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Forward-Looking Statements

These slides contain forward-looking statements within the meaning of the Private Securities Litigation Reform Act of 1995 that are subject to risks and uncertainties that could cause actual results to differ materially from those projected. Forward-looking statements include those relating to, among other things, the potential benefits to be derived from the License and Development Agreement with SymBio Pharmaceuticals or Cantex Pharmaceuticals, including any statements related to dociparstat; Chimerix's ability to develop disease modifying and potentially curative treatments for diseases, including AML and smallpox. Among the factors and risks that could cause actual results to differ materially from those indicated in the forward-looking statements are risks that the benefits of the agreements with Cantex or SymBio may never be realized; risks that dociparstat or brincidofovir may not obtain regulatory approval from the FDA or such approval may be delayed or conditioned; risks that development activities related to dociparstat or brincidofovir may not be completed on time or at all; Chimerix's reliance on a sole source third-party manufacturers for drug supply; risks that ongoing or future clinical trials may not be successful or replicate previous clinical trial results, or may not be predictive of real-world results or of results in subsequent clinical trials; risks and uncertainties relating to competitive products and technological changes that may limit demand for our drugs; risks that our drugs may be precluded from commercialization by the proprietary rights of third parties; risks related to procurement of brincidofovir for the treatment of smallpox and additional risks set forth in the Company's filings with the Securities and Exchange Commission. These forward-looking statements represent the Company's judgment as of the date of this release. The Company disclaims, however, any intent or obligation to update these forward-looking statements.

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Focused on delivering real benefit to patients with deadly diseases

Brincidofovir (BCV) animal-rule registration for smallpox

- Significantly reduced mortality in both required animal models
- Completing final PK dose bridging experiments
- Milestones: Pre-NDA meeting 1Q 2020, NDA filing mid 2020

Dociparstat (DSTAT) Phase 3 in 1st line AML

- Compelling randomized Phase 2 event-free & overall survival data
- Potential for acceleration of hematologic recovery
- Addresses $1Bn+ market opportunity in 1st line AML
- End of Phase 2 FDA meeting Q1 2020, Phase 3 initiation mid 2020

Strong balance sheet

- $116.7 million in cash as of September 30, 2019
- ~$110 million expected year-end cash
- Potential $100 million in 2021 revenue from 2020 procurement contract
- Potential to utilize significant NOLs to offset 2021+ profitability

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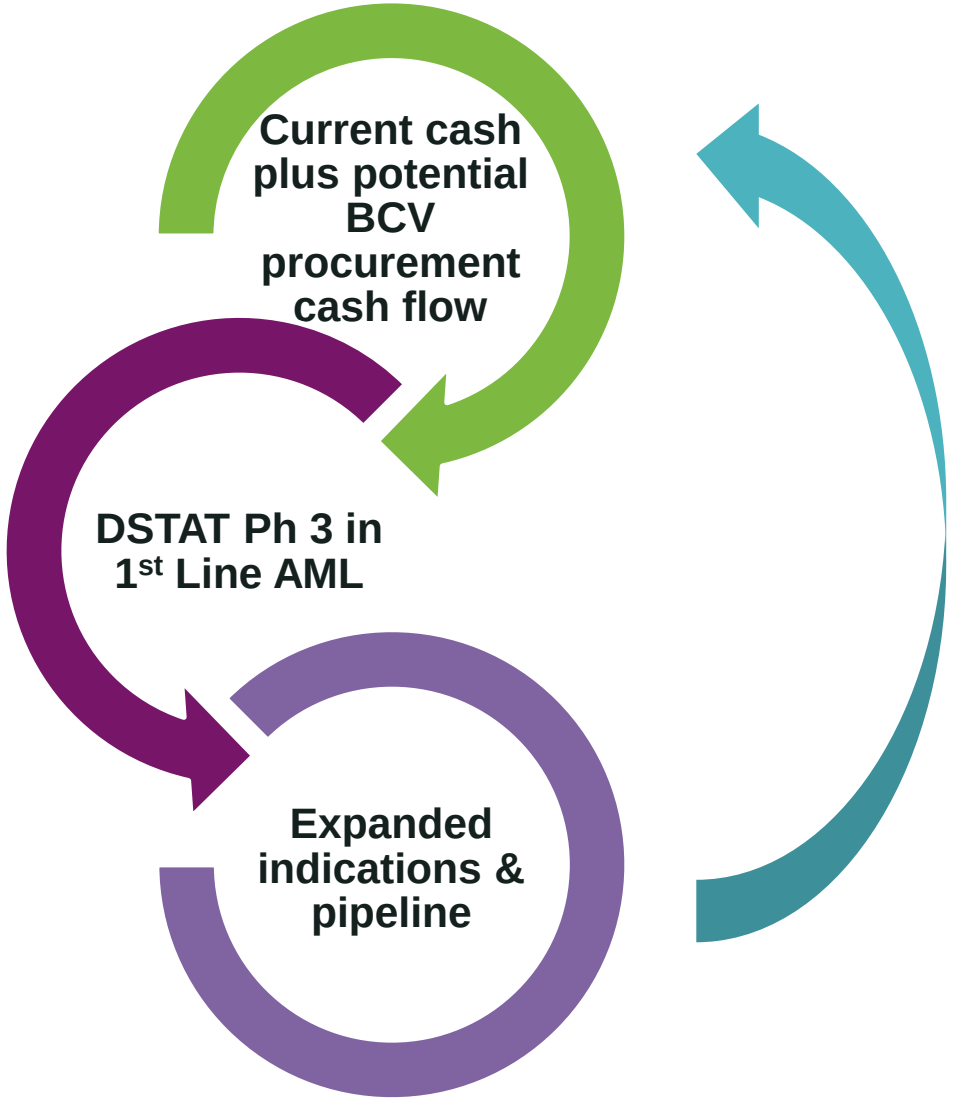
Strong balance sheet & near term commercial opportunity fund ongoing development



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Proven management team

Mike Sherman
CEO

Garrett Nichols
CMO

Mike Andriole
CFO & CBO

Randall Lanier
CSO

Roy Ware
Chief Manufacturing

Michael Alrutz
General Counsel

Heather Knight
VP, Regulatory

ENDOCYTE

GUIDANT

Lilly

gsk GlaxoSmithKline

FRED HUTCHINSON CANCER RESEARCH CENTER

ENDOCYTE

Lilly

gsk GlaxoSmithKline

pharmacore
a specialty pharmaceutical company

Serenex

TRIMERIS

Roche

Bristol-Myers Squibb

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BRINCIDOFOVIR (BCV): SMALLPOX

Animal rule registration for filing in 2020 and potential stockpile procurement

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Smallpox – a significant public health risk

- Population is unvaccinated since early ‘70s
- Highly infectious with >30% mortality
- Considered a Class A threat by PHEMCE[a]
- Multiple potential sources of smallpox
- Weaponized virus may have increased transmission and resistance

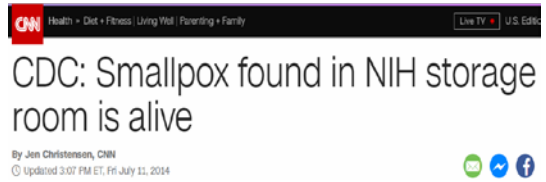
Two labs in the world keep a live smallpox sample. The one in Russia just had an explosion

