February Corporate Update

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, Chimerix's ability to develop its drug candidates including ONC201, DSTAT and BCV; the sufficiency of the data from the current clinical trial of ONC201 to support accelerated regulatory approval; Chimerix's ability to submit and/or obtain regulatory approvals for its clinical candidates; the timing and receipt of a potential procurement contract for BCV in smallpox; and the anticipated benefits of Chimerix's acquisition of Oncoceutics. Among the factors and risks that could cause actual results to differ materially from those indicated in the forward-looking statements are risks that Chimerix's clinical candidates, including BCV, may not obtain regulatory approval from the FDA or such approval may be delayed or conditioned; risks that development activities related to clinical candidates may not be completed on time or at all; risks that ongoing or future trials may not be successful or replicate previous trial results, or may not be predictive of real-world results or of results in subsequent 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 that Chimerix will not obtain a procurement contract for BCV in smallpox in a timely manner or at all; risks that the anticipated benefits of the acquisition of Oncoceutics may not be realized 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.

Accelerating development through disciplined investment

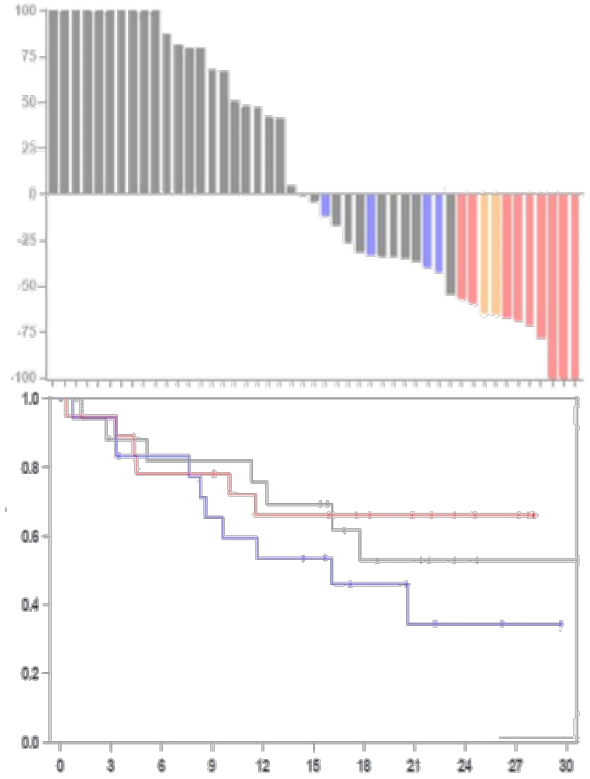
Targeted investments gated by objective data assessments

Culture of collaboration yields better decisions, stronger execution

Source of non-dilutive capital directed toward innovative oncology development

BCV for strategic national stockpile – smallpox outbreak preparation, PDUFA date April 2021

Focus on oncology areas of high unmet need supported by strong clinical data



ONC201/ONC206/ONC212

- Glioma registration opportunity
- New indication & pipeline expansion

DSTAT

- Phase 3 front-line AML trial
- Phase 2 COVID-19 trial

Brincidofovir (BCV) in FDA Review for Smallpox Medical Countermeasure

The value of preparedness has never been more evident

- Highly infectious with ~30% mortality[1]
- Population is unvaccinated since early ‘70s
- Considered a Class A threat by PHEMCE[2]
- Weaponized virus could be engineered to increase transmission and resistance
- BARDA mandate to stockpile countermeasures with alternative mechanisms
- Siga Technologies awarded >$1B in contracts for development and stockpile of TPOXX
- PDUFA date April 7, 2021

1 World Health Organization, estimate for the more common variola major form of smallpox (vs variola minor of 1%), January 13, 2014
2 Public Health Emergency Medical Counter Measures Enterprise

Brincidofovir meets ‘Animal Rule’ approvability

Animal Rule is used when human efficacy studies are not ethical or feasible. The Animal Rule states that FDA will rely on evidence from animal studies to provide substantial evidence of effectiveness only when all of the following four criteria

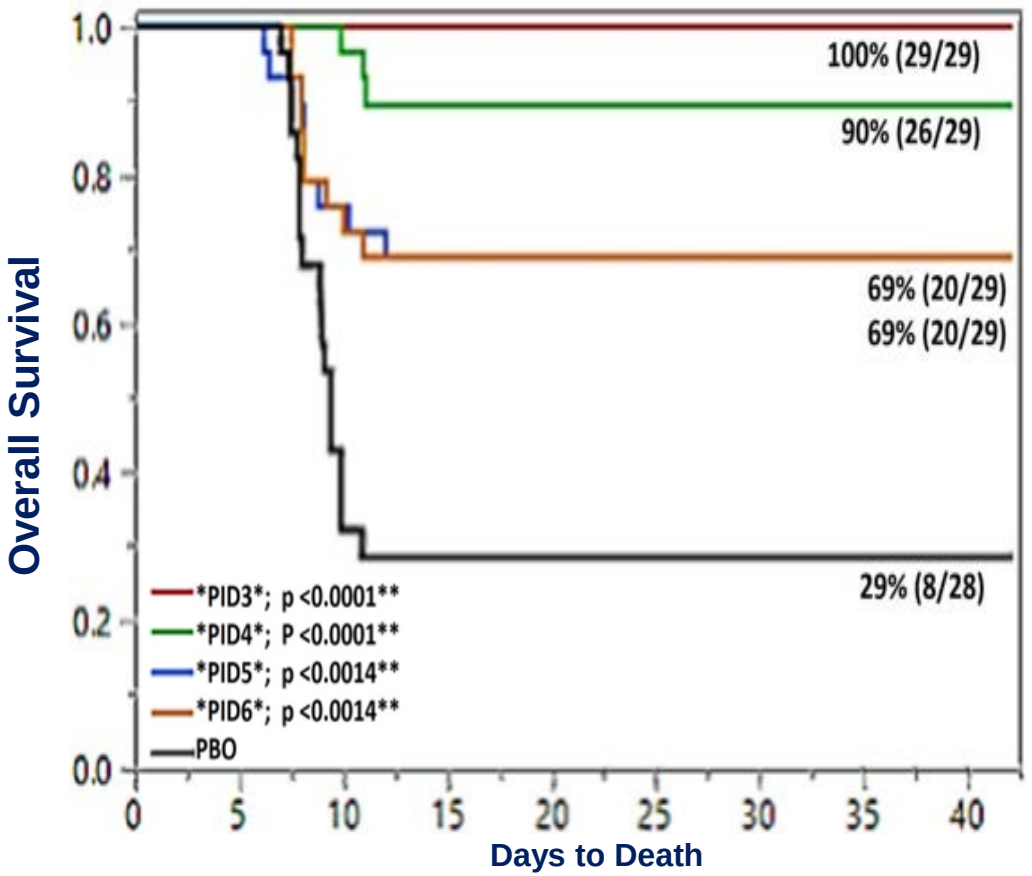
Known cause of disease and Mechanism of treatment	Orthopoxvirus BCV mechanism of action demonstrated
Efficacy demonstrated in 2 animal species	BCV shows statistically significant survival benefit in two approved species
Animal study endpoint clearly related to benefit in humans	Survival
Pharmacokinetics and pharmacodynamics well understood in animals and humans	Translates effective exposure in animals to recommended doses in human

Extensive human safety database with ~1600 Healthy volunteers and virally infected adult and pediatric patients

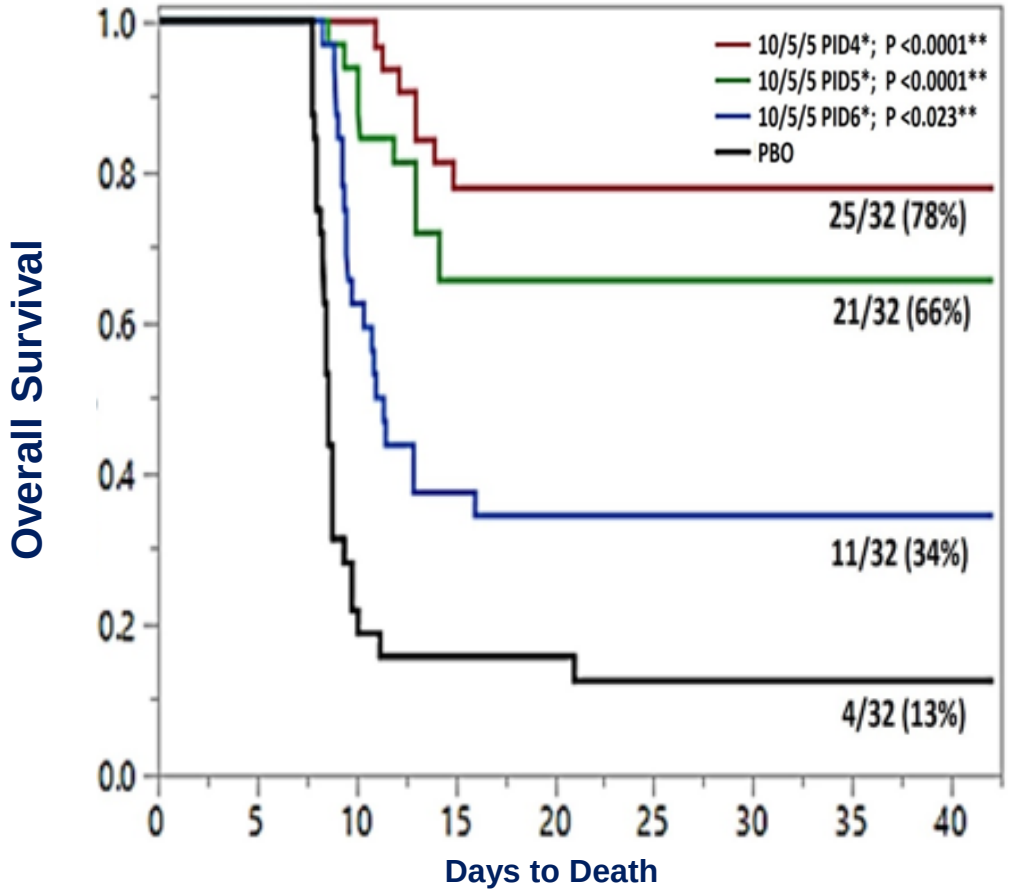
BCV significantly reduced mortality in required models

Survival improved even with administration of BCV well beyond midpoint of disease progression

Rabbit Model



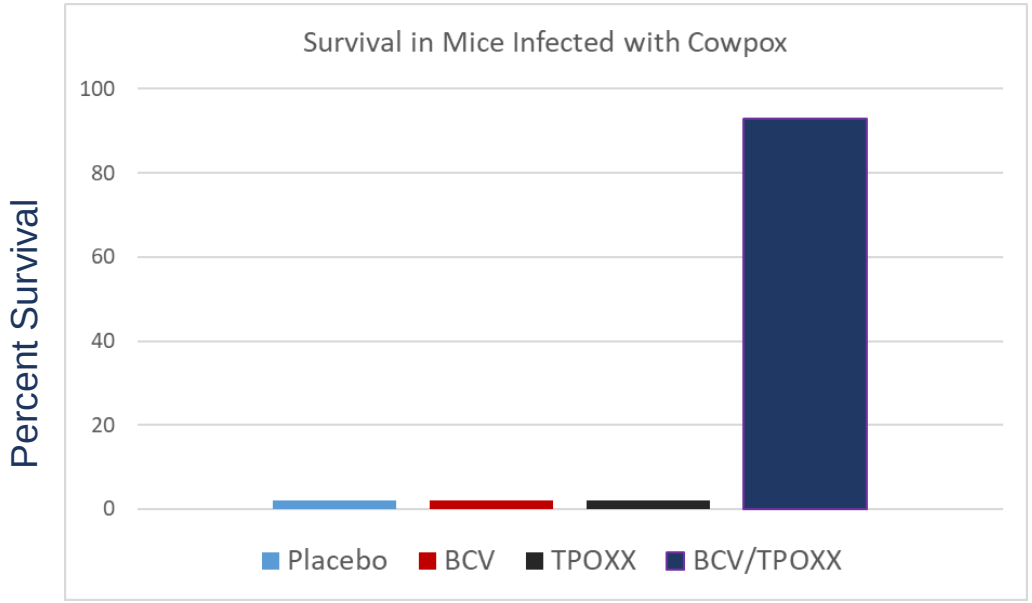
Mouse Model



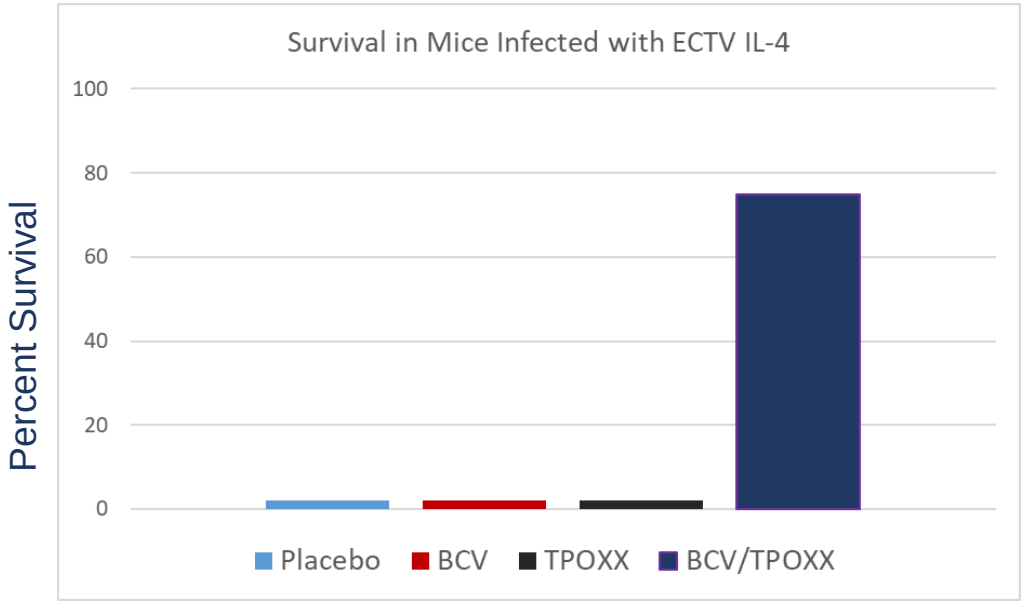
* PID = Post Inoculation Day
** Versus Placebo (PBO); Boschloo one-sided

Brincidofovir and TPOXX work well together

- Combination therapy improves responses
  - Complementary against VACV and CPXV in vitro
  - Complementary against CPXV and ECTV in vivo
- Conceptually like many other antiviral combinations (e.g., NNRTI/NRTI in HIV)



Treatment at Day 6 post infection, BCV 3 mg/kg, TPOXX 10 mg/kg (daily x 5)



BCV 4 mg/kg, daily x 14 (started Day 1)
TPOXX 100 mg/kg, daily x 14 (started Day 0)

Quenelle, Antimicrobial Agents Chemother, 2007,51:4118; Chen, Virol, 2011,409:328

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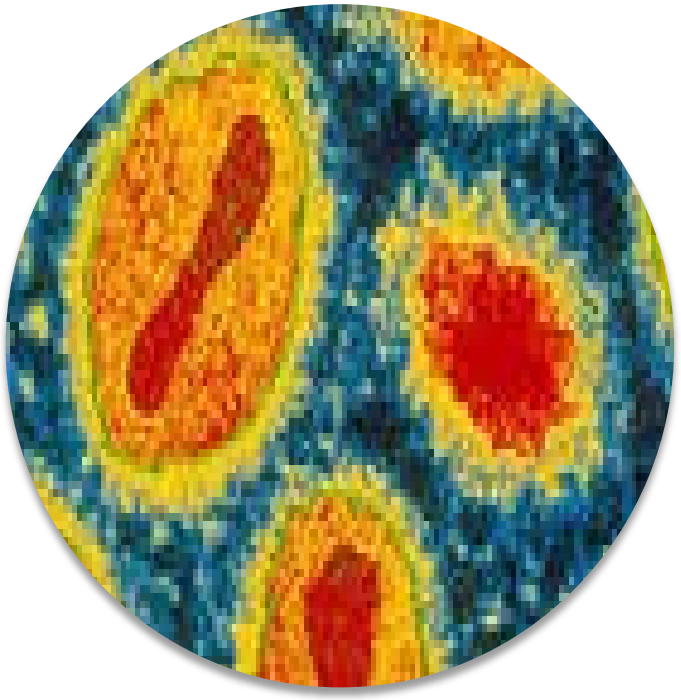
Brincidofovir complements existing vaccines

- BCV and replication competent vaccines (Dryvax/ACAM2000)
  - BCV did not reduce functional protective immunity as measured by re-challenge in mice
  - BCV reduced severity of vaccination-associated lesions and antibody titer; effect mitigated by delaying BCV by 1 day post vaccination
- BCV and non-replicating vaccines (ACAM3000/MVA)
  - BCV did not reduce functional protective immunity as measured by re-challenge in mice
  - BCV did not reduce immune response
- These data are consistent with co-administration of a replicating virus vaccine and an antiviral; relevance in a treatment setting where lots of viral antigen present?

