYVAKIT patients, inclu
SM-AHN where clinical practice has historically prioritized AHN treatr

OS AMONG PATIENTS WITH SM-AHN TREATED WITH AYVAKIT VS. BAT[1]



OS OF PATIENTS WITH ADVS TREATED WITH AYVAKIT VS. MIDOSTAURIN



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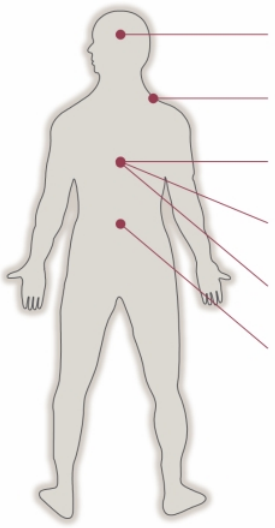
A multi-center, global, observational, retrospective chart review study was conducted at 6 study sites (4 European, 2 US) to identify and collect data from Adv BAT. SM-AHN patients were identified using inclusion/exclusion criteria similar to the EXPLORER and PATHFINDER trials. The follow-up times for the midost cohorts were truncated to match the maximum follow-up time of the avaprtinib cohort. 1. Reiter et al. Overall Survival in Patients with Systemic Mastocytosis v Hematologic Neoplasm Treated with Avapritinib Versus Best Available Therapy. Presented at EHA 2022. Abstract #P1013. 2. Reiter et al. Overall Survival in I Systemic Receiving Avapritinib Versus Midostaurin or Cladribine. Presented at EHA 2022. Abstract #P1014 BAT, best available therapy; KM, Kaplan-Meier; C AdvSM, advanced systemic mastocytosis; AVA, AYVAKIT; MIDO, midostaurin; CLAD, cladribine; SM-AHN, systemic mastocytosis with associated hematolog

Non-advanced SM patients have high medical need despite available

SYSTEMIC MASTOCYTOSIS SYMPTOMS[2]



- Brain fog
- Pruritis, flushing and pigmented skin lesions
- Life-threatening organ infiltration and damage
- Unpredictable, life-threatening anaphylaxis
- Debilitating fatigue
- GI upset with vomiting, diarrhea and nausea

of patients have taken **therapies** to address s symptom burden[1]

of patients report **limita work and/or daily acti**

of patients are **frustrat treatment options** tha the underlying driver of

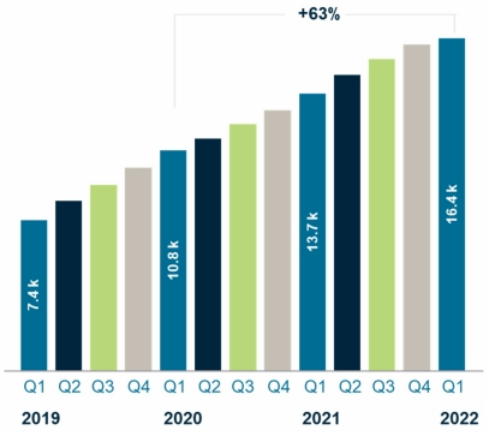
95% of SM cases driven by the KIT D816V mutation

1. Mesa, RA et al. Cancer. 2022. 2. Sperr WR, et al. Lancet Haematol, 2019. 4. van Anrooij B et al. Allergy. 2016 Nov;71(11):1585-1593.

Non-advanced SM represents a significant medical need, and potential blockbuster opportunity for AYVAKIT

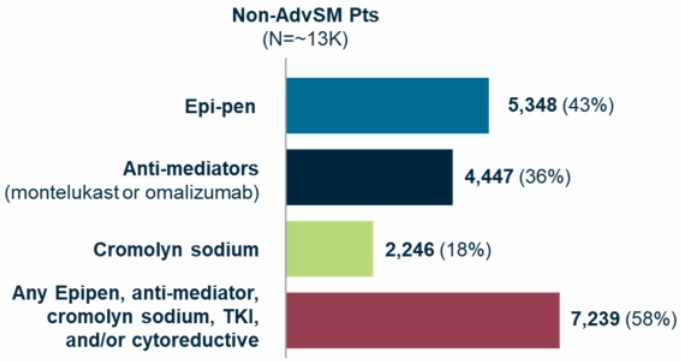
STEADY GROWTH IN DIAGNOSED PATIENTS

Diagnosed SM Patients Observed in U.S. Claims[1]