N'dea Yancey-Bragg USA TODAY

Published 12:46 p.m. ET Sep. 17, 2019


The Siberian Times

Experts warn of threat of born-again smallpox from old Siberian graveyards


CDC: Smallpox found in NIH storage room is alive

By Jen Christensen, CNN

Updated 3:07 PM ET, Fri July 11, 2014

a) Public Health Emergency Medical Counter Measures Enterprise

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Ongoing collaboration with BARDA

Mandated to stockpile 2 smallpox countermeasures with differing mechanisms of action

- BARDA funds most expense for development of BCV for smallpox
- Animal rule allows approval of drugs where human trials are not feasible or ethical
- BARDA may initiate stockpile procurement prior to FDA approval
- Siga Technologies, Inc. awarded >$1B in contracts for stockpile of TPOXX
  - $460m in 2011
  - $546m in 2018

About BARDA: Biomedical Advanced Research and Development Authority (BARDA); part of the HHS Office of the Assistant Secretary for Preparedness and Response, was established to aid in securing The U.S. from chemical, biological, radiological, and nuclear (CBRN) threats, as well as from pandemic influenza (PI) and emerging infectious diseases (EID). BARDA supports the transition of medical countermeasures such as vaccines, drugs, and diagnostics from research through advanced development towards consideration for approval by the FDA and inclusion into the Strategic National Stockpile.

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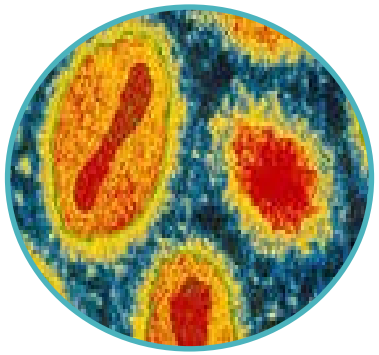
Potential resistance necessitates two drug stockpile

BCV well positioned as attractive alternative mechanism

- Resistant smallpox viruses easily generated in lab or synthesized de novo
- Viral strains resistant to BCV requires mutations which impair its viral fitness
- BCV has safety database of ~1,500 patients (both healthy and infected)



- BCV available as short course oral tablet regimen and suspension for pediatrics
- Combination therapy likely most effective

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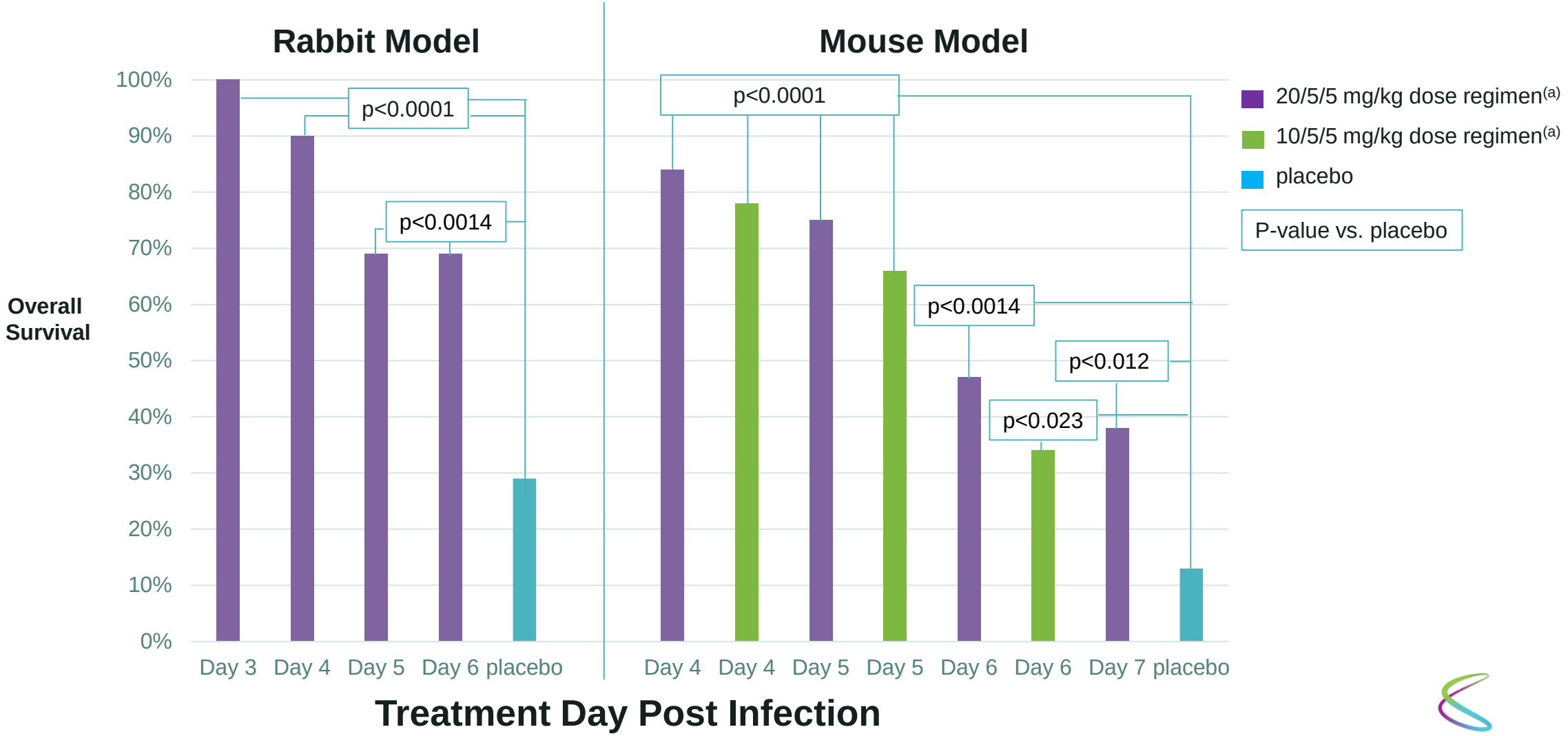
BCV significantly reduced mortality in 2 animal models of orthopoxvirus infection



(a) administered at 48-hour intervals with treatment initiation on post-infection days 3, 4, 5, 6 or 7

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SymBio BCV out-license creates path to additional value

SymBio
SymBio Pharmaceuticals Limited

- SymBio acquired rights to develop and commercialize all indications of BCV excluding the prevention and treatment of smallpox
- SymBio will develop and commercialize BCV in all markets and will incur 100% of the future development and commercial costs
- Economics:
  - $5 million upfront to Chimerix
  - $180 million in development, regulatory and approval milestones
  - Double digit royalties on net sales

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DOCIPARSTAT SODIUM (DSTAT, CX-01): FIRST-LINE ACUTE MYELOID LEUKEMIA (AML)

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DSTAT: A compelling opportunity in front line AML

Improvement of durable benefit of first-line intensive therapy is a major unmet need