Parker, Antiviral Res, 2014,111:42

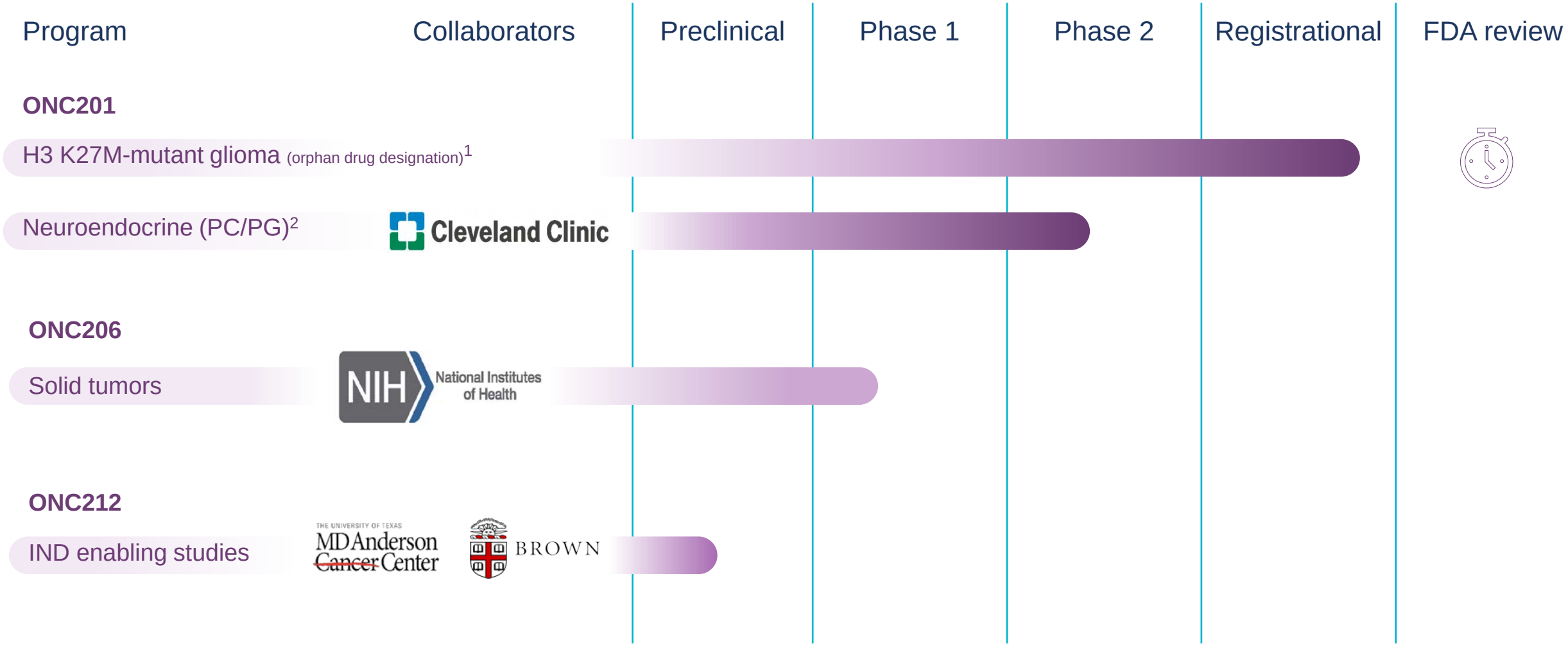
BCV positioned as an attractive addition to SNS



- Satisfies animal rule requirements needed for approval, April 7, 2021 PDUFA date
- BCV resistance impairs viral replication, important hurdle to an engineered attack
- Safety database of ~1,600 subjects
- Ease of administration - short-course oral tablet and suspension
- Complementary with existing countermeasures and vaccines
- Initial quantities available for delivery to the SNS in Q3 2021

Acquisition of Oncoceutics Adds Targeted Oncology Pipeline with Near-term Registration Potential

Acquisition adds portfolio of precision oncology therapies

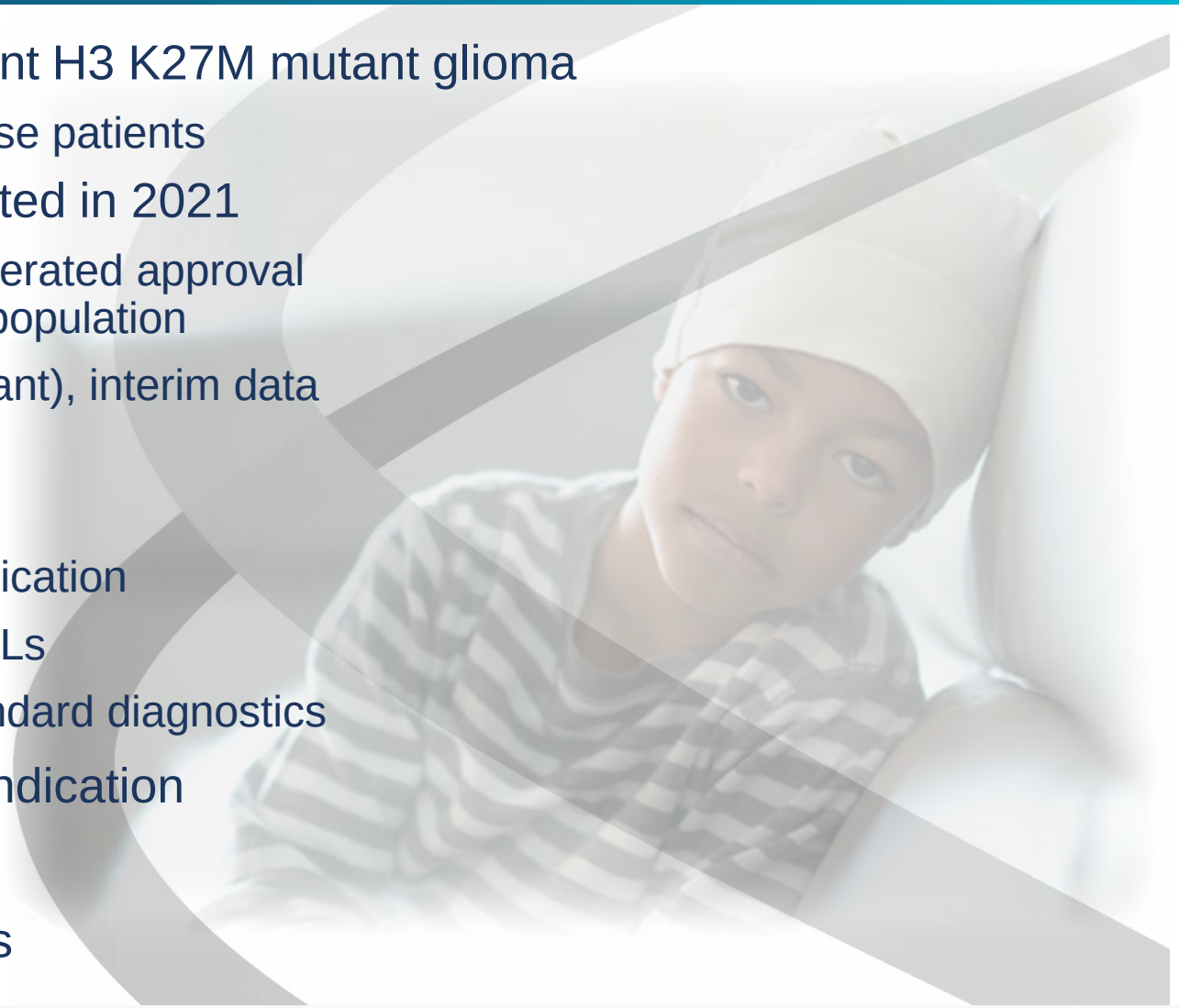


1 Recurrent diffuse midline glioma H3 K27M mutant
2 Pheochromocytoma/paraganglioma

Denotes US FDA Fast Track Designation

ONC201 provides attractive near-term opportunity

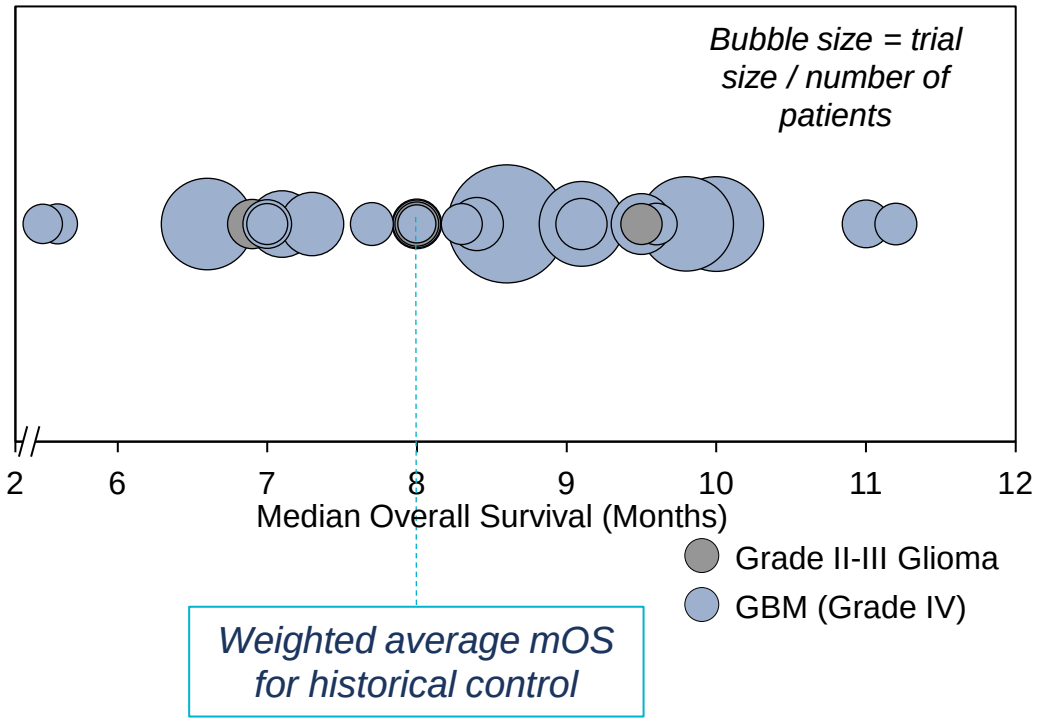
- Unprecedented single agent activity in recurrent H3 K27M mutant glioma
  - Currently no effective therapeutic options for these patients
- Clear path to registration, pivotal data anticipated in 2021
  - FDA discussions highlight path to potential accelerated approval using Overall Response Rate (ORR) in defined population
  - Registration cohort enrolled (diffuse midline mutant), interim data available
- Attractive commercial market potential
  - >$500M global peak sales opportunity in first indication
  - Extraordinary awareness of ONC201 among KOLs
  - Mutation already routinely identified through standard diagnostics
- Compelling single agent response in second indication
- Strong IP portfolio into mid to late 2030s
- Path ahead leverages organizational strengths



Recurrent H3 K27M+ recurrent glioma, a devastating disease where single agent responses are rare and lack durability

- Most frequent histone mutation in glioma
  - Frequent (>50%) in younger patients with midline brain tumors
  - Classified as grade IV by WHO, regardless of diffuse glioma histology
  - Mutation routinely identified via immunohistochemistry (IHC) or next generation sequencing (NGS), e.g. Foundation One
- No effective therapy
  - Often not possible to resect
  - Recurrence inevitable after first-line radiation
  - Invariably lethal; ~8 months median overall survival
  - Chemotherapy ineffective; objective responses by RANO-HGG[1] rarely observed

Median overall survival weighted average:
~8 months in recurrent glioma[2] post TMZ



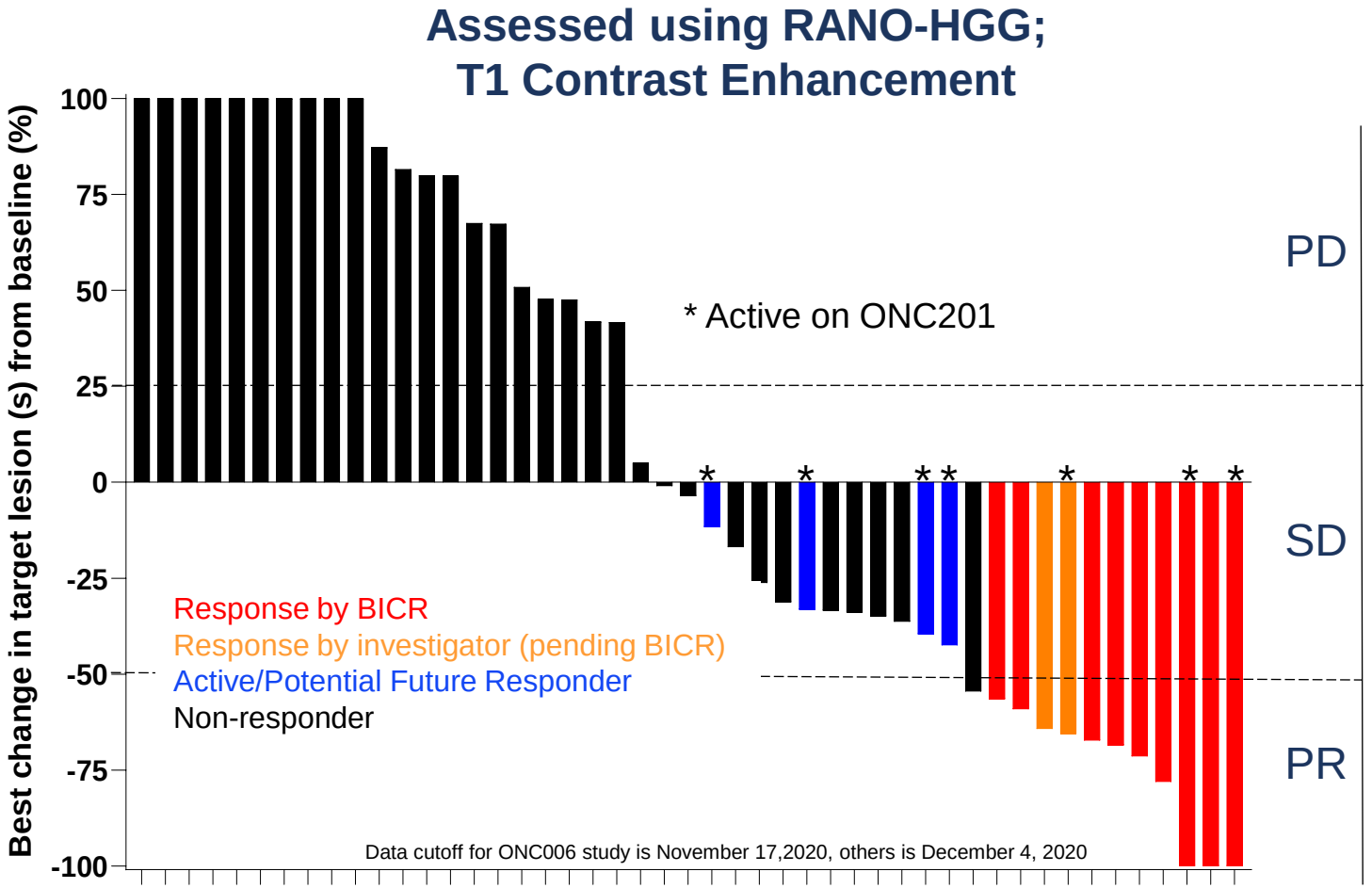
1 Response Assessment in Neuro-Oncology-High Grade Glioma
2 Data collected from 17 literature sources since 2010 with trial arms size >30 pts each reporting data on 1937 pts with recurrent, unstratified disease. 13 trials were in post-TMZ patients and four trials with 282 pts did not explicitly declare prior TMZ, rather "radiotherapy + chemo"