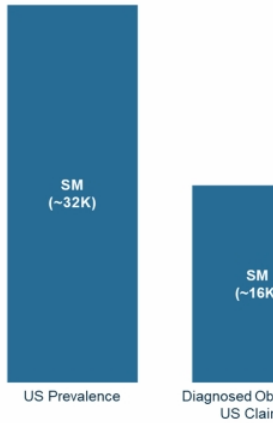
~60% OF NON-ADVANCED SM PATIENTS WITH **SIGNIFICANT POLYPHARMACY**

Diagnosed Non-Advanced SM Patients with Observed Treatment Experience[1]



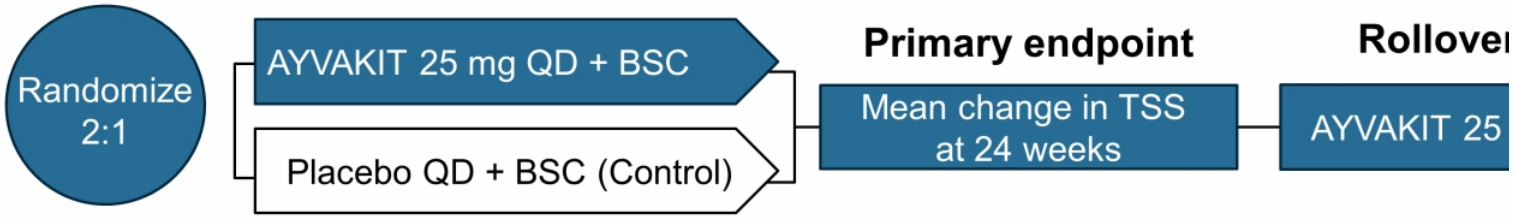
~7.5K MODERA
NON-ADVA
PATIE

U.S. Prevalenc
Addressabl



1. Reported data represent estimations. Analysis based on US claims data from Komodo Health. SM, systemic mastocytosis; TKI, tyrosine kinase inhibitor A/I, allergist/immunologist

Largest clinical trial to date conducted in non-advanced SM



Eligibility

- Age ≥18 years
- ISM confirmed by central pathology review
- No restriction on prior therapy
- Moderate-to-severe symptoms

Baseline Characteristics

	AYVAKIT
Enrolled	141
TSS score, mean (SD)	50.2 (19.1)

- Similar between AYVAKIT and control arm
- Consistent with PIONEER Part 1
- Median BSC across both arms was 3 (ran

Data cutoff as of June 23, 2022. QD, once daily; BSC, best supportive care; TSS, total symptom score; SD, standard deviation

AYVAKIT demonstrated highly significant and clinically meaningful im on the primary and all key secondary endpoints

CLINICAL OUTCOME MEASURES		P VA
Primary Endpoint	Mean Change in TSS	0.
Secondary Endpoints[2]	≥30% Reduction in TSS	0.
	≥50% Reduction in TSS	0.
	Mean Change in Most Severe Symptom Score	0.
	≥50% Reduction in Serum Tryptase	<0.
	≥50% Reduction in KIT D816V VAF	<0.
	≥50% Reduction in Bone Marrow MC Aggregates	<0.

Data cutoff as of June 23, 2022. 1. One-sided p-value < 0.025 indicates statistical significance. 2. For secondary endpoints, reductions in TSS and objecti cell burden represent proportion of patients with ≥30% and ≥50% reductions. All endpoints are key secondary endpoints, with the exception of "Mean Cha Symptom Score", which is an additional secondary endpoint. TSS, total symptom score; VAF, variant allele fraction; MC, mast cell

Decreases in patient-reported symptoms and objective measures of dise

Mean Change in TSS [95 % CI]	AYVAKIT		Contr
	PART 2: 24 weeks	**PART 3:** 48 weeks[1]	**PART 2:** 24
	-15.6 [-18.6 – -12.6]	**-20.2** [-24.7 – -15.7]	**-9.2** [-13.1 –