Ongoing Unmet Need in AML

- ✗ Few improvements in 1L therapy with curative intent over the last 40 years
- ✗ Approx ~50% response rate among higher-risk populations, rarely durable
- ✗ <10% five-year survival in older patients
- ✗ Challenging to combine 7+3 with other agents due to toxicities
- ✗ Recent approvals in AML are in second line & for specific genetic mutations
- ✗ Targeted agents vulnerable in this highly heterogenous disease

DSTAT Well Positioned

- ✓ 2/3 patients eligible and fit for 7+3[1]
- ✓ Ph 2 data suggests DSTAT amplifies 7+3 efficacy w/o additive toxicity
- ✓ Fast track designation and orphan drug designation in the U.S. for AML
- ✓ Mobilizes and sensitizes leukemic cells
- ✓ Multi-modal targeting potentially needed for resistance redundancies
- ✓ Randomized Ph 2: DSTAT outperformed standard 7 + 3 chemo on event free survival, relapse free survival, overall survival and platelet count recovery time

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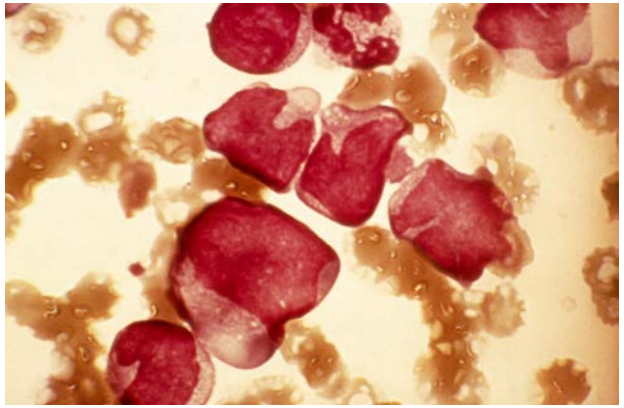
Early intervention with multi-modal mechanism to drive more durable response, improved survival

A Chance to Cure is Fleeting

A **curative** strategy must destroy the first cancer cells, not the last….this is the most universally accepted way to save lives

The Basic Problem

AML is **covert and heterogenous**. It hides in the bone marrow from cell-killing chemotherapy leaving leukemic cells behind to relapse; the disease is as unique as each patient



The Solution

DSTAT effects multiple proteins known to retain AML in protective bone marrow and support resistance mechanisms, potentially driving deeper more durable responses and **higher survival rates**

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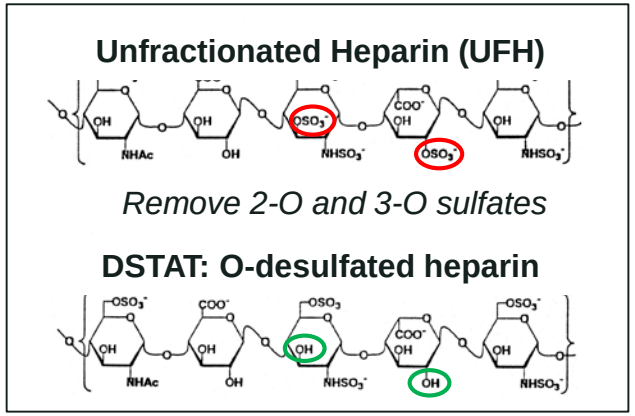
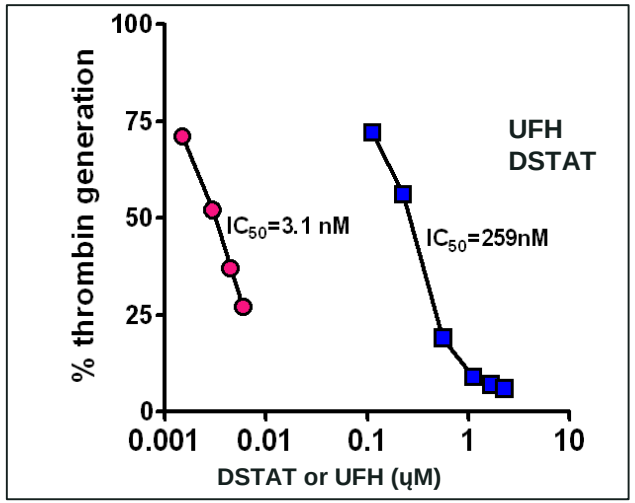
DSTAT is a novel biologic with patent life thru 2033

DSTAT is chemically and biologically distinct from heparin



DSTAT has 80-fold less anticoagulant activity



- Potential first-in-class glycosaminoglycan biologic derived from porcine heparin
- Patented through 2033, potential for 2038 in US with full patent term reinstatement
- Dramatically reduced anticoagulant activity versus unfractionated heparin
- Highly negatively charged molecule binds positively charged amino acids on multiple proteins
- Potential to amplify efficacy with chemotherapy and targeted agents in AML

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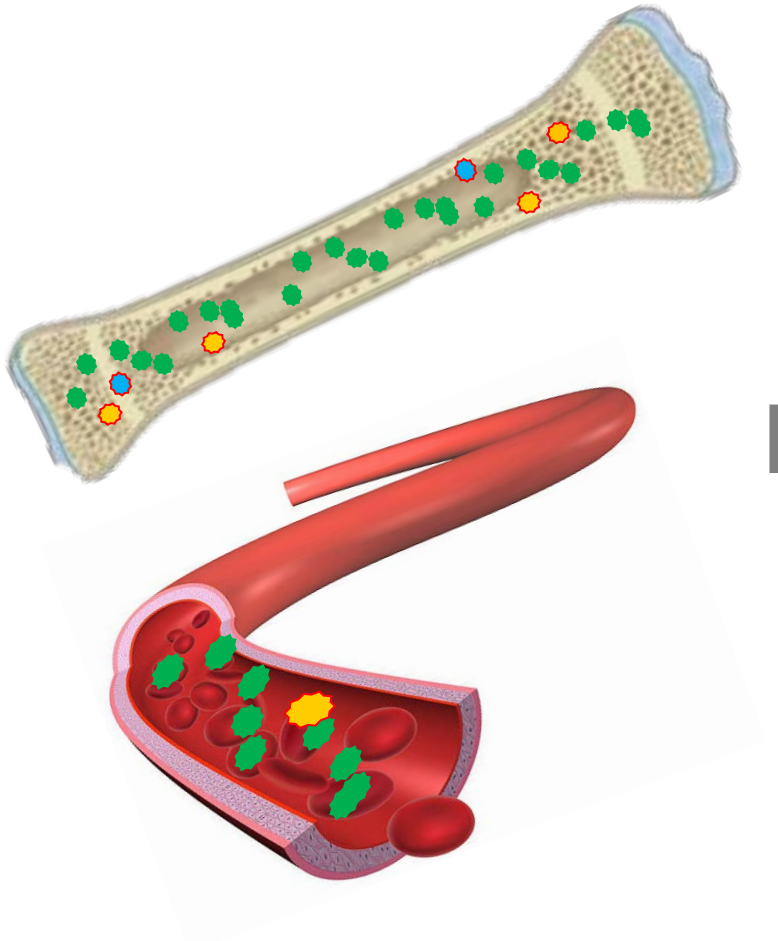
DSTAT designed to mobilize leukemic cells from protective bone marrow and increase susceptibility to chemotherapy