H3 K27M-mutant glioma: market dynamics and opportunity

- Addressable market
  - U.S. incidence (annual): ~2,000
- Market research
  - Nearly all mid-line glioma patients tested for H3 K27M-mutation; rate to increase with targeted therapy
  - Oncologists consider a therapy for recurrent H3 K27M-mutant gliomas to be clinically meaningful if it demonstrates ~20% ORR and/or clinically relevant durability
  - ONC201 use expected in >80% of H3 K27M-mutant glioma patients based on current profile
  - There is interest in using ONC201 in combination with radiation if possible, in the front-line setting
- Competitive landscape: chemotherapy and bevacizumab ineffective; targeted agents, vaccines and CAR-T therapies are in early development with limited efficacy analysis available
- Low barriers to adoption
  - No effective treatment options available
  - K27M already on commercial and site-specific NGS panels, oral dosing (QW), good safety profile
  - High unaided awareness of ONC201 among neuro-oncologists
  - Longer-term, potential combinable with other glioma therapies

Compelling ONC201 responses in recurrent H3 K27M mutant disease drives strong KOL engagement

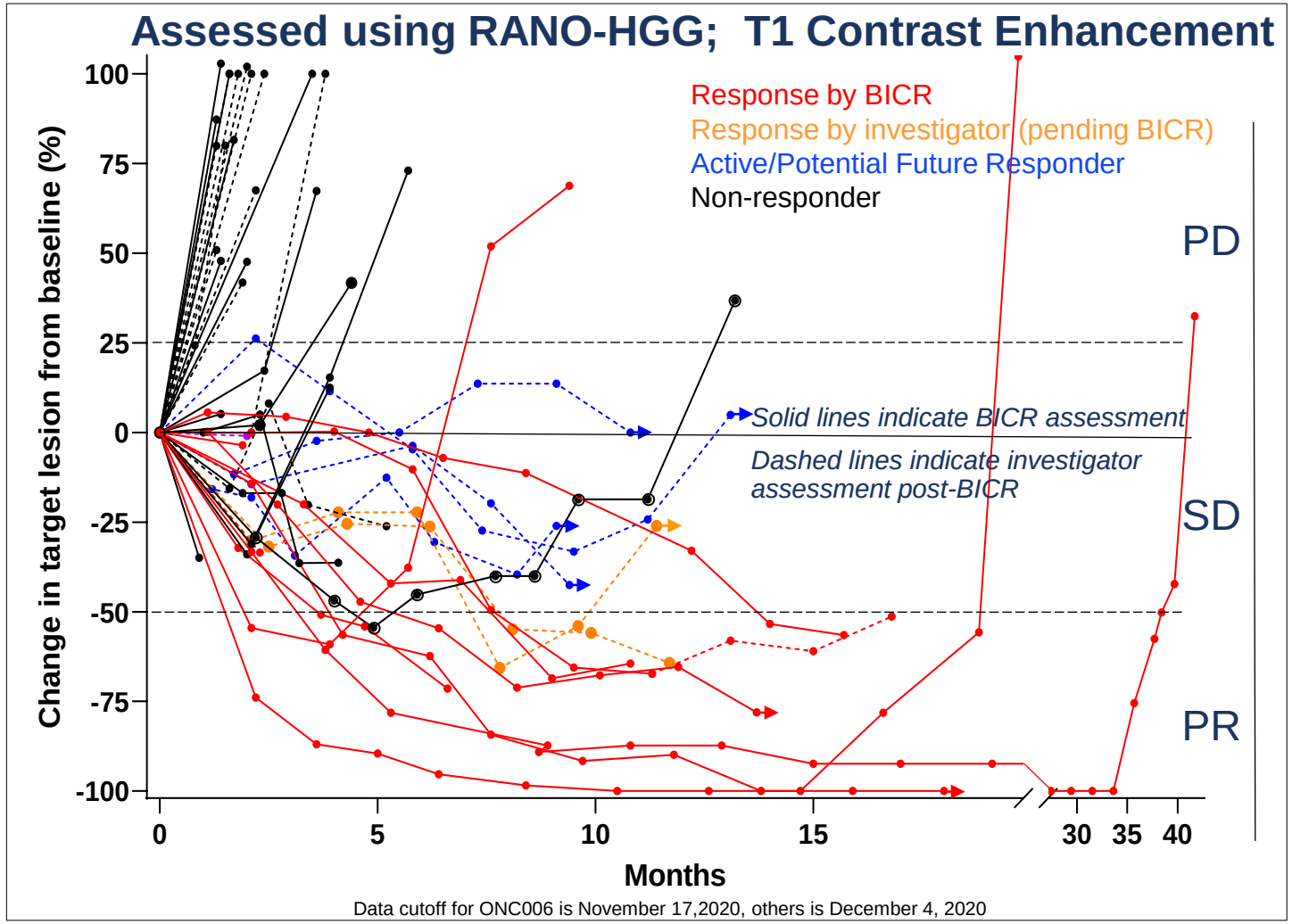
- 30% ORR by BICR in first 30 patients
- Maturing data from the next 20 patients so far demonstrated:
  - 2 additional responders by investigator assessment
  - 4 additional patients remain on therapy >6 months
- ORR from full cohort supported by
  - Clinically relevant durability
  - Clinically relevant disease control in non-responders
  - Other clinical benefits (e.g., reduction in steroid use, improved performance status)
  - Complete responses
  - Objective responses in CNS tumors exclusive to H3 K27M mutations



Waterfall plot reflects 47 subjects; 3 subjects do not have on-treatment tumor assessments available but were PD
Some eligibility and response data is based on unlocked CRFs that are subject to change with additional monitoring

Meaningful durability of response

Expected ≥20% ORR in registration cohort (n=50)



Response Summary*

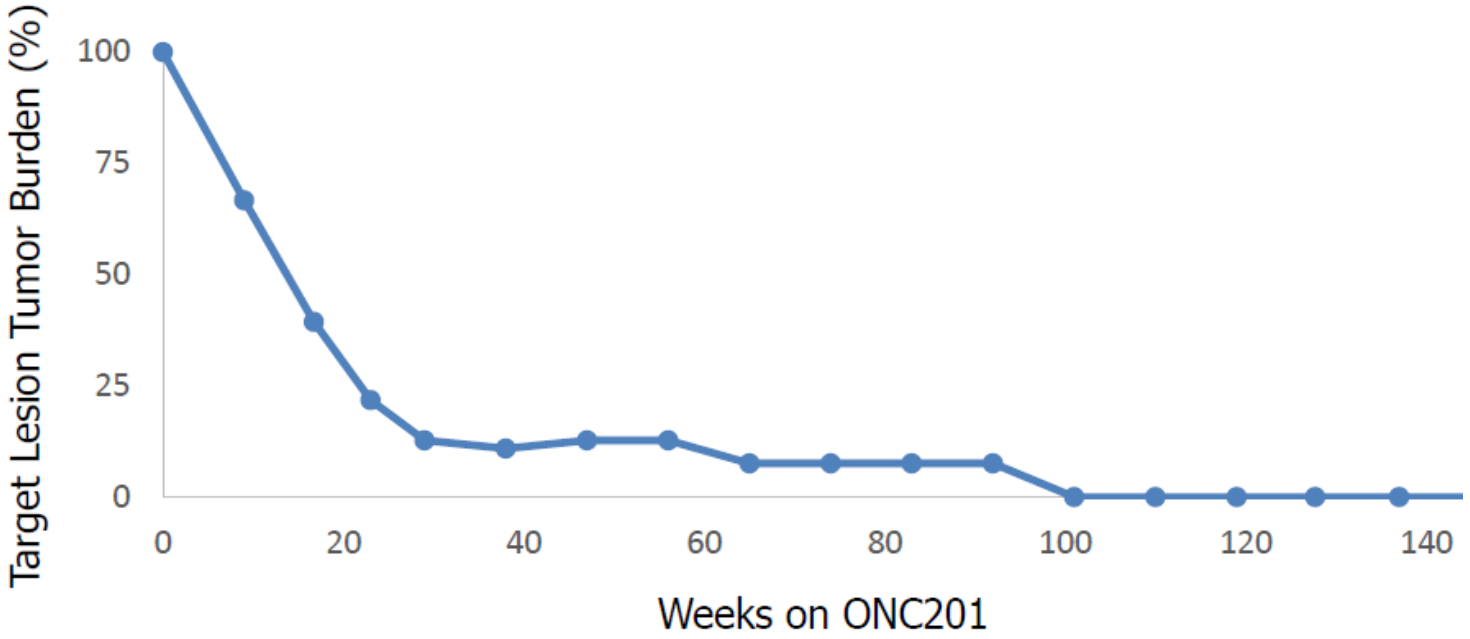
- Subject to change with maturing data
- Meaningful duration of response
  - mPFS among responders: > 15 months
- 9 responses by BICR
- 2 new responses by investigator assessment (to be assessed by BICR)
- 4 patients on therapy >6 months who could still achieve response

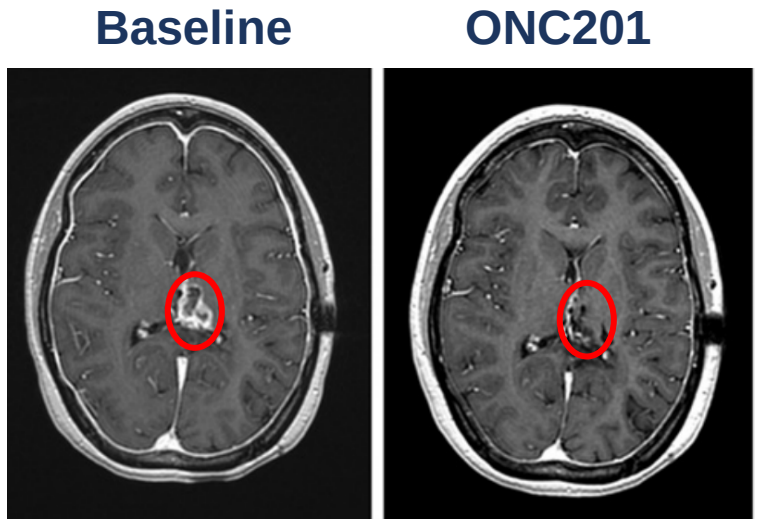
* All responses planned to be reconfirmed by a three-party adjudicated blinded independent central review in 2021

Waterfall plot reflects 47 subjects; 3 subjects do not have on-treatment tumor assessments available but were PD
Some eligibility and response data is based on unlocked CRFs that are subject to change with additional monitoring

ONC201 patient: near complete tumor regression

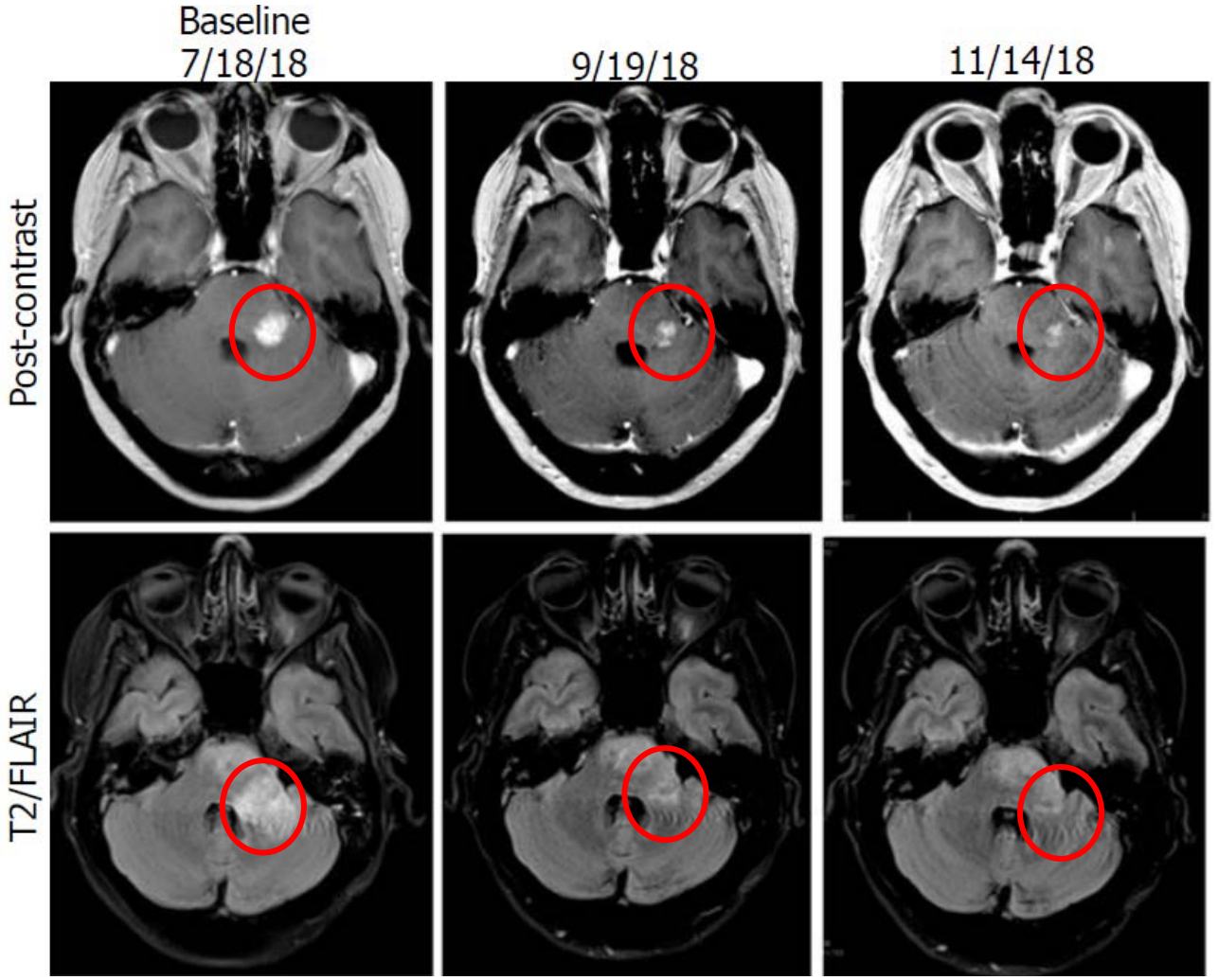
- 22-year-old with recurrent H3 K27M mutant glioma
- Started single agent ONC201 treatment after recurrence of tumor in March 2016
- Experienced deep and durable complete regression in the primary lesion





ONC201 partial responses have driven clinical benefit in recurrent H3 K27M-mutant glioma

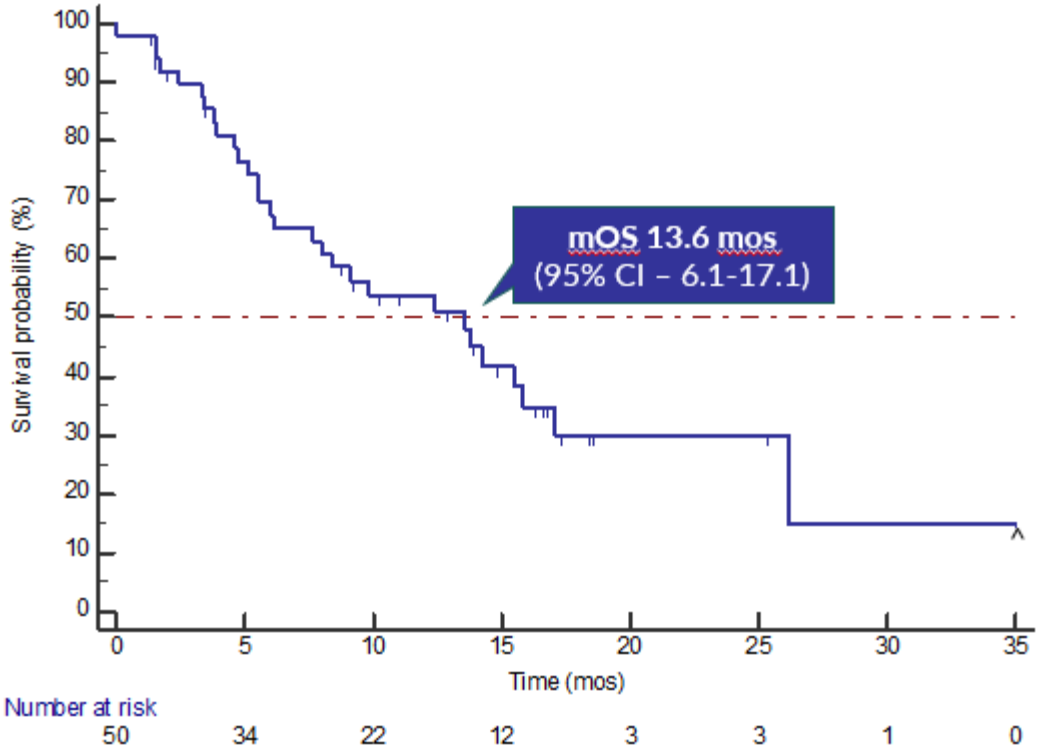
- 55-year-old received single agent ONC201 at recurrence following radiation therapy (RT) and temozolomide (TMZ)
- Objective partial response was associated with normalization of neurological deficits by NANO[1] within two cycles
  - Improved gait
  - Improved facial strength
  - Improved language
- Radiographic response and neurologic response >7 months