≥50% Reduction in Serum Tryptase [95% CI]	AYVAKIT	Contr
	PART 2: 24 weeks	**PART 2:** 24
	53.9% [45.3 – 62.3]	**0.0%** [0.0 – 5

Rapid and further deepening in mean TSS reduction observed in Part 3 when control switched over to receive AYVAKIT

1. After 24 weeks, all patients had the option to cross over into Part 3 and receive treatment with AYVAKIT 25 mg QD. TSS, total symptom score; CI, conf

AYVAKIT was well-tolerated with a safety profile favorable to control

	AYVAKIT	Control
AEs, n (%)	128 (90.8)	66 (93.0)
SAEs, n (%)	7 (5.0)	8 (11.3)
Discontinuation due to TRAEs, n (%)	1 (0.7)	0 (0.0)
TRAEs in ≥5% of AYVAKIT patients, by preferred term		
Headache, n (%)	11 (7.8)	7 (9.9)
Nausea, n (%)	9 (6.4)	6 (8.5)
Peripheral edema, n (%)	9 (6.4)	1 (1.4)
Periorbital edema, n (%)	9 (6.4)	2 (2.8)

- No ICB events
- Lower rate of cog reported for AYV control (4.2%)
- No Grade 3 cogn for AYVAKIT (0% (1.4%)
- In the AYVAKIT a edema AEs were remainder Grade
- Higher Part 2 cor AYVAKIT (96.5% (93.0%)

Data cutoff as of June 23, 2022. 1. Cognitive effect AEs refer to 17 pooled terms identified across AYVAKIT clinical studies. AE, adverse event; SAE, seric TRAE, treatment-related adverse event; ICB, intracranial bleed

Driving long-term value in EGFRm lung cancer and CDK2-vulnerable breast cancer

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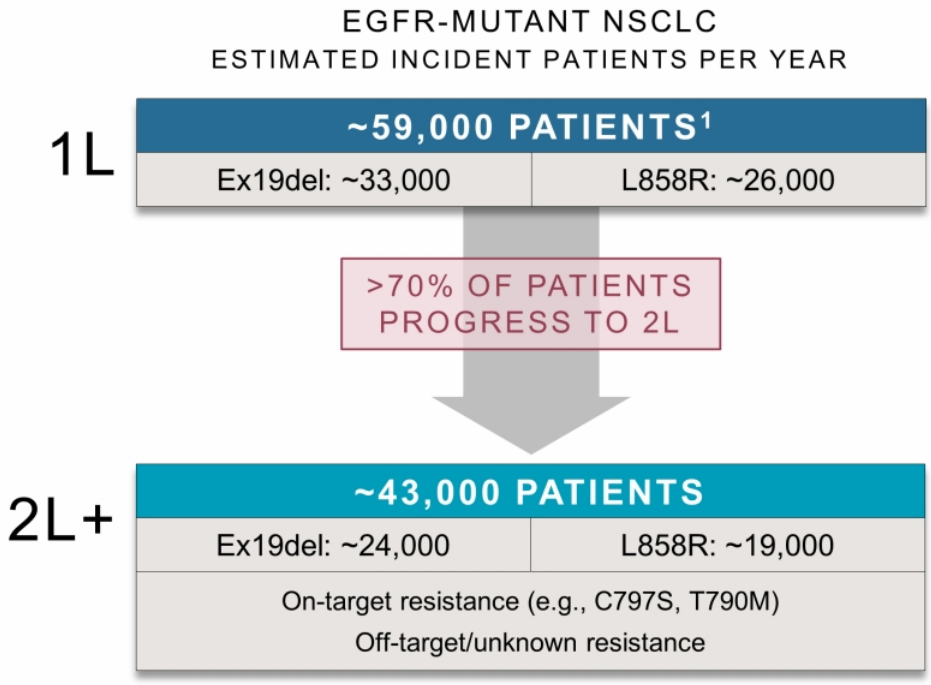
Opportunities for our next-generation EGFR precision therapie



OPPORTU

Enhance activity o activating

Prevent or treat c re

Treat off-target resista well-tolerated

Prevent or treat brain m enhanced CNS per

Approximate patient numbers covering major markets – US, EU4, UK, and Japan. 1. Excludes rare mutations including exon 20 insertions. Internal estimat adapted from Ramalingam, et al. NEJM, 2020; Decision Resources Group: NSCLC Forecast and Epidemiology; and Harrison Seminars in Cancer Biology, CNS, central nervous system.