- = AML blast sensitive to 7+3
- = AML blast resistant to 7+3
- = Leukemic stem cell resistant to 7+3

<u>Biological Mechanism 1:</u>
Mobilize AML from protective bone marrow

<u>Biological Mechanism 2:</u>
Sensitize AML to 7+3 induced cell death

<u>DSTAT targets</u>:
CXCL12[a], CXCR4[b], Selectins[c], HMGB1[d], NFkB[e], Heparanase[f], Elastase[g]

Aim of DSTAT is to maximize leukemic cell killing potential of 7+3 to increase depth and durability of response

References: [a,c]Zhang 2012 JBC 287(8); [a,b]Kovacsovics 2018 Blood Adv 2(4); [d]Yasinska 2018 Oncoimmunology 7(6); [c,d,g]Rao 2010 Am J Physiol Cell Physiol 299; [d]Zheng 2016 Am J Cell and Mol Bio 56(1); [d]Griffin 2014 Am J Resp Cell and Mol Bio 50(4); [c,e]Lakshmi 2010 J Biomed Mat Res 95(1); [e]Yu 2005 Blood 105(9); [f]Lapierre 1996 Glycobiology 6(3); [g]Tavor 2005 Blood 106(6); [g]Kummarapurugu 2018 JBC 293(32)

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DSTAT Phase 2 study informs likely Phase 3 population

- Key Phase 2 inclusion criteria:
  - Newly diagnosed AML in patients > 60 years of age (observed median age 67 years old)
  - Favorable, immediate and unfavorable prognostics, both de novo and secondary AML allowed
  - ECOG 0 – 2 (good performance status)
- Patients randomized to one of three arms (1:1:1, n=75[(a)])
  - DSTAT low dose[(b)]: 4mg/kg bolus followed by 0.125mg/kg/hr infusion plus standard 7+3 chemo, n=25
  - DSTAT high dose: 4mg/kg bolus followed by 0.25mg/kg/hr infusion plus standard 7+3 chemo, n=24
  - Standard induction chemo (cytarabine 100mg/m^2 infusion for 7 days, idarubicin for 3 days), n=26
- Likely Phase 3 ITT patient population targets 39 of 50 patients from high dose and control arms
  - Exclude patients with known favorable cytogenetics who have lower unmet need (n=5)
  - Exclude patients with secondary AML (sAML) who will likely receive Vyxeos for induction (n=6)

(a) 4th arm in this study (4mg/kg bolus followed by 0.325mg/kg/hr infusion plus 7+3) discontinued after two patients were enrolled (1 had hemorrhage deemed possibly related to DSTAT)

(b) Low dose was deemed sub-therapeutic and the following data presented is limited to the high dose arm and the control arm

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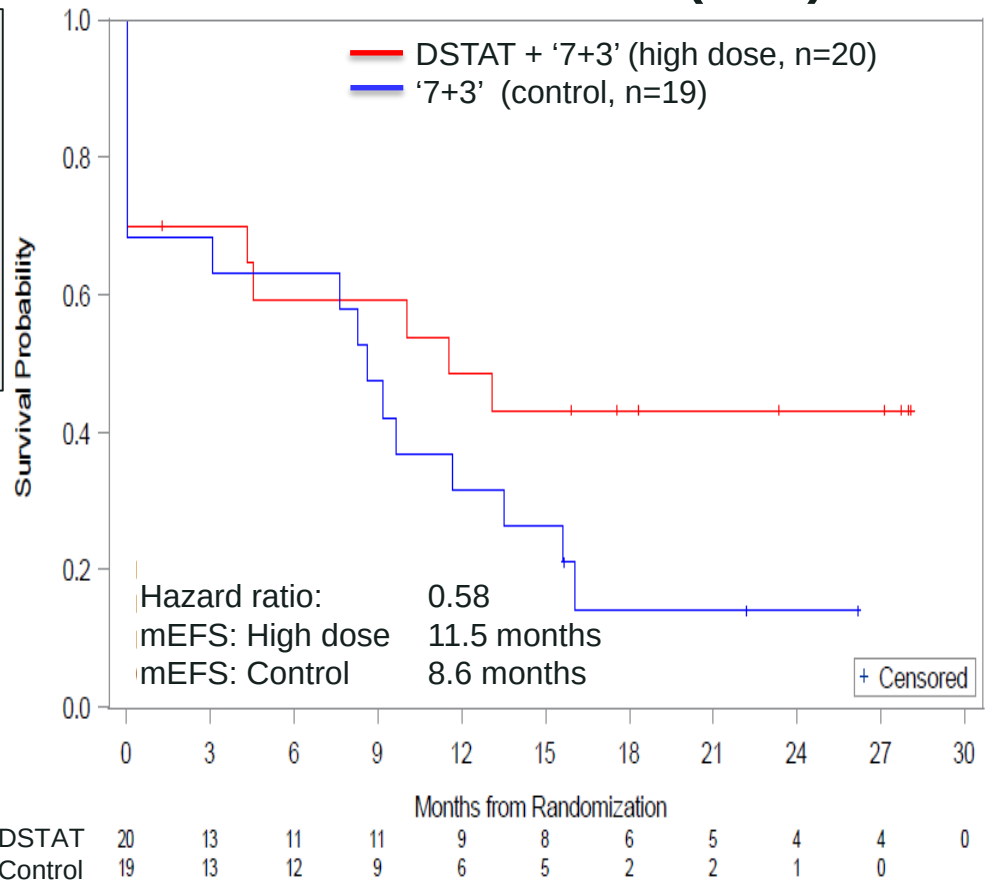
Likely Ph 3 ITT population shows promising effect on EFS & OS