1 Neurological Assessment in Neuro Oncology

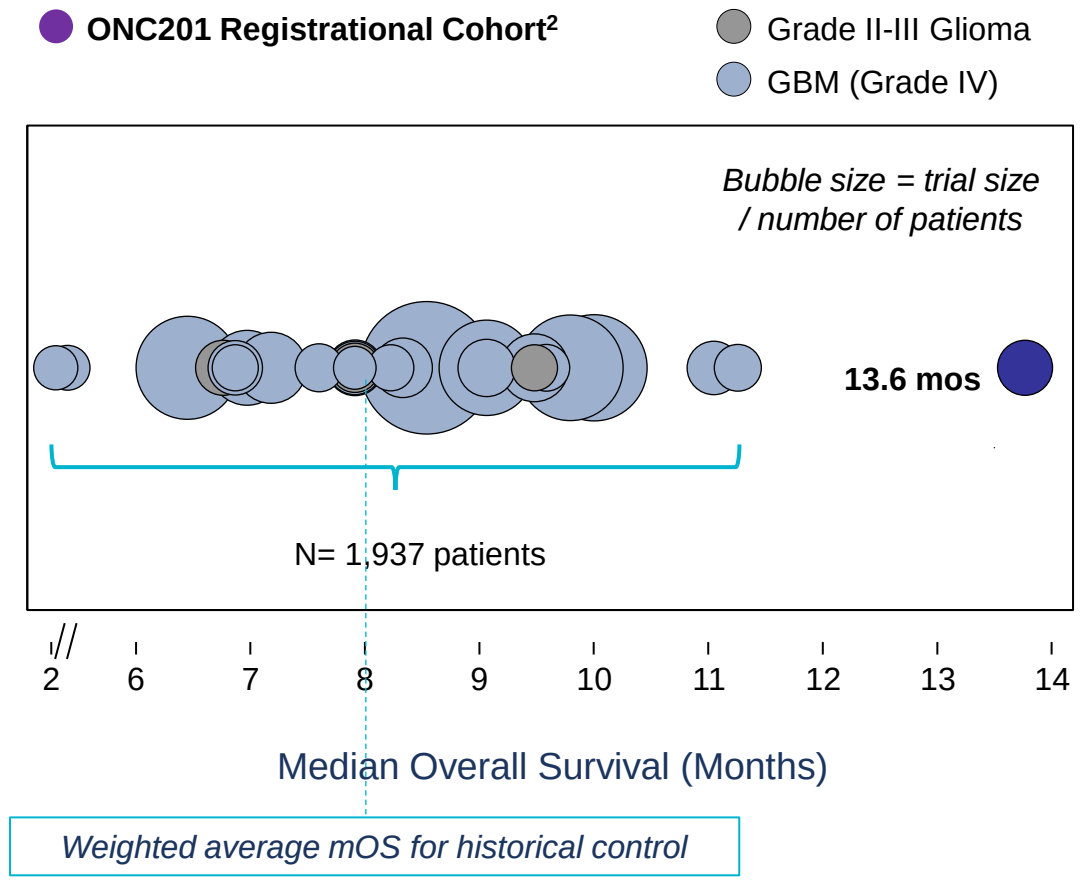
Upon full maturation, ONC201 median overall survival data is expected to compare favorably to historical controls

ONC201 OS by line of therapy in recurrent H3 K27M+ glioma patients



^ *last patient is censored at 53.3 months*

ONC201 OS compares favorably with historical benchmarks in recurrent patients[1]



Weighted average mOS for historical control

1 Data collected from 17 literature sources since 2010 with trial arms size >30 pts each reporting data on 1,937 pts with recurrent, unstratified disease. 13 trials were in post-TMZ patients while four trials with 282 pts did not explicitly declare prior TMZ, rather "radiotherapy + chemo"

2 50 K27M+ recurrent patients treated with ONC201 (38% GBM)

ONC201 demonstrated attractive safety profile, oral administration

Treatment-emergent and related AEs[1] occurring in >5% of ONC201-treated recurrent H3 K27M-mutant glioma patients (all 52 subjects enrolled in study ONC013)

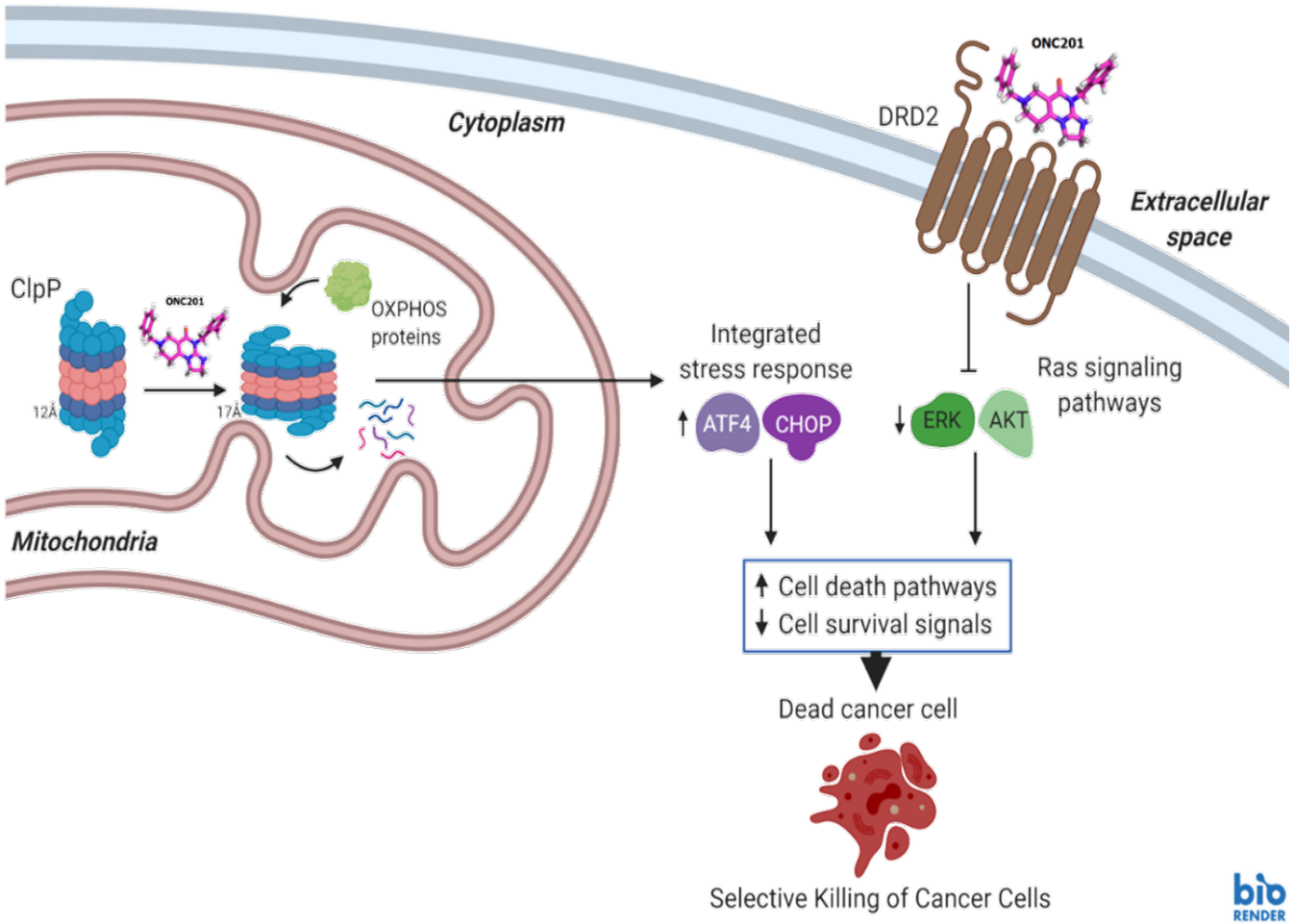
Study ONC 013: Adverse Reactions (N=52)	All Grades n(%)	Grade 3-4 n(%)
General disorders and administration site conditions	11 (21.2)	3 (5.8)
Fatigue	10 (19.2)	3 (5.8)
Investigations	10 (19.2)	1 (1.9)
Lymphocyte count decreased	5 (9.6)	-
Nervous system disorders	8 (15.4)	-
Headache	3 (5.8)	-
Gastrointestinal disorders	7 (13.5)	-
Nausea	7 (13.5)	-
Vomiting	3 (5.8)	-
Metabolism and nutrition disorders	6 (11.5)	-
Decreased appetite	4 (7.7)	-
Skin and subcutaneous tissue disorders	4 (7.7)	3 (5.8)
Rash maculo-papular	4 (7.7)	3 (5.8)

- Integrated safety database for NDA will consist of >350 glioma patients
- Dose-limiting toxicities have not been observed with weekly dosing in any indication
- Study allows single weekly dosing until progression
- Safety results and oral dosing potentially enable:
  - Fixed dosing in adults
  - High rate of compliance
  - Evaluation in multiple therapeutic settings
  - Evaluation of combination therapies

1 A treatment-emergent AE (TEAE) is defined as a newly occurring or worsening AE after the first dose of study treatment and through 30 days after the last dose of study treatment. TEAEs that are definitely related, probably related, possibly related or missing relationship to the study drug are considered as study drug related treatment-emergent adverse events. Adverse events were coded using the MedDRA Dictionary, Version 22.0. Date Cutoff: 31AUG2020

ONC201 targets ClpP and DRD2

ONC201 upregulates integrated stress response, inactivates Akt/ERK, selectively inducing tumor cell death

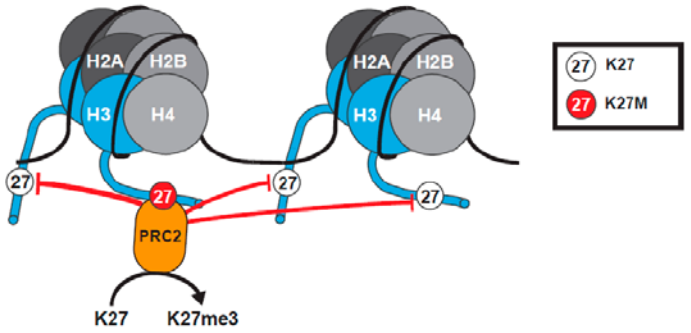


- ONC201 can selectively induce apoptosis in cancer cells by altering activity of two proteins
- ClpP agonism
  - ClpP normally degrades misfolded proteins in mitochondria
  - ONC201 modifies ClpP conformation, promoting excess degradation of specific mitochondrial proteins important for cancer cell viability
- DRD2 antagonism
  - DRD2 is a G protein-coupled neuroreceptor that regulates Ras signaling
  - ONC201 antagonizes DRD2, inhibiting Ras signaling pathways

ClpP=caseinolytic protease P; DRD2=Dopamine receptor D2; ATF4=activating transcription factor 4; CHOP=C/EBP-homologous protein; ERK=extracellular-regulated kinase; AKT=protein kinase B

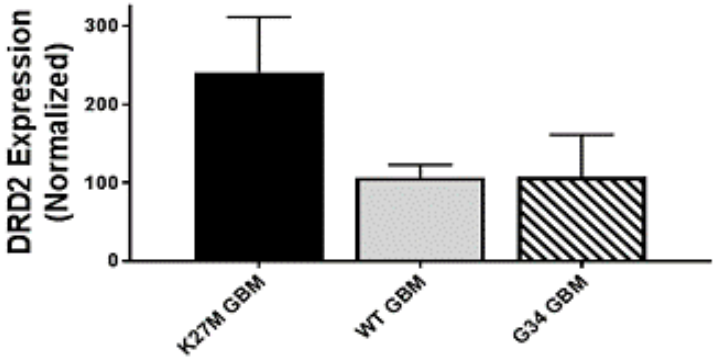
H3 K27M-mutant gliomas exhibit enhanced sensitivity to ONC201

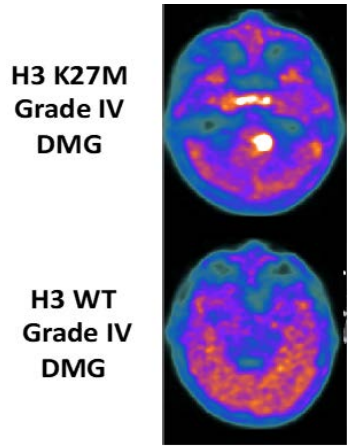
Lysine to methionine ("K-to-M") histone H3 mutation reduces H3 K27 methylation



K27M mutants bind PRC2 which normally methylates H3 K27 via EZH1/2; binding/tethering PRC2 prevents methylation of even nonmutant H3 K27

H3 K27M elevates DRD2 expression

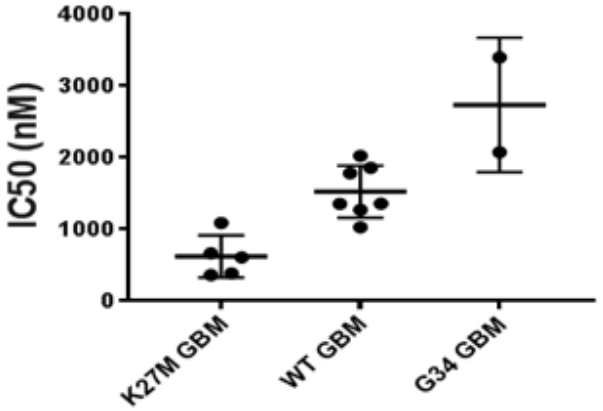




18F-DOPA PET

Midline tumors occur in dopamine-rich regions of the brain

High sensitivity to ONC201



Lowe et al., Cancers, 2019; Chi et al., Society of Neuro-Oncology, 2017; Kawakibi et al, Society of Neuro-Oncology, 2019; Koschmann et al., Pediatric Society of Neuro-Oncology 2019; Prabhu et al, Clinical Cancer Research, 2018; Ishizawa et al, Cancer Cell, 2019; Prabhu et al., Society of Neuro-Oncology, 2019, Piccardo et al., Eur J. Nucl Med Mol Imaging, 2019

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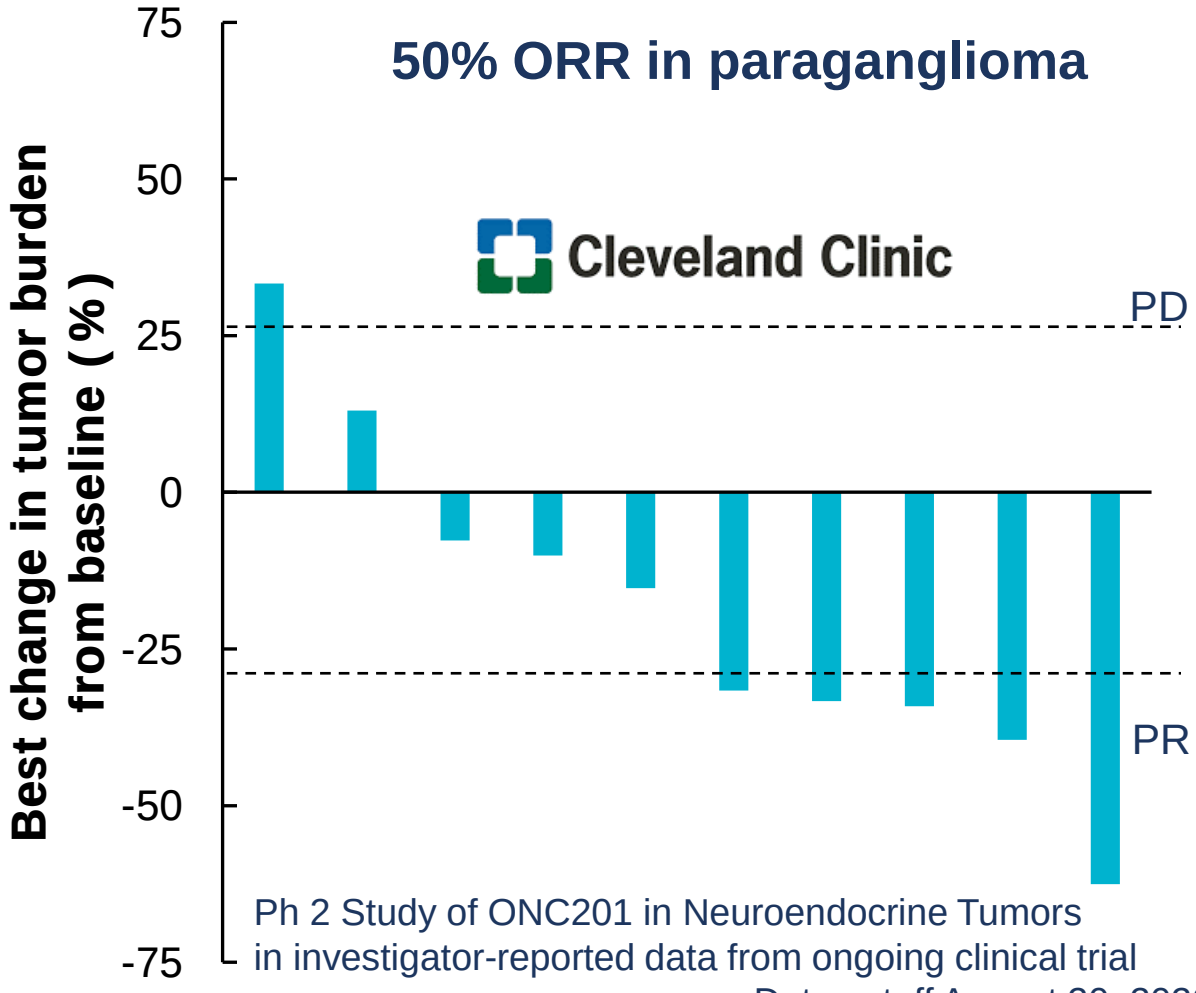
ONC201 interim efficacy results in observed dopamine-secreting tumors outside the brain



