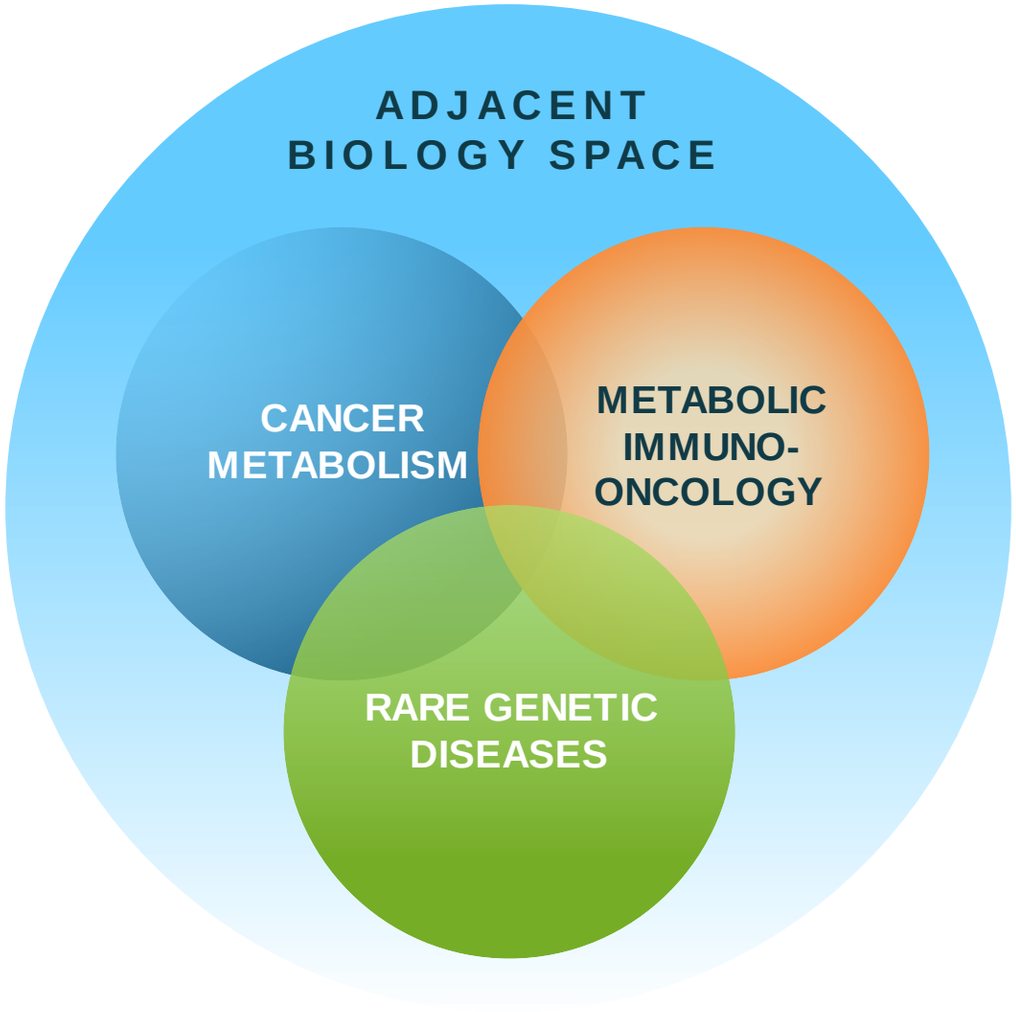
Agios Investor Presentation

October 2019

Forward Looking Statements

This presentation and various remarks we make during this presentation contain forward-looking statements within the meaning of The Private Securities Litigation Reform Act of 1995. Such forward-looking statements include those regarding Agios' plans, strategies and expectations for its and its collaborator's preclinical, clinical and commercial advancement of its drug development programs including TIBSOVO® (ivosidenib), IDHIFA® (enasidenib), vorasidenib (AG-881), mitapivat, AG-270 and AG-636; the potential benefits of Agios' product candidates; its key milestones for 2019; its plans regarding future data presentations; its financial guidance regarding the period in which it will have capital available to fund its operations; and the potential benefit of its strategic plans and focus. The words "anticipate," "expect," "hope," "milestone," "plan," "potential," "possible," "strategy," "will," and similar expressions are intended to identify forward-looking statements, although not all forward-looking statements contain these identifying words. Such statements are subject to numerous important factors, risks and uncertainties that may cause actual events or results to differ materially from Agios' current expectations and beliefs. For example, there can be no guarantee that any product candidate Agios or its collaborators is developing will successfully commence or complete necessary preclinical and clinical development phases, or that development of any of Agios' product candidates will successfully continue. There can be no guarantee that any positive developments in Agios' business will result in stock price appreciation. Management's expectations and, therefore, any forward-looking statements in this presentation and various remarks we make during this presentation could also be affected by risks and uncertainties relating to a number of other important factors, including: Agios' results of clinical trials and preclinical studies, including subsequent analysis of existing data and new data received from ongoing and future studies; the content and timing of decisions made by the U.S. FDA, the EMA or other regulatory authorities, investigational review boards at clinical trial sites and publication review bodies; Agios' ability to obtain and maintain requisite regulatory approvals and to enroll patients in its planned clinical trials; unplanned cash requirements and expenditures; competitive factors; Agios' ability to obtain, maintain and enforce patent and other intellectual property protection for any product candidates it is developing; Agios' ability to maintain key collaborations, such as its agreements with Celgene and CStone Pharmaceuticals; and general economic and market conditions. These and other risks are described in greater detail under the caption "Risk Factors" included in Agios' public filings with the Securities and Exchange Commission. Any forward-looking statements contained in this presentation and various remarks we make during this presentation speak only as of the date hereof, and Agios expressly disclaims any obligation to update any forward-looking statements, whether as a result of new information, future events or otherwise, except as required by law.