Clinically relevant separation in EFS/OS curves

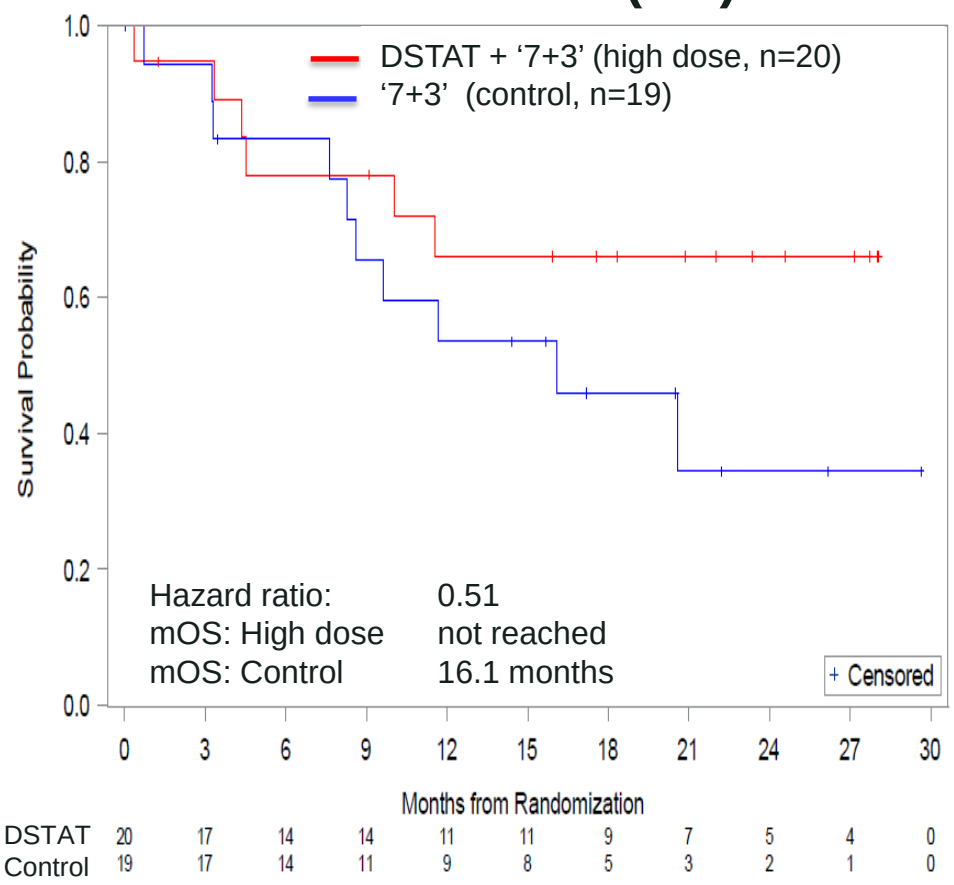
Response Summary

	% CR/CRi[(a-c)]
High Dose Arm	70% (14/20)
Control Arm	68% (13/19)
(historical control ~50%)	

Event-Free Survival (EFS)[(a-c)]



Overall Survival (OS)[(a-c)]



(a) Complete Response (CR) or Complete Response without complete hematologic recovery (CRi)
(b) Confirmed with post day 14 (D14) bone marrow (BM) biopsy and less than 5% blasts. If no post D14 was performed, the D14 BM biopsy was used to determine response
(c) Responses and Kaplan-Meier curves do not include sub therapeutic low dose arm

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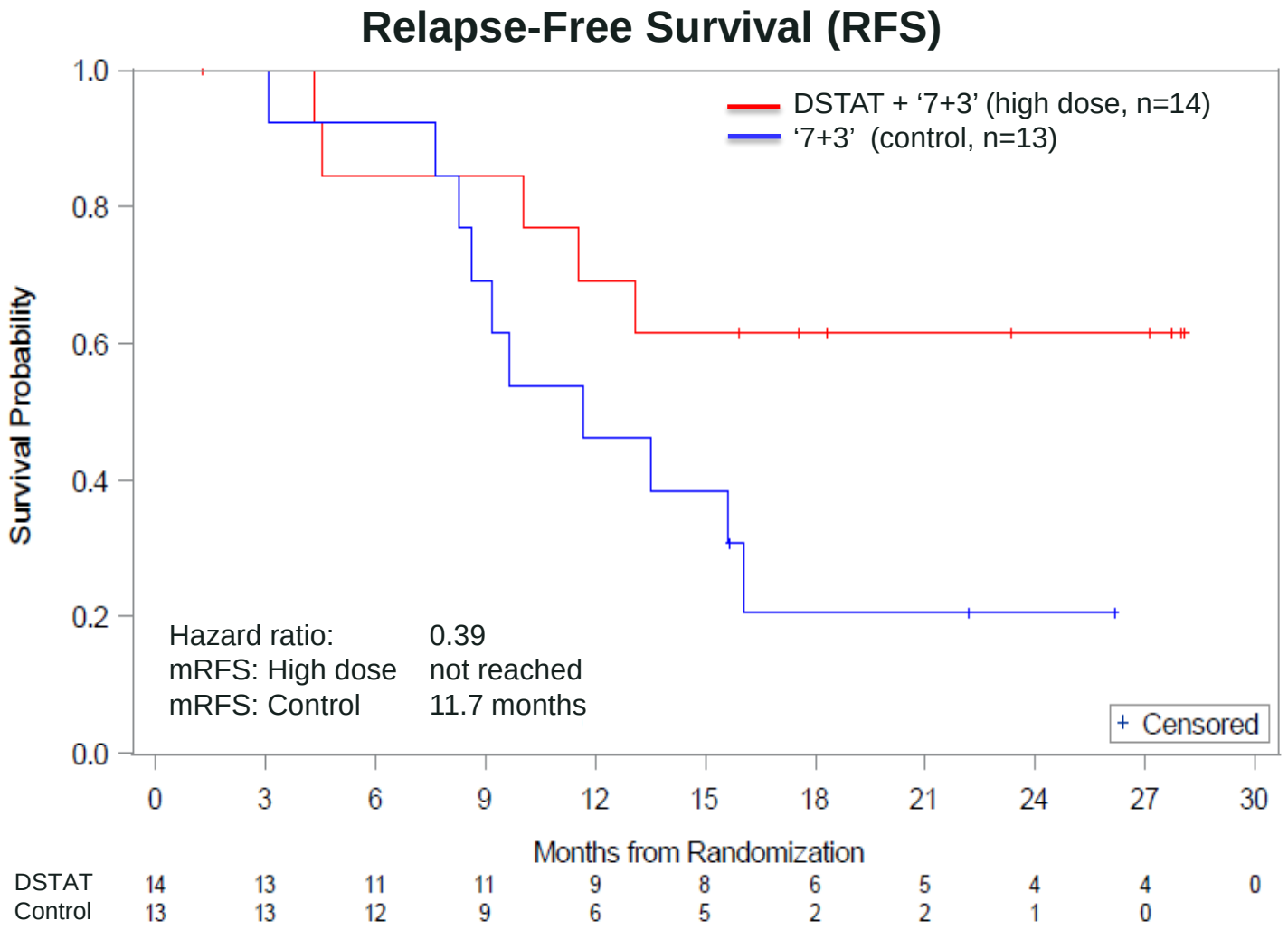
Likely Ph 3 ITT population shows durability of CR/CRi

Relapse-free survival median not reached on high dose arm

Relapse-Free Survival = survival without relapse following induction success (CR/CRi)