Ph 2 Study of ONC201 in Neuroendocrine Tumors
in investigator-reported data from ongoing clinical trial
Data cutoff August 20, 2020

- Single agent responses in Ph 2 neuroendocrine trial of ONC201 observed in subset (paraganglioma)
- Paraganglioma are adrenal-related tumors with elevated DRD2 expression
- Interim data provides evidence of activity is not restricted to brain tumors
- Interim data supports use of biomarkers and microenvironment to identify additional highly responsive indications

Key regulatory communications: potential path to approval

- Homogenously defined population in recurrent diffuse midline glioma, H3 K27M-mutant, as defined by cIMPACT NOW Update 2, may be acceptable for approval
- FDA acknowledged that “available therapy” is considered palliative (i.e. there is no available treatment for recurrent H3 K27M mutant diffuse midline glioma)
- FDA acknowledged integrated safety database of approximately 350 patients
- Approval may be granted based on Overall Response Rate (ORR) by RANO-HGG[1]
- Based on FDA discussions, the registration cohort will be comprised of 50 subjects pooled across multiple company-sponsored clinical studies and expanded access
- Initial EMA discussions have indicated durable ORR may be an acceptable endpoint for EU marketing authorization

1 Response Assessment in Neuro-Oncology-High Grade Glioma

ONC201 FDA designations

Orphan Drug Designation (ODD) (treatment of glioblastoma and treatment of malignant glioma)

Fast Track Designation (FTD) for adult recurrent H3 K27M-mutant high-grade glioma

Rare Pediatric Disease Designation for treatment of H3 K27M mutant glioma

- Potential to receive rare pediatric voucher[1]

1 Subject to continuation of Rare Pediatric Disease Voucher Program and proceeds from voucher will be split 50/50 with legacy Oncoceutics shareholders

Promising pipeline in development

ONC206:

- Differentiated DRD2 antagonist + ClpP agonist
- Phase 1 for recurrent CNS tumors

ONC212:

- GPR132 agonist + ClpP agonist
- IND-enabling studies

Deal terms

- Acquisition of Oncoceutics, Inc. including ONC201, ONC206 and ONC212
- Financial Terms
  - Upfront Consideration = $78M
    - $39M in equity ~8.7M shares
    - $39M in cash ($14M deferred for one year)
  - Milestones (m/s)
    - Efficacy m/s: $20M with ONC201 BICR[1] ORR[1] ≥ 20%
    - Regulatory approval (US and EU) m/s for ONC201 up to $60M[2]
    - Regulatory approval (US and EU) m/s for ONC206 and ONC-212 up to $30M
    - Sales m/s on combined net sales of ONC201/ONC206 totaling up to $250M
  - Royalty:
    - 15% royalty on combined net sales of ONC201/ONC206 up to $750M, 20% in excess of $750M
- Simultaneous signing and closing

1 Blinded Independent Central Review; Overall Response Rate by RANO-HGG
2 US: $30M first indication, $10M second indication, $5M third indication. EU: $15M first indication. No milestone to be paid more than once

Financial Summary

Dollars (millions)	Sept YTD 2020
R&D	$ 27.5
G&A	9.5
Total operating expenses	37.0
Net income(loss)	(31.8)
Ending Cash balance	$ 87.8
Shares outstanding	62.6

- Cash balance of approx. $78M at 12/31/2020
- Several levers available for additional capital:
  - Expected significant non-dilutive proceeds from potential BCV stockpiling in 2021
  - Global rights to most programs
  - Several 2021 catalysts provides additional optionality
- ~71 million shares outstanding post transaction

Dociparstat Sodium (DSTAT) for First-line Treatment in AML

More than 21,000 new cases of AML diagnosed annually in the U.S.

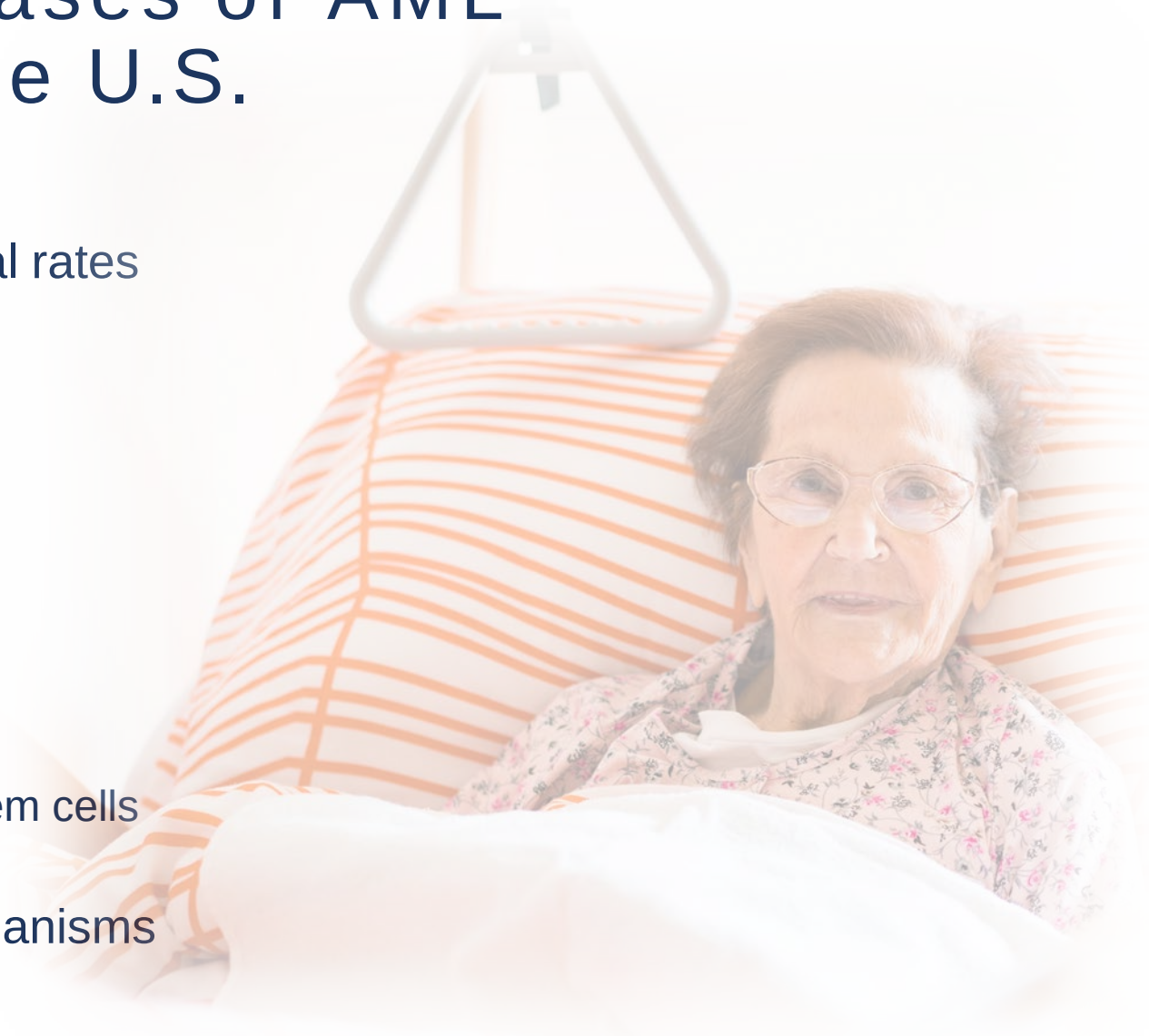
- Rapidly progressive disease with low survival rates
- Existing therapies are seldom cures
  - 1-year survival for older patients

5 out of 10

  - 5-year survival for older patients

1 out of 10

  - Relapse can occur if not all AML blasts and stem cells are eradicated
- AML is heterogenous and has multiple mechanisms of resistance to treatment



Walter RB, Othus M, Burnett AK, et al. Resistance prediction in AML: analysis of 4601 patients from MRC/NCRI, HOVON/SAKK, SWOG and MD Anderson Cancer Center. Leukemia. 2015;29(2):312-320. doi: 10.1038/leu.2014.242.

Compelling pilot study results in treatment-naïve AML patients

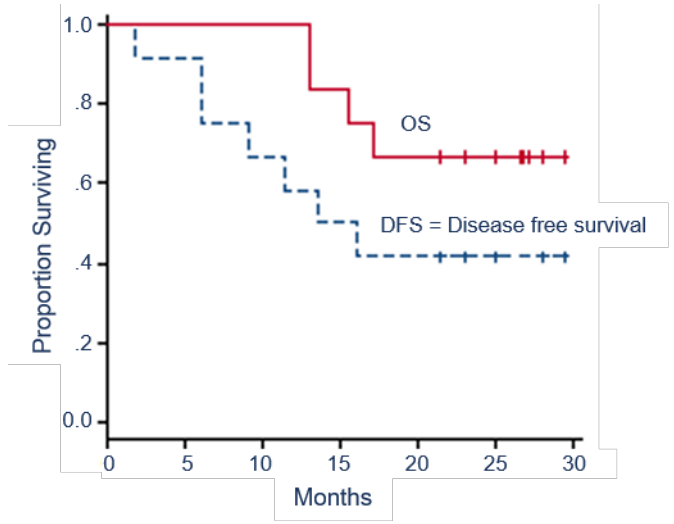
Strong Complete Response, Overall Survival and improved hematologic recovery

Complete Response

- **11 of 11 (100%)** patients with treatment-naïve primary AML achieved a CR with single induction cycle of 7+3 chemotherapy plus DSTAT; none reported serious adverse events related to DSTAT
- 12th patient enrolled with granulocytic sarcoma secondary to chronic myelomonocytic leukemia achieved a CR with second induction cycle without DSTAT
- All 5 baseline FLT3+ patients achieved CR with single induction cycle

Survival Rates

- Median survival not yet reached after 29.4 months
- Median disease-free survival of 14.8 months
- 4 patients remained in remission



Count Recovery

- Median time to recovery of an untransfused platelet count of a least 50 x 10^9/L of 23.5 days
- Median time to ANC recovery of at least 0.5 x 10^9/L of 22 days

Tibor J. Kovacsovics, Alice Mims, Mohamed E. Salama, et al. Combination of the low anticoagulant heparin CX-01 with chemotherapy for the treatment of acute myeloid leukemia. Blood Advances. 16 October 2017; accepted 21 January 2018. DOI 10.1182

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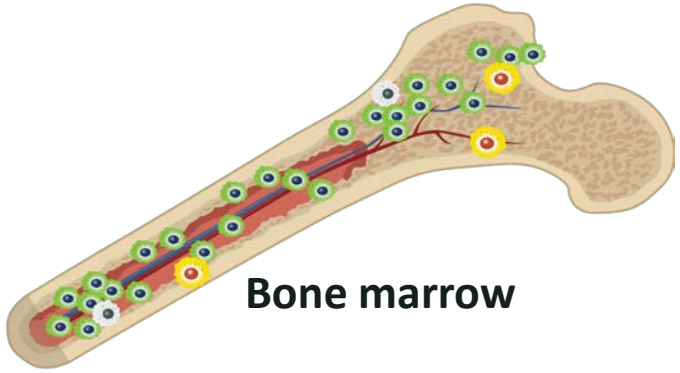
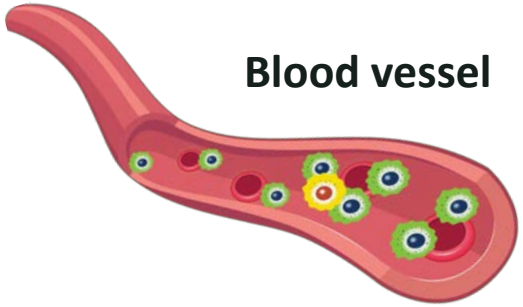
DSTAT may improve duration of response & overall survival

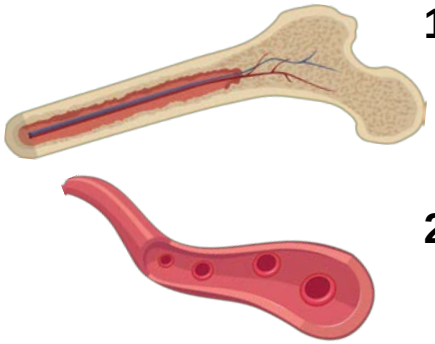
DSTAT targets proteins involved in resistance pathways and LSC/blast quiescence, including HMGB1, PF4, CXCR4 / CXCL12, neutrophil elastase and selectins





- AML blast sensitive to 7+3
- AML blast resistant to 7+3
- Leukemic stem cell (LSC) resistant to 7+3
- Red blood cells

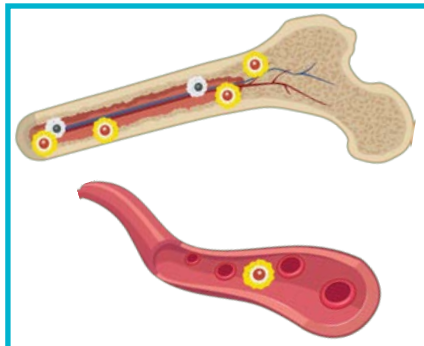
'7+3' Chemotherapy + DSTAT



1) Inhibit AML survival and chemoresistance pathways

2) Reverse quiescence of AML blasts and LSCs

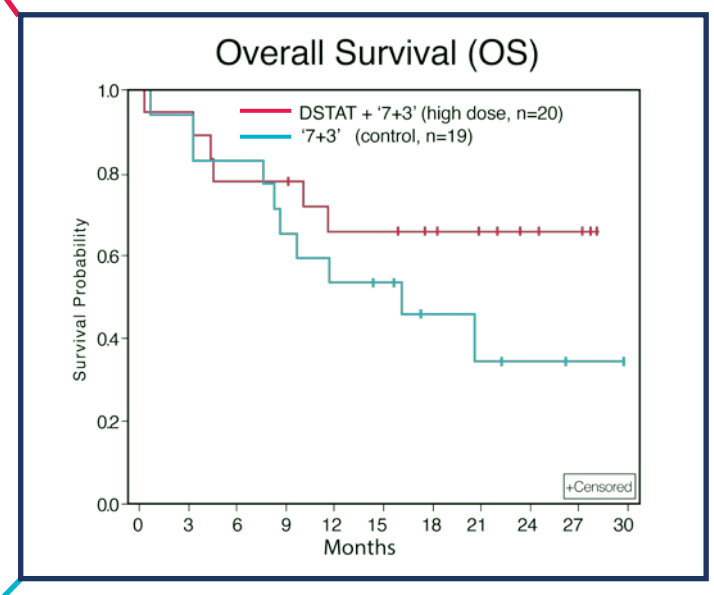
'7+3' Chemotherapy



1) Residual AML blasts cause relapse

2) Low abundance LSCs cause relapse

DSTAT appears to reduce AML relapse



Relapse driven by resistant blasts & LSCs

Randomized Phase 2B AML study in U.S. cancer centers

Design[1,2]

Subjects	▪ Treatment-naïve AML patients ▪ Age 60+ ▪ N = 75
Treatment Arms	▪ Cytarabine + idarubicin (control) ▪ Cytarabine + idarubicin + low dose DSTAT (4 mg/kg IV bolus followed by 0.125 mg/kg/hr for 7 days) ▪ Cytarabine + idarubicin + higher dose DSTAT (4 mg/kg IV bolus followed by 0.25 mg/kg/hr for 7 days)
Subset Matching Phase 3 Population	▪ Targets 39 of 50 patients from high dose and control arms - Excludes patients with favorable genetic risk profile who have lower unmet need (n=5) - Excludes patients with secondary AML (sAML) who will likely receive Vyxeos for induction (n=6)