Our portfolio of EGFR therapies is purpose-built to address medical r

TREATMENT GOALS

Effectively block the EGFR pathway

Establish 2L+ SOC with combinations that treat on- and off-target resistance

BLUEPRINT MEDICINES EGFR PORTFOLIO

BLU-945

- Potent EGFR mutation coverage:
  - LR and LR/CS
  - TM and TM/CS regardless of activating
  - Potential for broader coverage at higher
- Highly selective over wild-type EGFR

BLU-701

- Potent EGFR mutation coverage:
  - Ex19del and LR
  - CS regardless of activating mutation
- Highly CNS penetrant

BLU-451

- Potent inhibitor of all common Ex20ins and c activation mutations
- Highly selective over wild-type EGFR
- CNS penetrant

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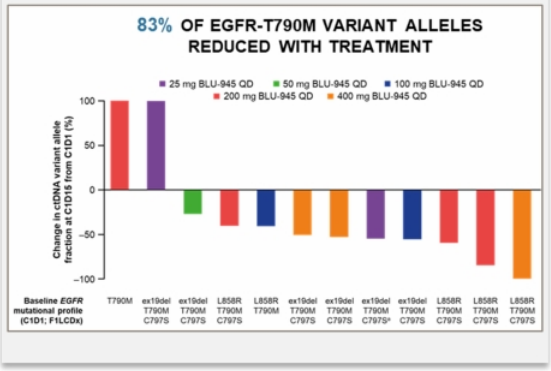
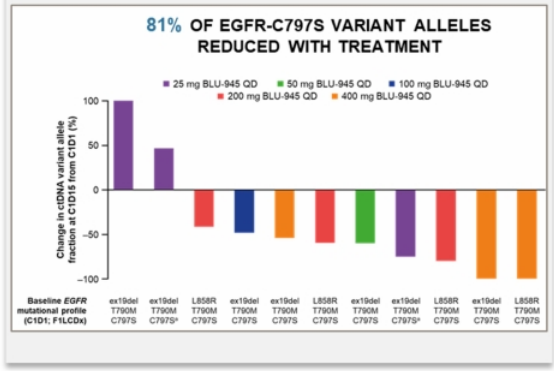
CS, C797S resistance mutation; Ex20in, activating exon 20 insertion mutations; LR, L858R activating mutation; TM, T790M resistance mutation.

BLU-945 potency and selectivity enable wide therapeutic index and broad EGFR coverage, with promising early clinical monotherapy dat

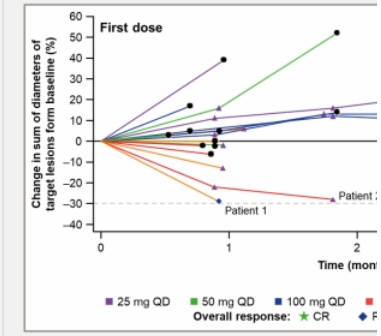
DOSE-DEPENDENT REDUCTIONS IN ctDNA...





In the 400 mg cohort, all detectable T790M and C797S alleles showed reduction, including three that fell below the limit of detection (clearance)