Kaplan-Meier curve does not include sub therapeutic low dose arm

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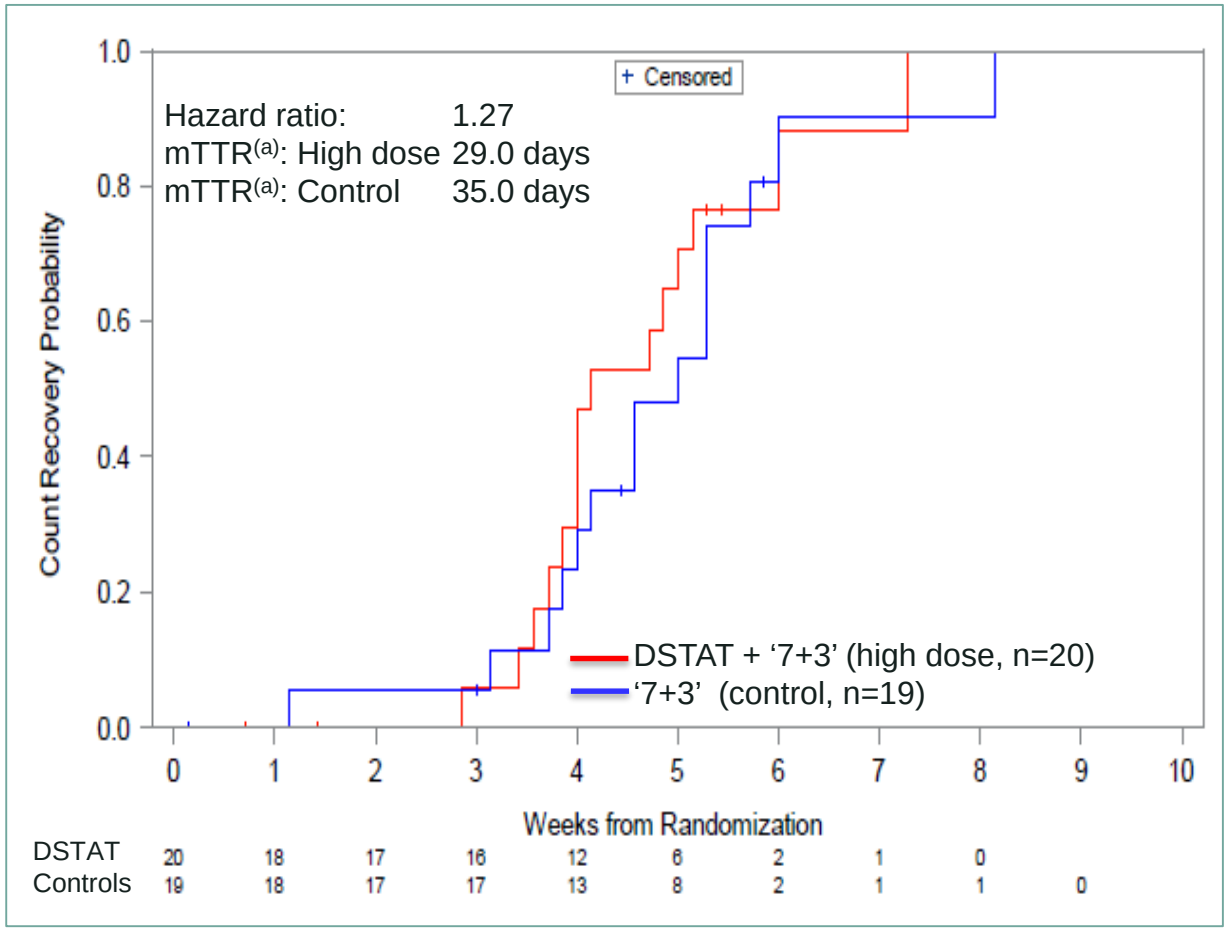
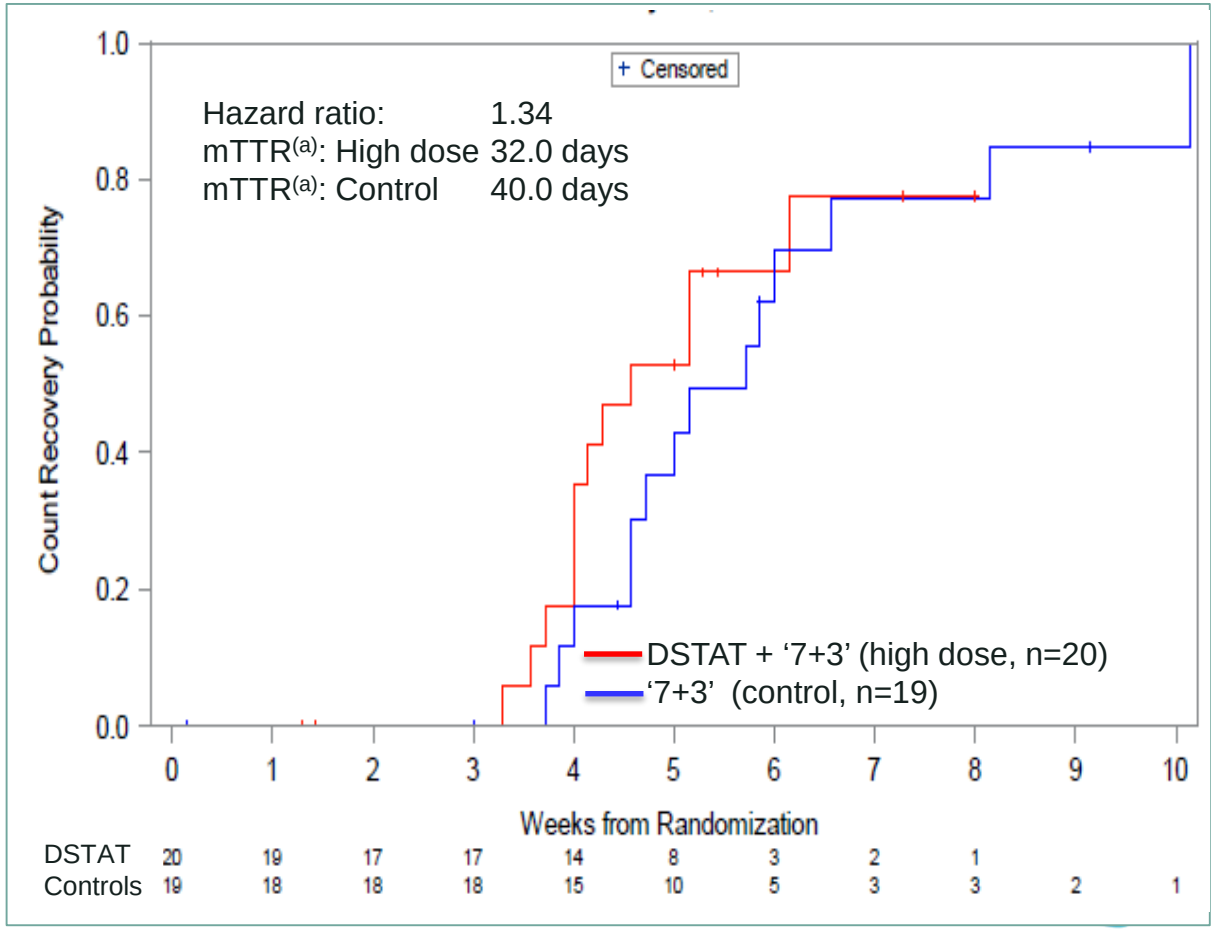
DSTAT does not delay, and may accelerate, hematologic recovery

Median days to neutrophil and platelet recovery reduced by 17% and 20%, respectively

Likely Ph 3 ITT
Neutrophil recovery > 500 cells/uL



Likely Ph 3 ITT
Platelet recovery > 100,000 cells/uL



(a) Median Time to Recovery
(b) Kaplan-Meier curves do not include sub therapeutic low dose arm