1 4th arm in this study (4 mg/kg bolus followed by 0.325 mg/kg/hr infusion plus 7+3) discontinued after two patients were enrolled (one patient had hemorrhage deemed possibly related to DSTAT)
2 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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DSTAT potentially amplifies efficacy without significant toxicity

Generally well tolerated in newly diagnoses AML patients

- Most common serious adverse event in DSTAT arms was febrile neutropenia
  - 3 on high DSTAT arm, 1 on control arm
  - No difference in infection SOC SAEs (3 each)
- Gastrointestinal SAEs comparable between arms
  - 4 on high DSTAT arm (colitis, ileus/gastric ulcer, small bowel obstruction, vomiting – none deemed related to DSTAT), 1 on control (lower GI hemorrhage)
- Asymptomatic, transient elevation of hepatic transaminases observed in both arms
  - Well-described and non-adverse effect of cytarabine therapy
- aPTT remained in the normal range for most patients in DSTAT and control arms
- Comparable incidence of Gr>3 hemorrhagic events (1 on high DSTAT arm, 2 control)

Phase 3 ITT population shows durability of CR/CRi

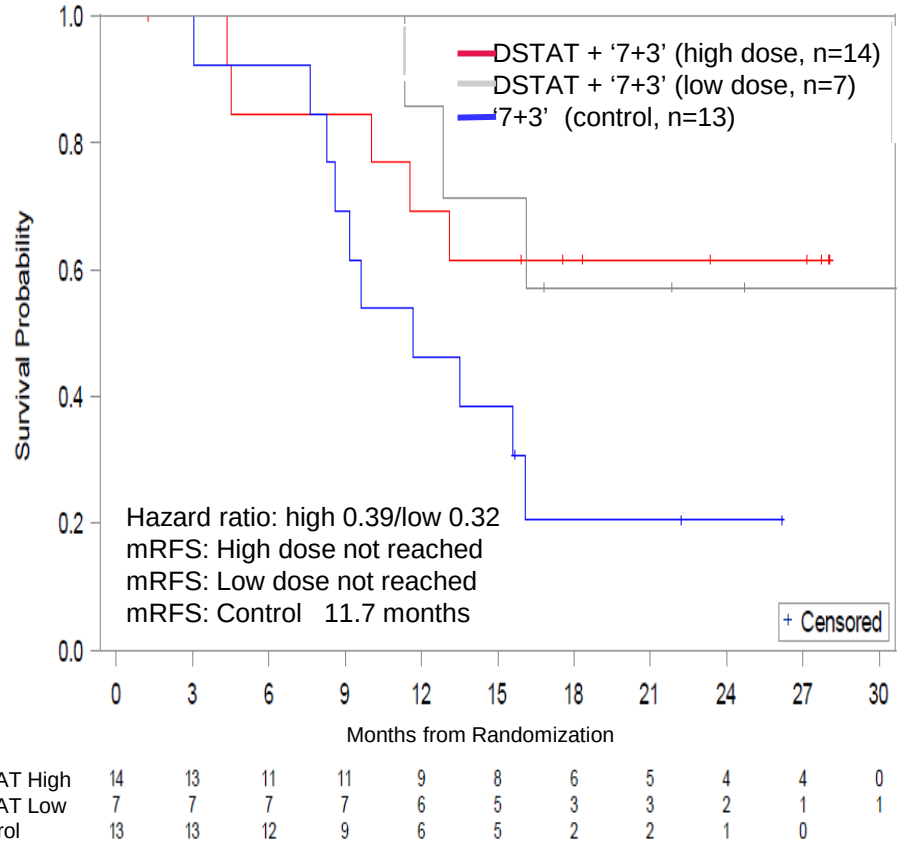
Clinically relevant separation in RFS/OS curves

Response Summary

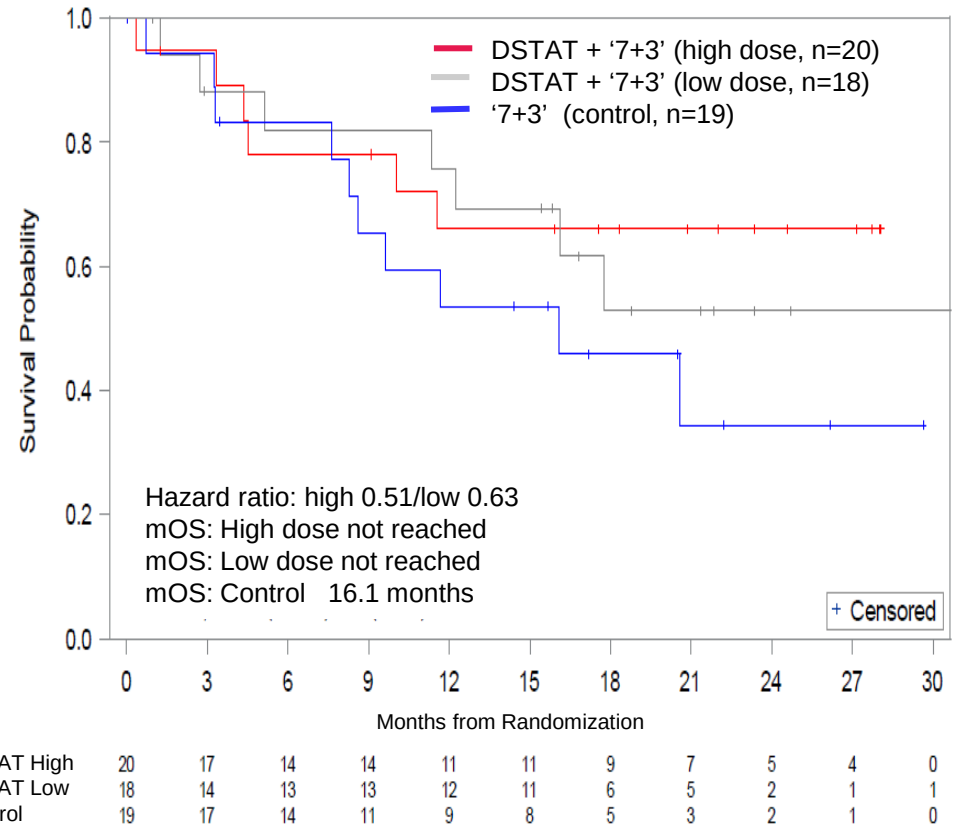
	% CR/Cri[1,2]
High Dose Arm	70% (14/20)
Low Dose Arm	39% (7/18)
Control Arm	68% (13/19)

(Historical Control ~50%)

Relapse-Free Survival (RFS)[3]



Overall Survival (OS)



1 Complete Response (CR) or Complete Response without complete hematologic recovery (CRi)
2 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
3 Relapse-Free Survival (RFS) is survival without relapse following induction success (CR/CRi)

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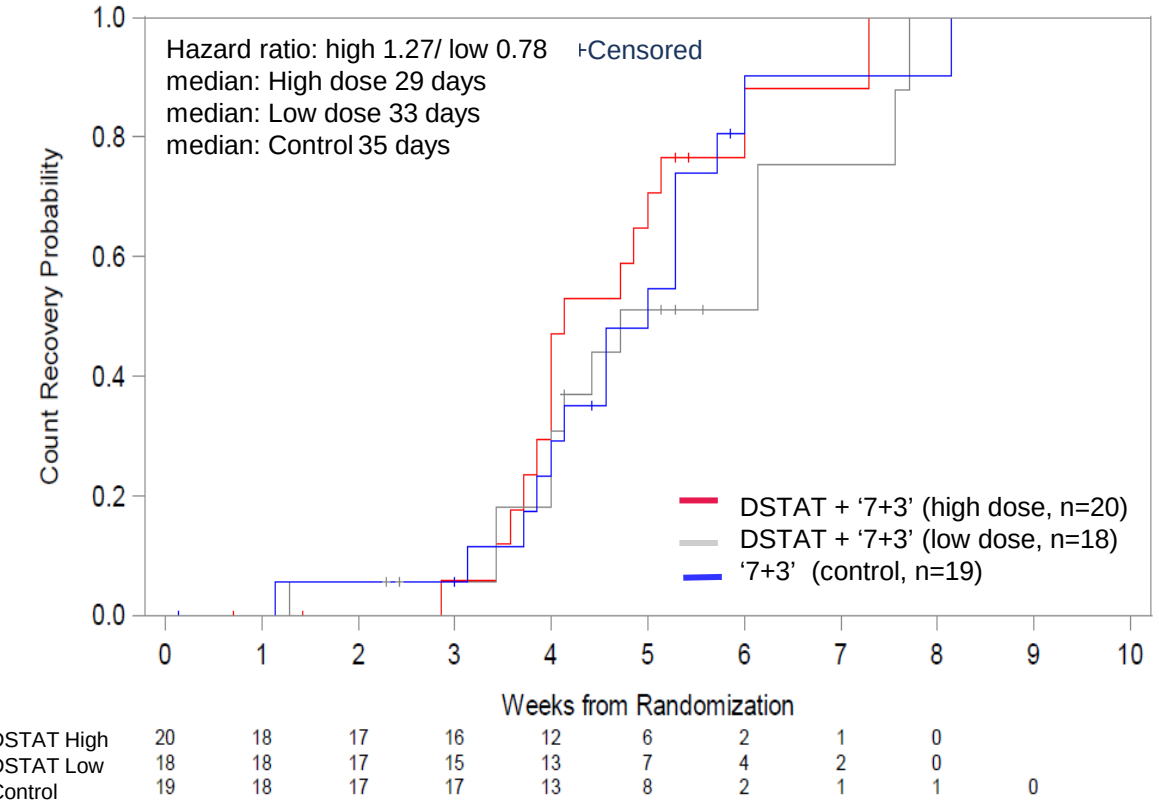
DSTAT may not delay hematologic recovery, may accelerate

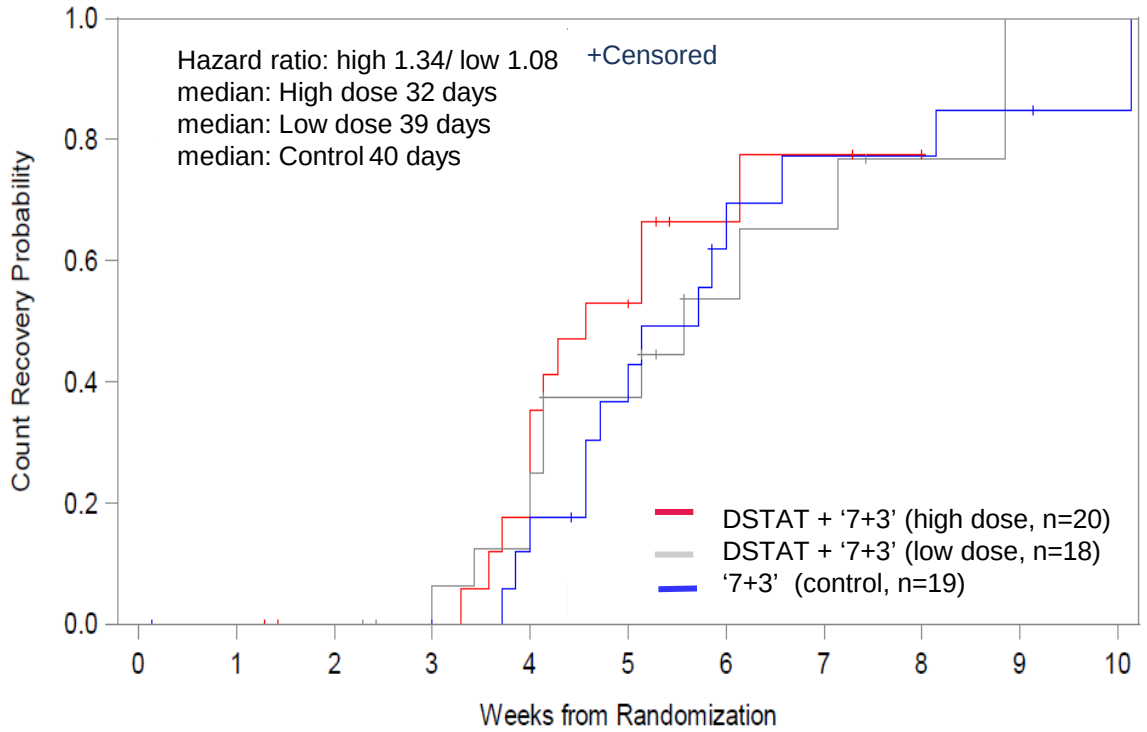
Median days to neutrophil and platelet recovery reduced by 17% and 20%, respectively on high dose

Likely Ph 3 ITT
Neutrophil recovery > 500 cells/uL



DSTAT High	20	18	17	16	12	6	2	1	0	
DSTAT Low	18	18	17	15	13	7	4	2	0	
Control	19	18	17	17	13	8	2	1	1	0

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



DSTAT High	20	19	17	17	14	8	3	2	1	
DSTAT Low	18	18	18	16	14	9	4	3	1	0
Control	19	18	18	18	15	10	5	3	3	2	1

1 Median Time to Recovery
2 Kaplan-Meier curves do not include sub therapeutic low dose arm

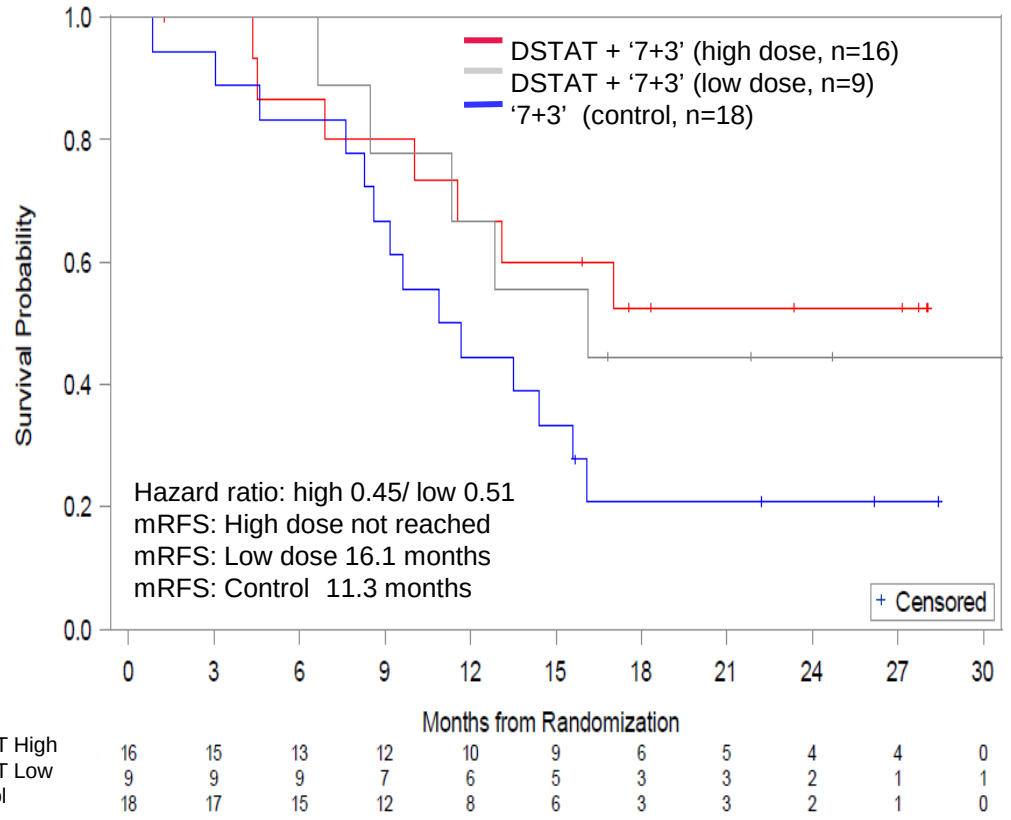
Full ITT population outperforms standard 7+3 chemo