...AND ANTI-TUMOR A
TUMOR SHRINKAGE
DOSES ≥200



Unconfirmed PR reporte
ex19del/T790M/C797S trea

GENERALLY WELL-TOLERATED†, WITH NO SIGNIFICANT ADVERSE EVENTS ASSO WITH WILD-TYPE EGFR INHIBITION

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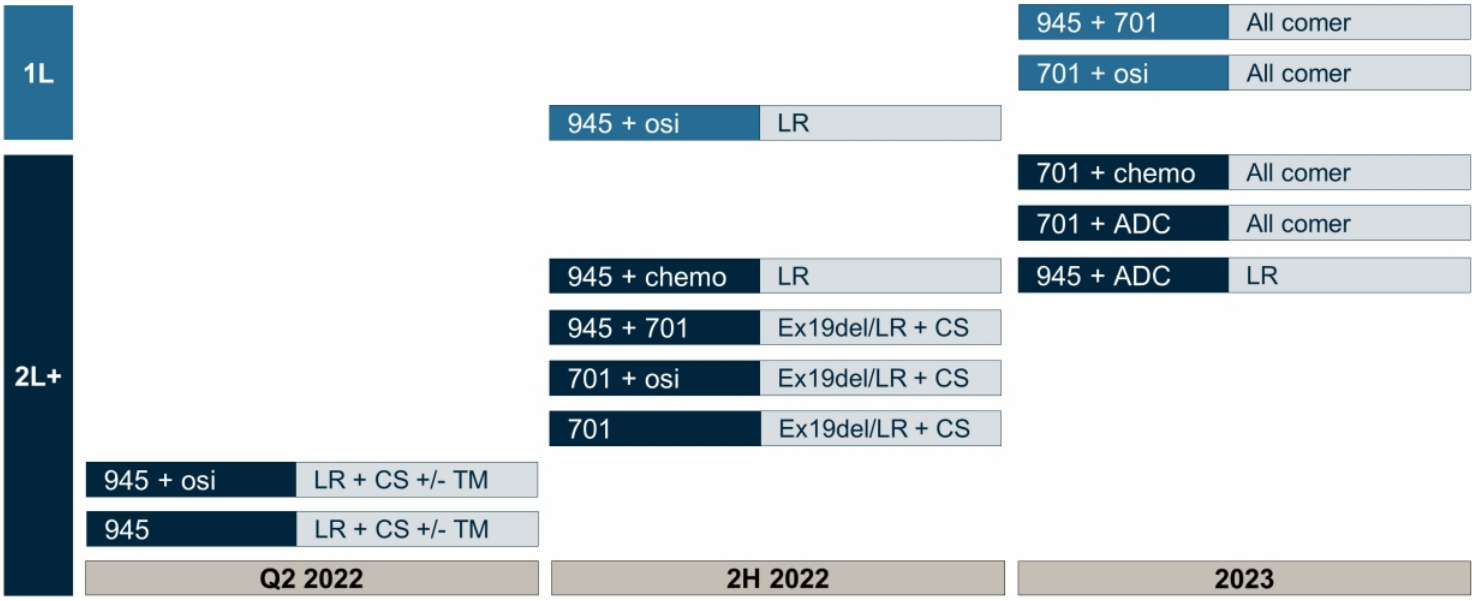
[a]One patient had two different DNA mutations in C797S. Note: reductions in individual variant allele fractions as shown; therefore, patients with multiple mutations may be represente and C797S allele fractions with available baseline and C1D15 data are shown. Increases of greater than 100% were truncated at 100 [b]Patients with measurable target lesions at base scans (investigator assessed). An unconfirmed PR is a PR in which tumor reduction ≥30% has occurred but has not yet been confirmed via a subsequent scan. † Most common AEs of patients included nausea, headache, fatigue, cough, dyspnea, vomiting, hyponatremia, dry mouth, and anemia.ctDNA, circulating tumor DNA; C, cycle; D, day; F1LCDx, Foundatio QD, once daily CR, complete remission; PD, progressive disease; PR, partial remission; SD, stable disease; EOT, end of treatment. As of the data cut-off (March 9, 2022), 33 patients BLU-945 at 25–400 mg once daily (QD) in the first 5 cohorts.

Phase 1/2 trials to rapidly generate data in broad populations, inform development and registration strategies