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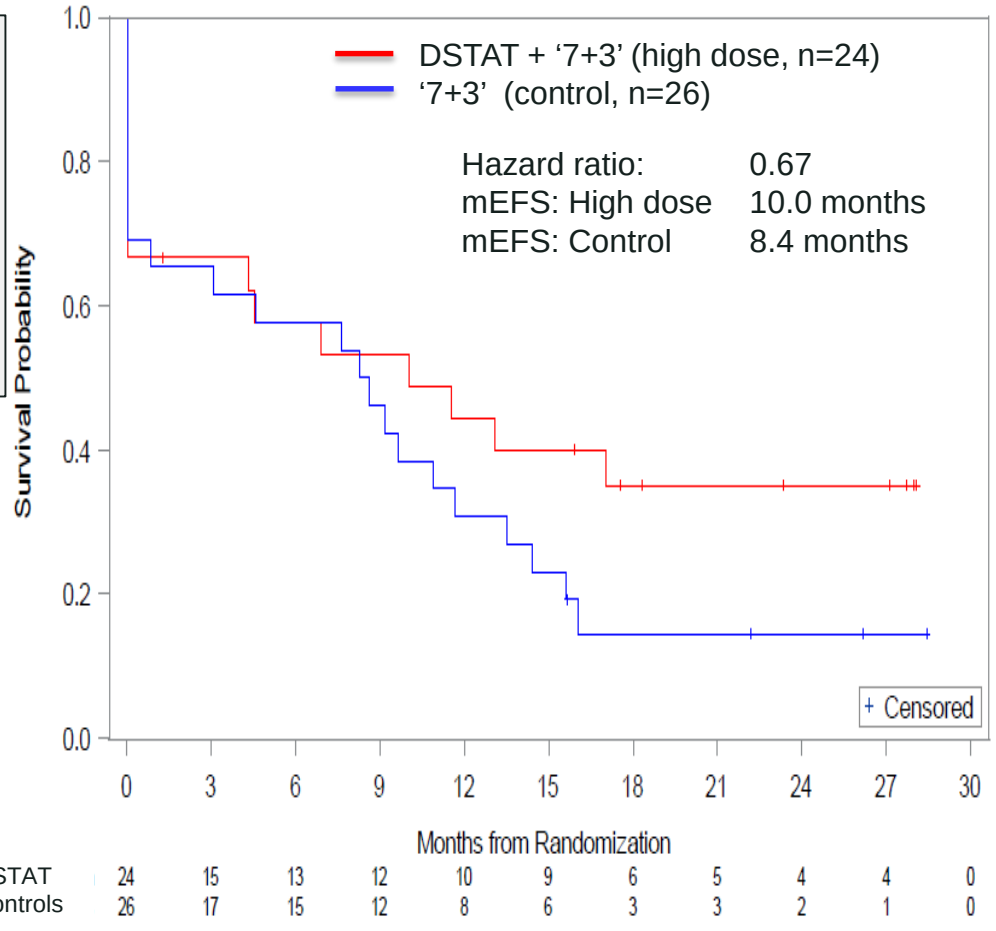
Full ITT population outperforms standard 7+3 chemotherapy

Similar CR/CRi rate, benefit in EFS and OS in full ITT Ph 2 population

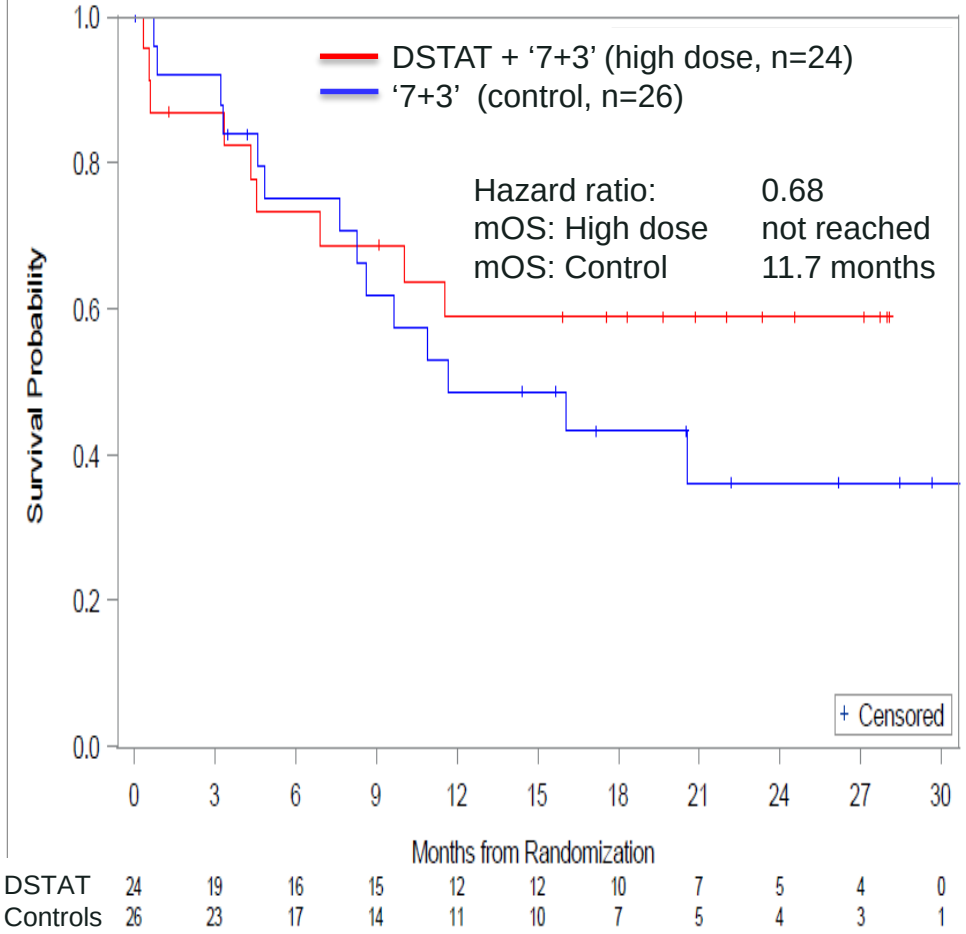
Response Summary

	% CR/CRi[(a-c)]
High Dose Arm	67% (16/24)
Control Arm	69% (18/26)
(historical control ~50%)	

Event Free Survival



Overall Survival



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(c) Responses and Kaplan-Meier curves do not include sub therapeutic low dose arm

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Potential for quicker recovery, more durable response and longer survival underpins strong Phase 3 rationale

Clinical Relevance / Priority

Hazard Ratios (HRs)[(a)]: Survival vs '7+3' alone (Potential Primary Ph 3 Endpoints)

- *Event-Free Survival* HR: ***0.58***
- *Relapse-Free Survival* HR: ***0.39***
- *Overall Survival* HR: ***0.51***

Hematologic Recovery[(a)] vs '7+3' alone

- **17%** *Improvement in Median Days to Neutrophil Recovery*
- **20%** *Improvement in Median Days to Platelet Recovery*

Response Rate[(a)] vs '7+3' alone

70% vs 68%

[(a)] Phase 2 high dose arm vs control in likely Ph3 patient population (Phase 2 ITT, less patients with favorable cytogenetics and patients with secondary AML)