RFS and OS benefit in full ITT Ph 2 population

Response Summary

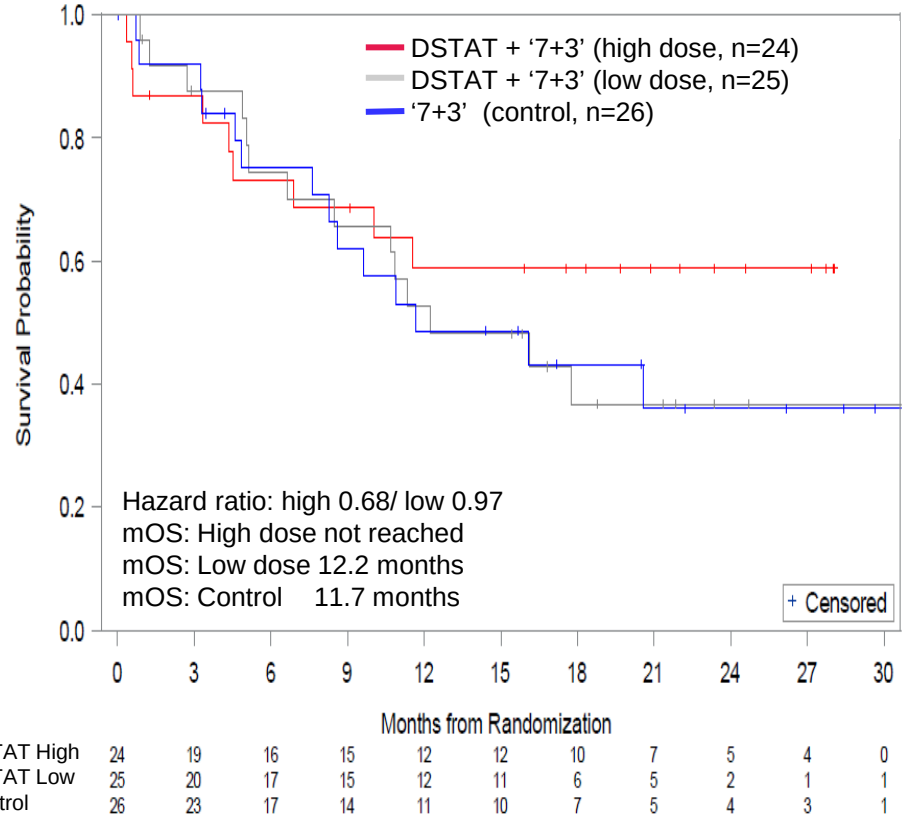
	% CR/CRi[1,2]
High Dose Arm	67% (16/24)
Low Dose Arm	36% (9/25)
Control Arm	69% (18/26)
(Historical Control ~50%)	

Relapse Free Survival[3]



DSTAT High	16	15	13	12	10	9	6	5	4	4	0
DSTAT Low	9	9	9	7	6	5	3	3	2	1	1
Control	18	17	15	12	8	6	3	3	2	1	0

Overall Survival



DSTAT High	24	19	16	15	12	12	10	7	5	4	0
DSTAT Low	25	20	17	15	12	11	6	5	2	1	1
Control	26	23	17	14	11	10	7	5	4	3	1

1 Complete Response (CR) or Complete Response without complete hematologic recovery (CRi)
2 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.
3 Relapse-Free Survival (RFS) is survival without relapse following induction success (CR/CRi)

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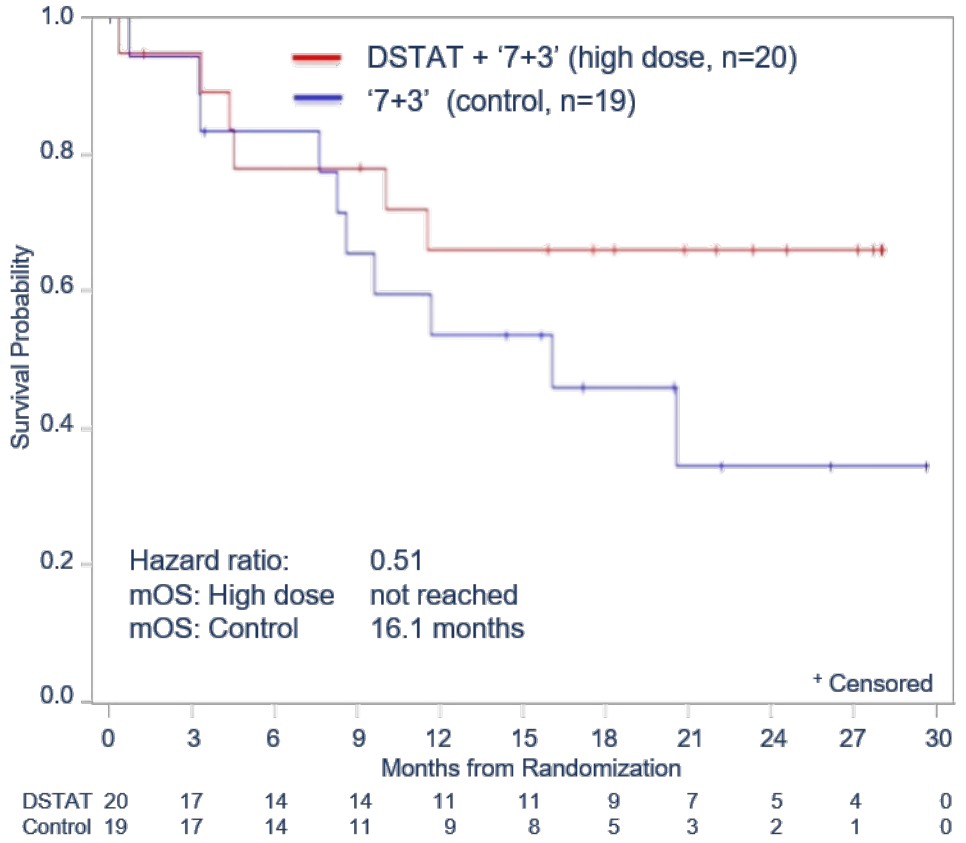
Phase 3 trial design – initiation expected early 2021

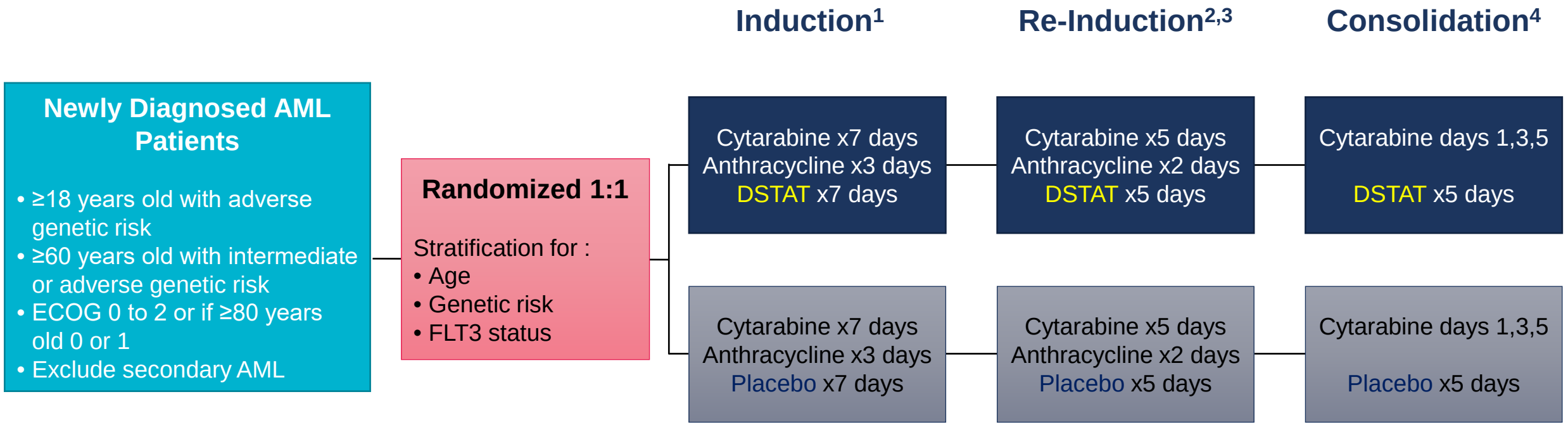
- 570 newly diagnosed adults with AML, fit for intensive chemotherapy
  - ≥18 years old with adverse genetic risk
  - ≥60 with intermediate or adverse genetic risk
- Double-blind, placebo-controlled, randomized 1:1
  - DSTAT plus standard induction/consolidation chemotherapy (“7+3”)
  - Placebo plus standard induction/consolidation chemotherapy (“7+3”)
- FLT-3 positive subjects able to receive midostaurin
- Primary/key secondary endpoints:
  - Overall Survival (OS) - alpha 0.04[1]
  - Event free survival (EFS) - alpha 0.011
  - >85% power to detect HR 0.7 for OS and EFS
- Secondary endpoints:
  - Minimal Residual Disease (MRD), Time to hematologic recovery, Response (CR, CR+CRi) and EFS with composite CR (CR+CRi)
- Early efficacy analysis: 80 evaluable patients
  - Expected $15m investment to early analysis

Phase 2 Overall Survival of Target Ph 3 ITT Population



1 Two-sided test

Phase 3 treatment plan



1 Cytarabine and DSTAT are given as continuous IV infusions
2 Patients age 18-59 receive cytarabine x7 days, anthracycline x3 days and DSTAT or Placebo for 7 days
3 Patients may proceed to HCT instead of consolidation chemotherapy
4 Re-induction if day 14 bone marrow shows persistent disease (≥5% blasts)

Early assessment to confirm mechanism

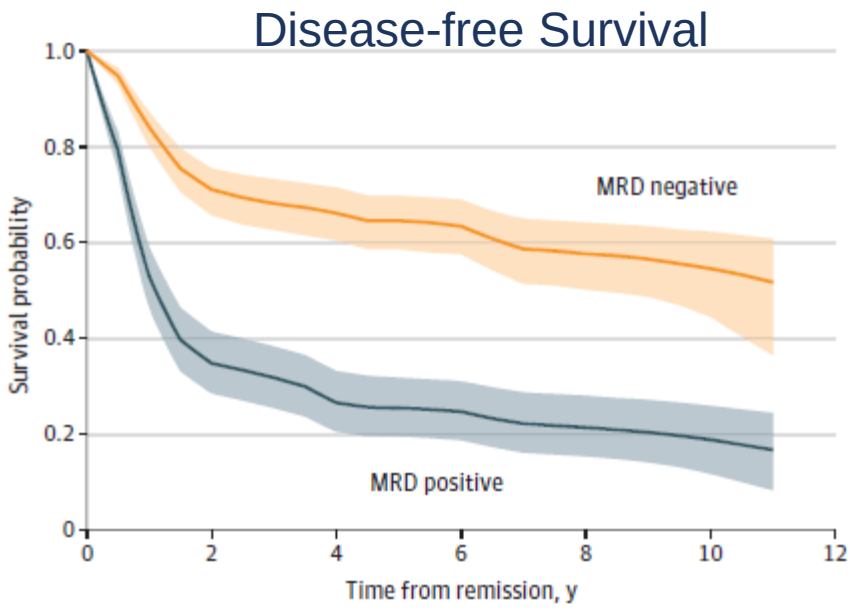
- Propose early assessment cohort of n=80 evaluable[1] patients for MRD status[2]
- MRD and CR are early indicators of potential OS and EFS advantage
- Patients continue to enroll during assessment
- Most likely unblind to assess and report data[3]
- Key benefits:
  - Confirmation of mechanism driving Phase 2 durable responses and OS
  - Prudent investment trigger
  - Ongoing reporting of cohort as data matures (including EFS and OS)
- IDMC discretion to maintain blinding if advantage is exceptional
  - Example: both CR and MRD advantage >20pp
- Expected investment to be approximately $15 million

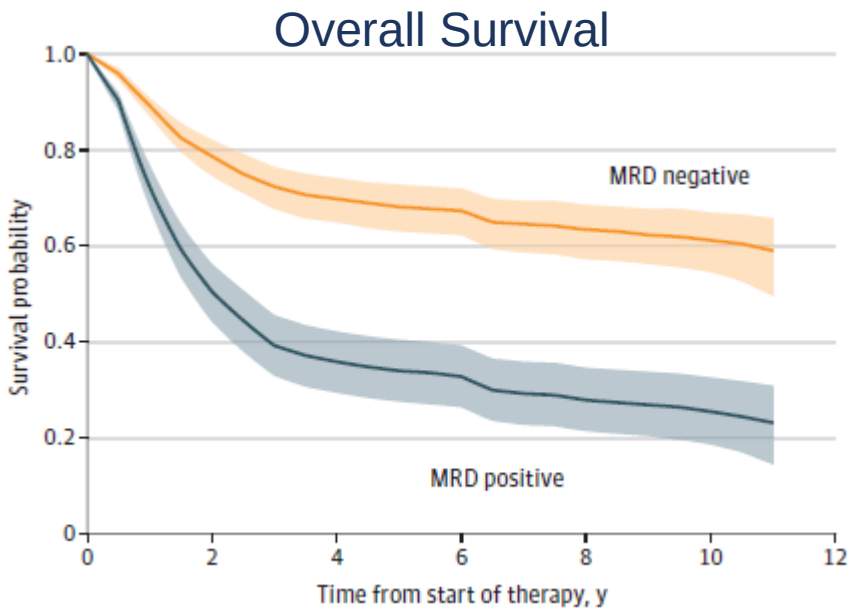
1 Evaluable patients include those who have valid MRD results following induction or re-induction, discontinue due to AE or die during induction or re-induction
2 Following induction or re-induction if applied
3 Data from early assessment would be excluded from final analysis if unblinded

MRD negativity is associated with superior DFS and OS

80 Patient Assessment likely strong predictor of success

- Meta-analysis of 81 studies (>11,000 patients) links MRD negativity with superior OS and disease-free survival (DFS)
- Results independent of age, subtype, time of assessment or detection method
- Average HR for achieving MRD activity was 0.37 for DFS and 0.36 for OS