PLANNED INITIATION OF PHASE 1/2 SYMPHONY / HARMONY TRIAL COHORTS

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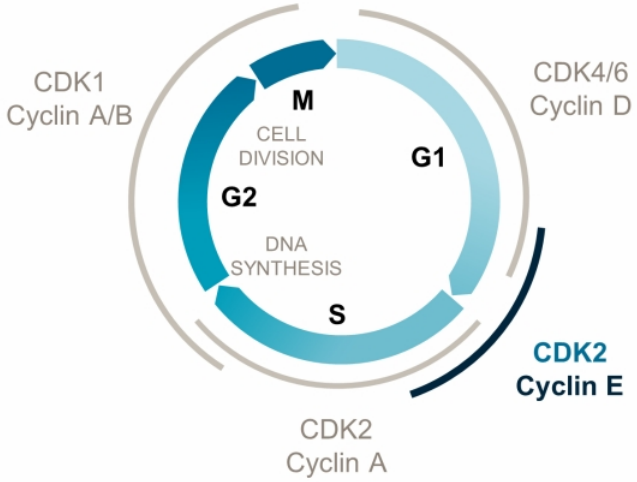
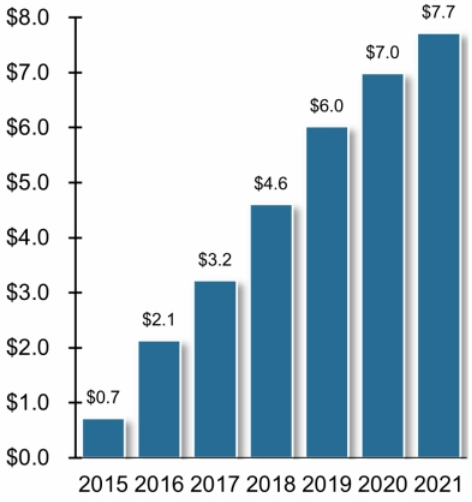
Opportunity to impact the treatment paradigm for more than 100K patients across multiple CDK2-vulnerable cancers[1]

CDK-CYCLIN COMPLEXES REGULATE THE CELL CYCLE



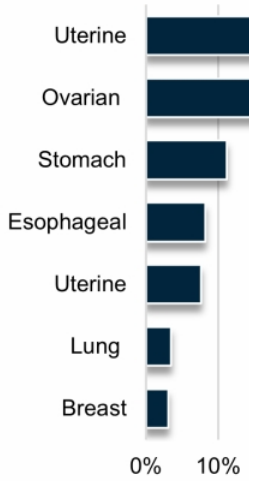
ABERRANT CYCLIN E (CCNE1) DRIVES CELL PROLIFERATION

ER+/HER2- BREAST CANCER



CDK4/6 INHIBITOR GLOBAL SALES ($, BILLIONS)[2]

CCNE1-A TUM



FREQUENC AMPLIFI

BLU-222 HAS POTENTIAL TO ADDRESS SPECTRUM OF CDK2-VULNERABLE CAN

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1. Approximate patient numbers covering major markets – US, EU4, UK, and Japan. 2. Data from company reports. 3. CCNE1 amplification frequency rep percentage of total patient samples. Data from the National Cancer Institute's The Cancer Genome Atlas Program (www.cancer.gov/tcga).. CDK, cyclin de ER+/HER2-, estrogen receptor-positive, HER2-negativ

BLU-222 is advancing toward clinical proof-of-concept

PHASE 1/2 TRIAL OF BLU-222 IN CDK2 VULNERABLE CANCERS

PHASE 1 DOSE ESCALATION (NOW ENROLLING)

Multiple dose cohorts* → RP2D

**Includes monotherapy and combination regimens*

- Safety
- Preliminary clinical activity
- Patient selection strategy

PHASE 2 EXPANSION (PLANNED)

- Combo with ER antagonist – ER+/HER2- breast
- Combo with CDK4/6i + ER antagonist – ER+/HER2- breast
- Monotherapy – CCNE1 tumors
- Combo with chemotherapy – CCNE1 tumors
- Monotherapy – multiple other CCNE1 tumors (basket cohort