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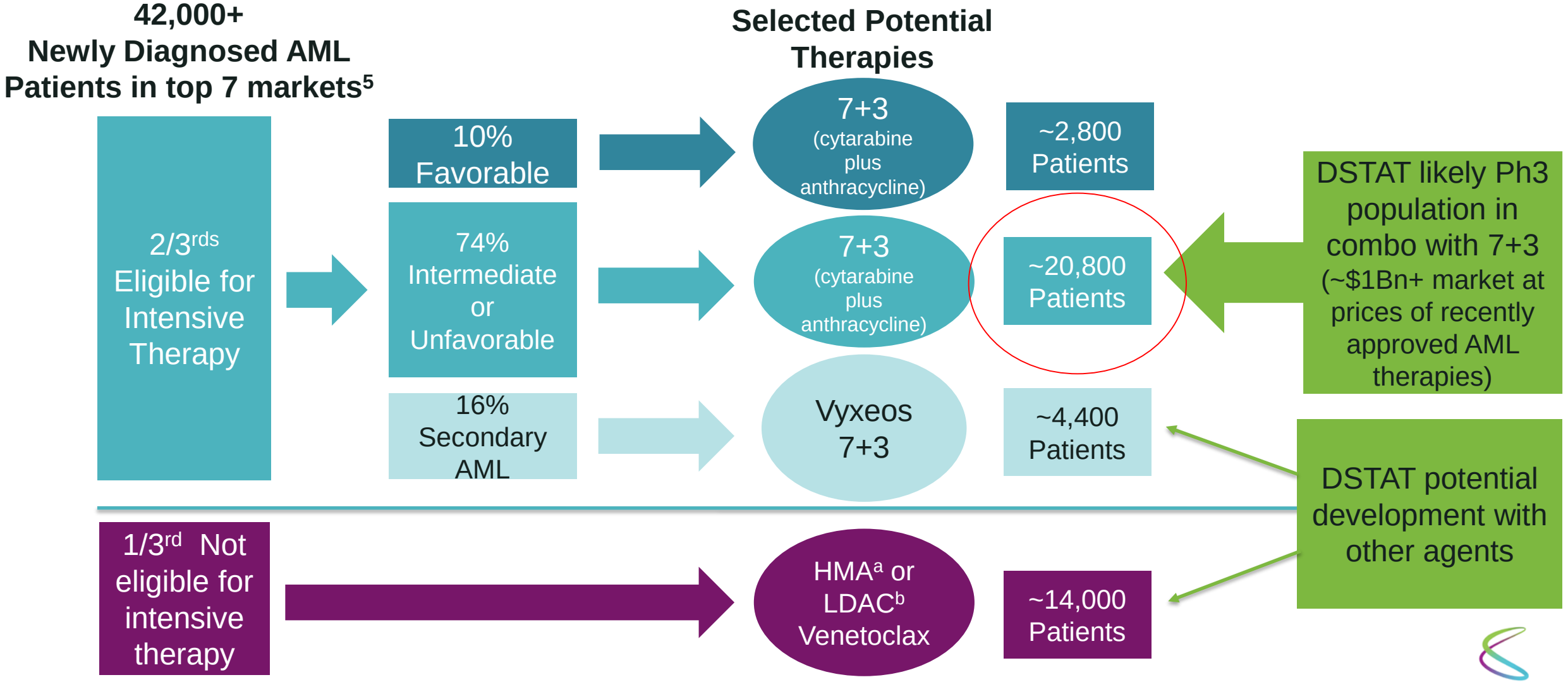
Potential phase 3 design may position DSTAT to become standard of care for up to ~20,800 patients in the top 7 markets



a) Hypomethylating agents
b) Low dose cytarabine

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Strategic priorities

Strong balance sheet to achieve milestones, expect 2019 ending cash ~$110 million

- Complete experiments to advance BCV to NDA as a countermeasure for smallpox
  - Potential non-dilutive funding to invest in DSTAT and other programs
  - Achieve commercialization without need to build commercial infrastructure
  - Manufacturing strategy to support up to $100m in shipments in 2021

- Quickly advance DSTAT to a pivotal Ph 3 registration study
  - End of Phase 2 meeting with U.S. FDA
  - Phase 3 protocol finalization

- Targeted trials to generate near term data, expand to new indications, and maximize DSTAT opportunities

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September YTD financial statements

Year to Date September 30, 2019 (millions USD)	
Revenue	$ 5.8
R&D expense	(34.8)
G&A expense	(18.0)
Acquired in process R&D	(65.0)
Operating Expense	117.9
Interest income, unrealized loss, net	3.0
Net loss	$ (109.1)
Net cash burn used (9 months)	$ 69.8
Net op-ex cash burn used*	$ 39.8
Ending Cash at Sept 30, 2019	$ 116.7

- Expected year end cash ~$110m
- Includes one-time restructuring charge of $6.3 million in 2Q19
- Includes a one-time charge for the purchase of DSTAT, $30 million of cash and $34.9 million in non-cash stock compensation

*Excludes the $30M upfront payment to Cantex for the license to DSTAT

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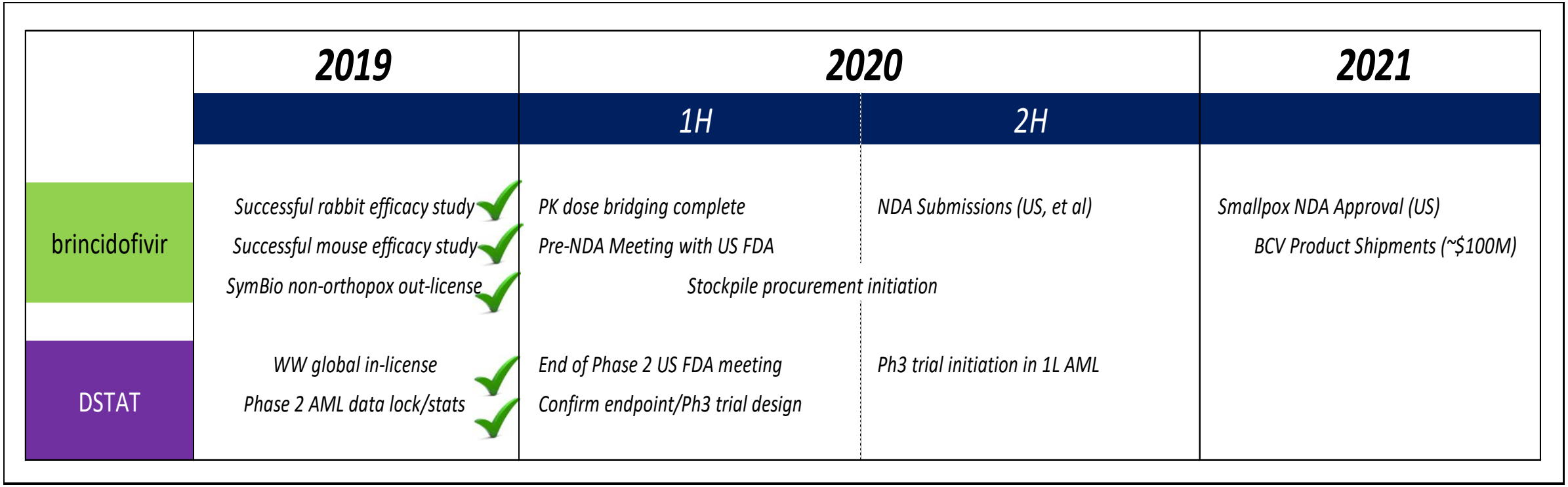
Rebuilding a culture of execution with numerous potential value-driving catalysts in next 9 months



All timelines are estimates

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