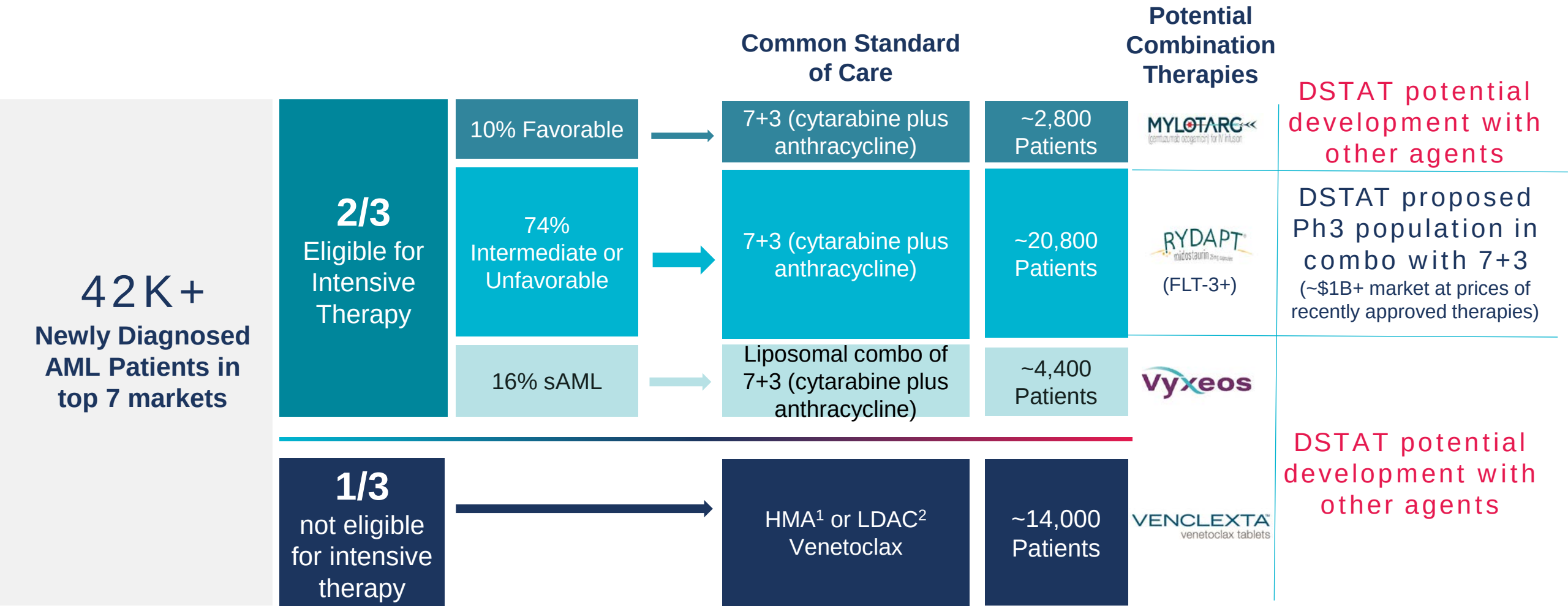




Short, et al. JAMA Oncology, October 8,2020

Significant commercial opportunity and potential to expand

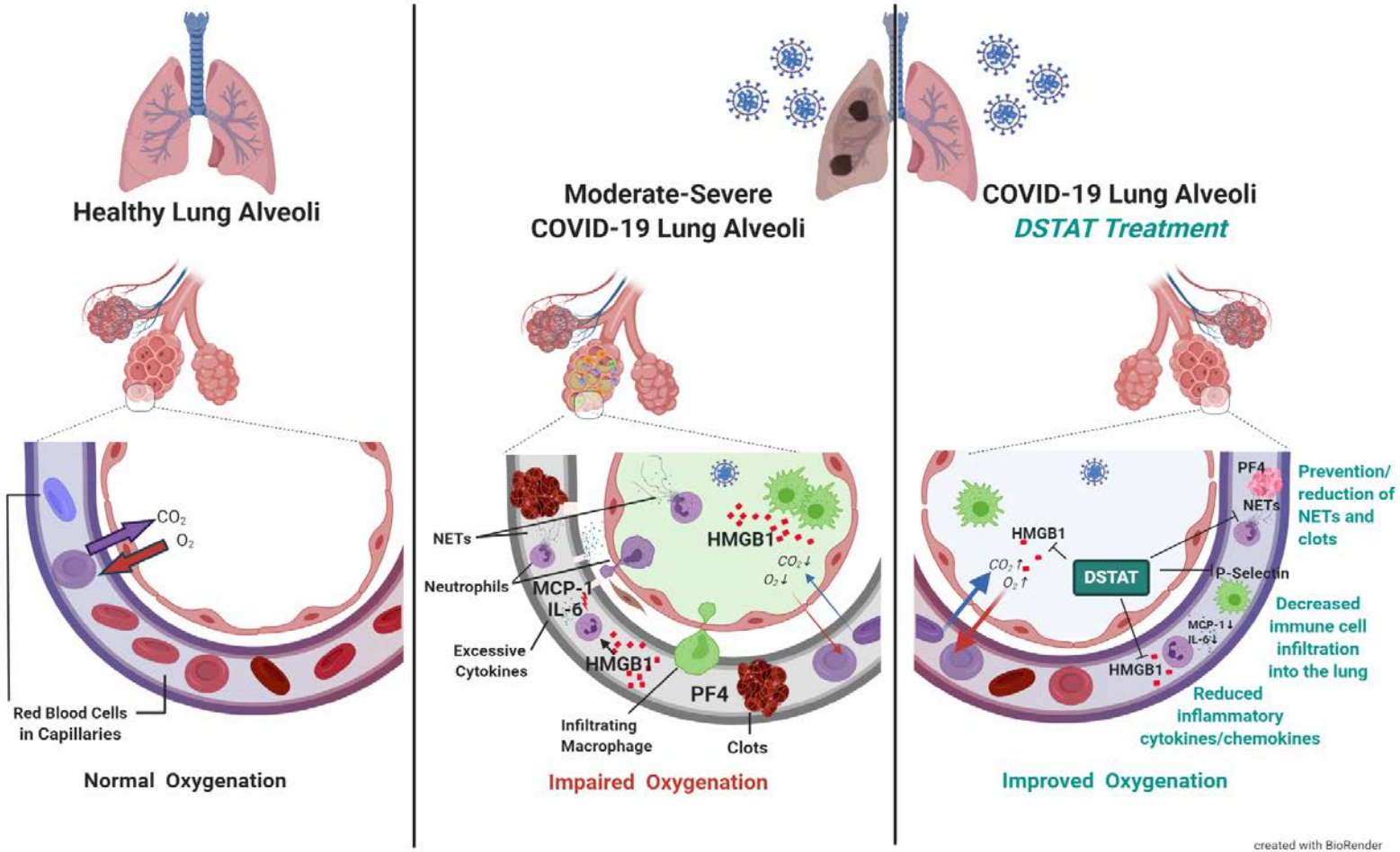
Phase 3 design may position DSTAT as standard of care for up to ~20,800 patients



1 Hypomethylating agents
2 Low dose cytarabine

Dociparstat Sodium (DSTAT) for the Treatment of COVID-19 and Other Forms of Acute Lung Injury

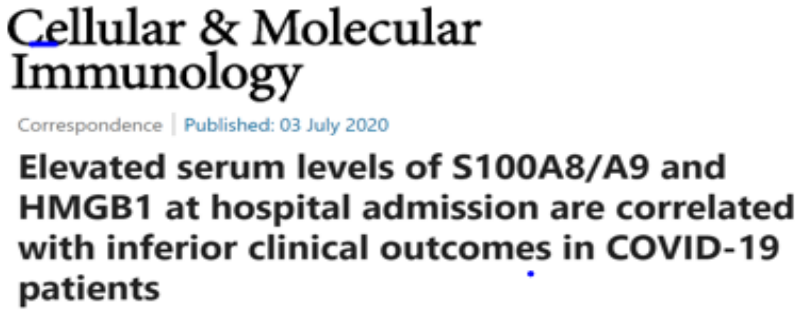
For a disease with complex pathology like COVID-19, a multi-faceted therapeutic like DSTAT may be optimal

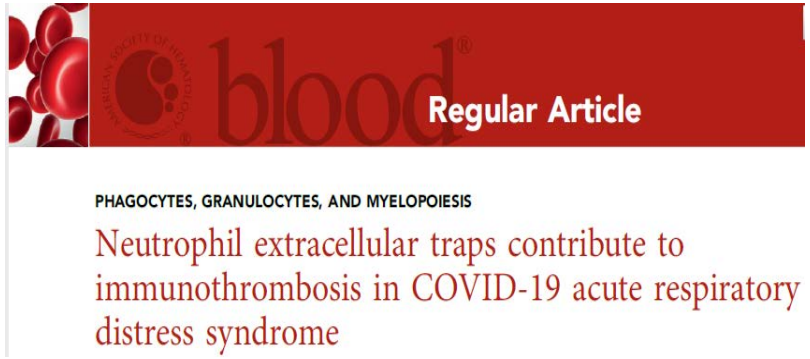


DSTAT inhibits High Mobility Group Box 1 (HMGB1), Platelet Factor 4 (PF4) and P-selectin which may:

- Reduce excessive inflammation
- Address coagulation disorders

DSTAT targets associated with disease severity and death





- DSTAT inhibits HMGB1 which has been **linked to clinical severity & death** in COVID-19 patients.[1]
- DSTAT inhibits HMGB1 & PF4 which **may reduce neutrophil extracellular traps** (NETs).[2,3] NETs promote excessive clotting in COVID-19 patients and are associated with clinical severity / death.[4]
- DSTAT blocks binding and cell adhesion activities of P-selectin, which have been **linked to platelet hyperactivity, blood clotting, and lung damage** in COVID-19.[3,5,6]

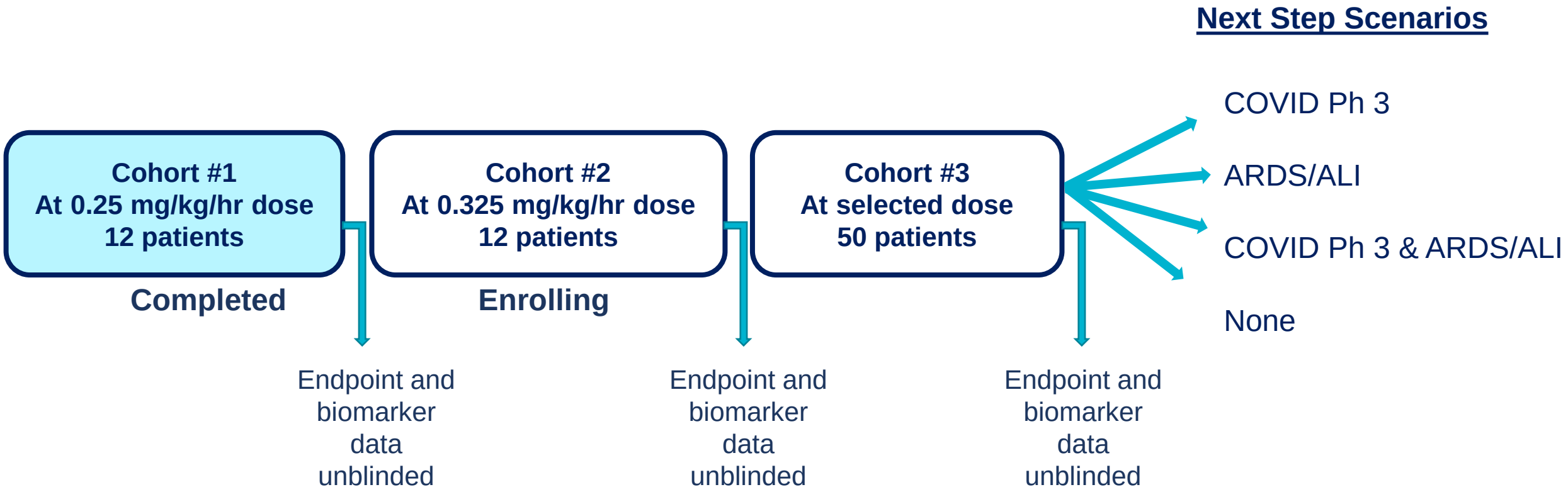
1 Chen, et al. Cellular& Molecular Immunology 2020
2 Kowalska et al. Arterioscler Thromb Vase Bol, 2014
3 Rao et al. AM J Physiol Cell Physiol, 2010
4 Middleton et al. Blood 2020
5 Manne BK et al. Blood 2020
6 Comer 2020

Phase 2/3 COVID-19 study design

- Phase 2: 74 patients with acute lung injury with severe COVID-19
  - Cohort 1 complete data expected in early first quarter, cohort 2 enrolling
- Study population: Patients with confirmed COVID-19 infection who require non-invasive supplemental oxygen
- Double-blind, placebo-controlled, randomized 1:1
  - DSTAT plus best supportive care
  - Placebo plus best supportive care
- Primary endpoint:
  - Proportion of patients who progress to ventilation or death through day 28
- Secondary endpoints:
  - Time to improvement by NIAID[1] ordinal scale, time to hospital discharge, time to resolution of fever, number of ventilator-free days, all cause mortality
  - Change in key biomarkers: IL-6, TNF-α, HMGB1, CRP, d-dimer
- Phase 3 (if supported by Ph 2 data): ~450 patients, patients with ALI with severe COVID-19

1 National Institute of Allergy and Infectious Disease

Protocol supports data assessments at each cohort



Beyond COVID-19, ARDS/ALI represents significant need

- Acute Respiratory Distress Syndrome (ARDS) is a rapidly progressive lung disorder resulting from a direct (e.g. pneumonia) or indirect (e.g. sepsis) Acute Lung Injury (ALI)[(1)]
  - Characterized by severe hypoxemia that may lead to respiratory failure and death
  - Mortality rate of 25-45% dependent on severity of hypoxemia
  - 75% of cases are moderate to severe
- Incidence in top 6 major markets of approximately 125,000 in 2020[1]
  - Estimated that 100% of cases are drug-treatable and in the ICU
  - No pharmacotherapy is currently approved for ARDS; the primary goal of treatment is to improve survival through treatment of underlying condition

1 Acute Respiratory Distress Syndrome Disease Landscape and Forecast, Decision Resources Group, June 2018

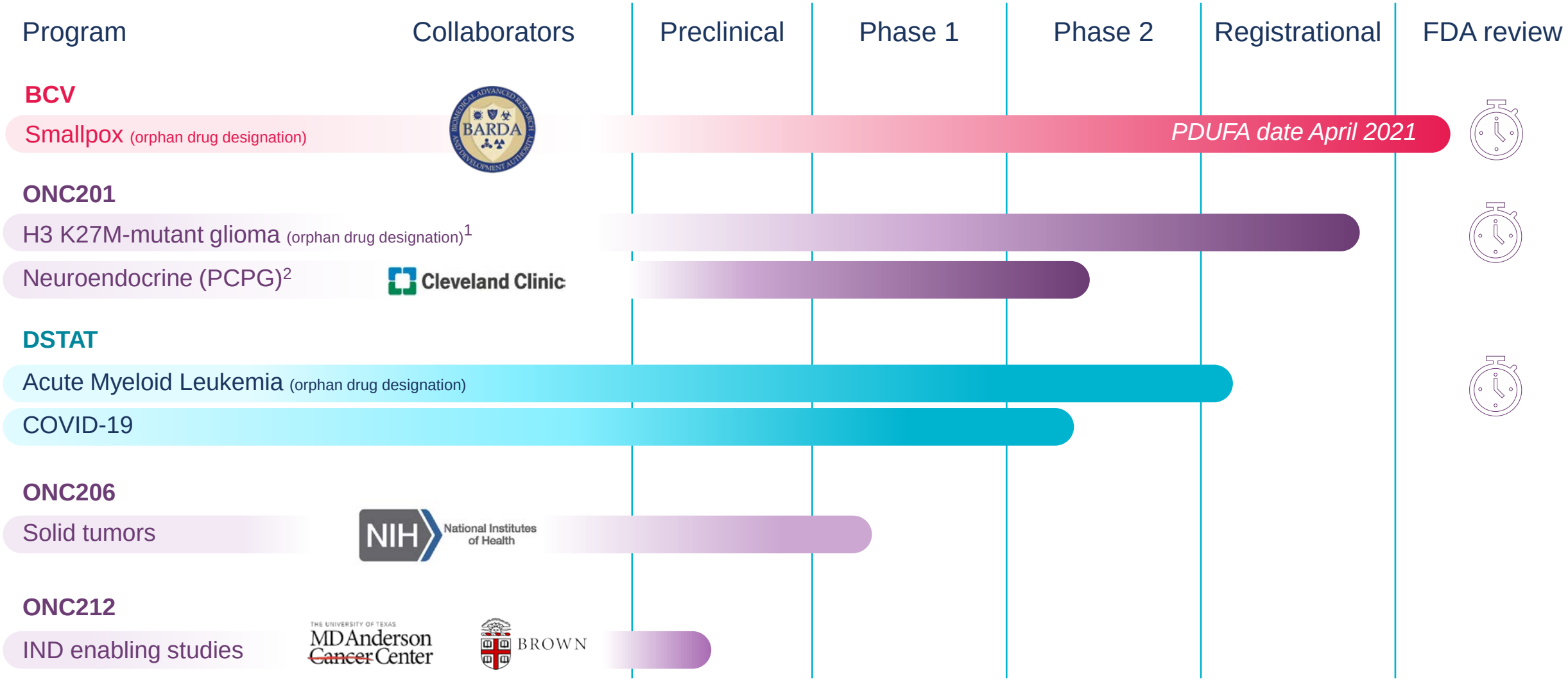
Major, near-term paths to value

- Final steps toward BCV (smallpox) potential commercialization
  - NDA filed, April 7, 2021 PDUFA date
  - Satisfies mandate for 2nd countermeasure for strategic national stockpile
  - Potential $80-$100m annual cash flow for next 5-12 years

- Synergistic acquisition of precision oncology platform
  - Potential near-term registration path
  - Blinded independent central review of ONC201 data in 2021 (recurrent H3 K27M mutant glioma)
  - Opportunities for new indications and pipeline expansion

- DSTAT development in two therapeutic areas with significant unmet need
  - Phase 3 front-line AML trial to initiate early this year
  - Enrolled first cohort in COVID-19 Phase 2 trial – preliminary data expected in 1Q2021

Deep pipeline across all development stages



1 Recurrent diffuse midline glioma H3 K27M mutant positive
2 Pheochromocytoma/paraganglioma

Denotes US FDA Fast Track Designation

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Delivery of 2020 objectives sets stage for catalyst rich 2021

	2020	2021
BCV	✓ Complete PK dose bridging studies ✓ Pre-NDA Meeting with FDA ✓ BARDA and FDA clearance to begin rolling NDA submission ✓ Completion of rolling NDA Submissions	▪ FDA decision on smallpox NDA in April ▪ Potential for BARDA procurement contract ▪ Potential for ~$100m of BCV for Strategic National Stockpile
ONC201 ONC206 ONC212	✓ Potential registration path defined through FDA type C meetings ✓ ONC201 registration cohort enrollment completed ✓ 30% PR/CR in 1st 30 patients (blinded read) ✓ ONC206 Ph 1 initiation	▪ BICR of ONC201 registration cohort ▪ ONC201 pre-NDA meeting preparations ▪ Potential ONC206 clinical outcomes ▪ IND preparations for ONC212
DSTAT	**AML:** ✓ End of Ph2 FDA meeting ✓ Confirm endpoint/Ph3 design **COVID-19 Acute Lung Injury:** ✓ IND; FDA alignment of Ph2/3 design, endpoint ✓ Ph2/3 study initiation	**AML:** ▪ Planned initiation of Ph3 study **COVID-19 Acute Lung Injury:** ▪ Final data on Ph2 trial ▪ Potential initiation of Ph3 study

February Corporate Update