PHASE 1/2 VELA TRIAL OF BLU-222 INITIATED IN Q1 2022 AND FIRST PATIENT D

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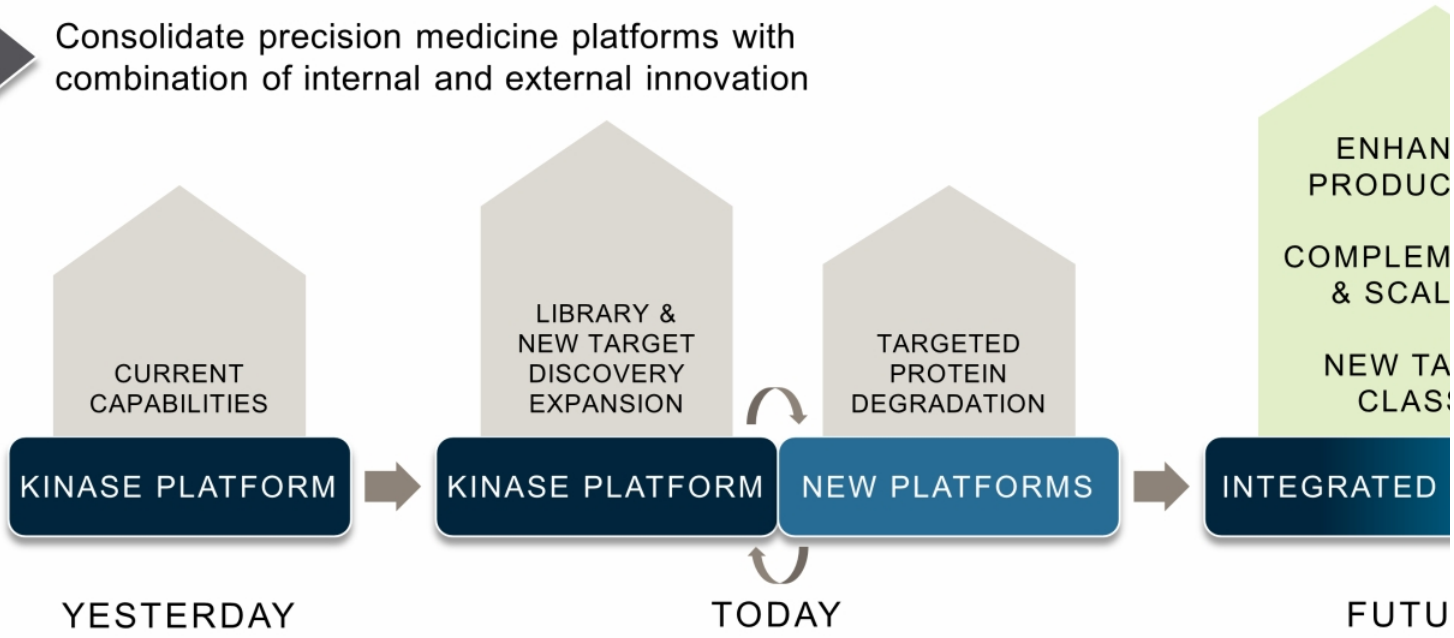
CCNE1, cyclin E; CDK4/6i, CDK4/6 inhibitor; ER, estrogen receptor.

Research platform expansion to drive innovation & expand pro

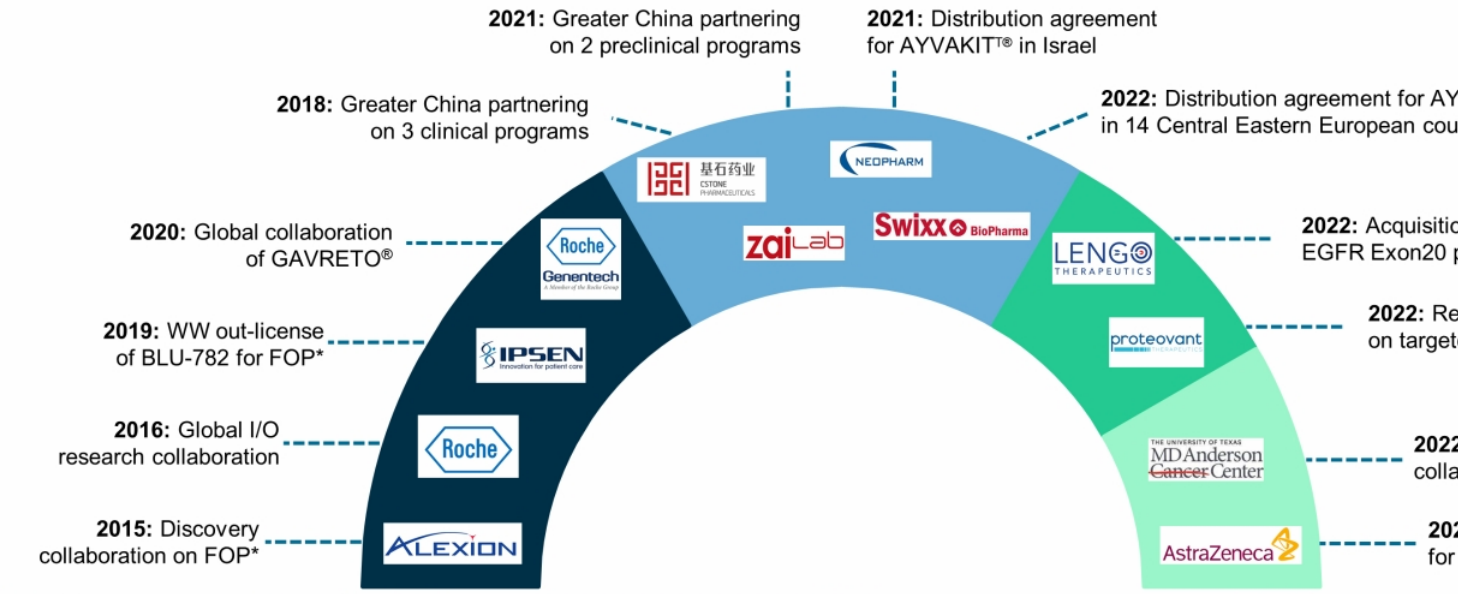
Consolidate precision medicine platforms with combination of internal and external innovation



EXPANSION AIMS TO DOUBLE THE HISTORIC OUTPUT OF OUR DISCOVERY ENGINE

blueprint MEDICINES

Business development plays a key role in our company's value creati long-term portfolio growth



Global Strategic Partnerships
Access complementary expertise to maximize program value and global impact on patients

Geographic Expansion
Pioneering early development partnerships in China; expanding to additional key markets through regional distributors

Buy-Side Transactions
Tap into external innovations to complement organic portfolio build

Program
Tap into external r enhance in

Over **$1.1B** earned to-date inclusive of upfront, milestones and royalties

* Fibrodysplasia ossificans progressiva

Strong financial position bolstered by diversity of revenue sources ar growing product revenue

Statement of Operations (unaudited)	Three Months Ended 6/30/2022	Three Months Ended 6/30/2021	Six Months Ended 6/30/2022	Six E 6/3
Total revenue	$36.5M	$27.3M	$99.3M	
Net product sales	$28.5M	$11.4M	$52.3M	
Collaboration revenue	$8.0M	$15.9M	$47.0M	
Cost of sales	$4.9M	$6.5M	$10.0M	
Collaboration loss sharing	$2.1M	--	$5.4M	
Research & development expense[1]	$128.5M	$80.0M	$231.6M	
Selling, general & admin expense[2]	$58.7M	$49.3M	$115.7M	
Net Loss	$(159.7)M	$(108.4)M	$(265.7)M	
Balance Sheet (unaudited)			**6/30/2022**	
Cash, cash equivalents, and investments[3]			$947.2M	

$947.2 MILLION IN CASH, CASH EQUIVALENTS, AND MARKETABLE SECURITIES, EXCLU
GROSS PROCEEDS FROM OUR RECENT FINANCING THAT CLOSED IN JULY

1. Includes stock-based compensation expense of $10.5M and $10.5M in the three months ended 6/30/22 and 6/30/21, respectively, and $20.5M and $19.4 ended 6/30/22 and 6/30/21, respectively. 2. Includes stock-based compensation expense of $14.9M and $13.8M in the three months ended 6/30/22 and 6/3 and $28.2M and $25.6M in the six months ended 6/30/22 and 6/30/21 respectively. 3. In addition, in July 2022, we received total cash payments of $400.0 m proceeds related to our financing agreement that closed in July.

Summary of upcoming portfolio milestones

Program / activity	Area of focus	Milestone
AYVAKIT	Non-advanced SM	Submit sNDA to FDA
		Submit type 2 variation MAA to EMA
BLU-263	Non-advanced SM	Report top-line HARBOR Part 1 data
BLU-945	EGFRm NSCLC	Report initial dose escalation data for BLU-945 ar osimertinib combo with focus on safety results
BLU-701	EGFRm NSCLC	Report initial dose escalation data with focus on safety, pharmacokinetics and ctDNA results
BLU-451	EGFRex20m NSCLC	Report dose escalation data
BLU-222	CDK2-vulnerable breast and other cancers	Report dose escalation data

EGFRex20m, EGFR exon 20 mutant.