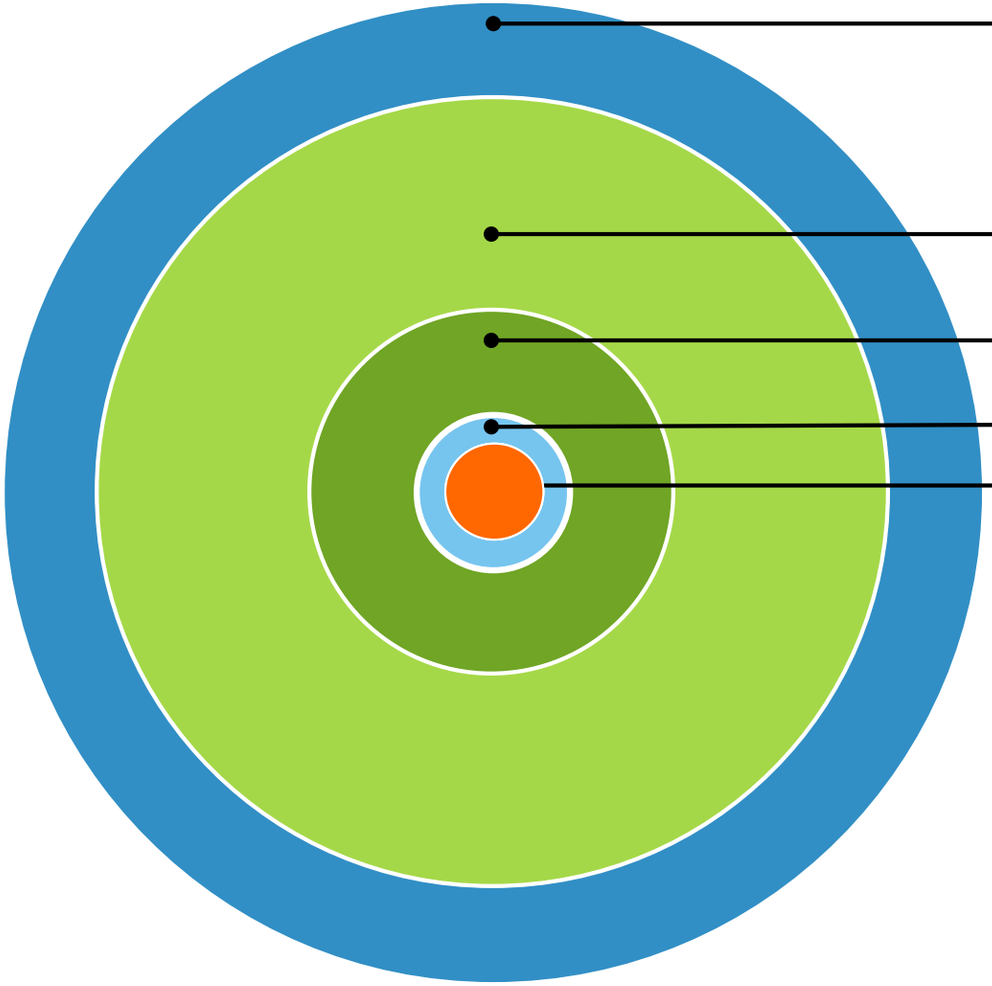
Driven By a Clear Vision and Values



agios

Agios is passionately committed to applying our scientific leadership in the field of cellular metabolism to transform the lives of patients with cancer and rare genetic diseases.

Building One of the Next Great Pharmaceutical Companies



Biotech startups
Agios founded in 2008;
labs opened in Jan. 2009

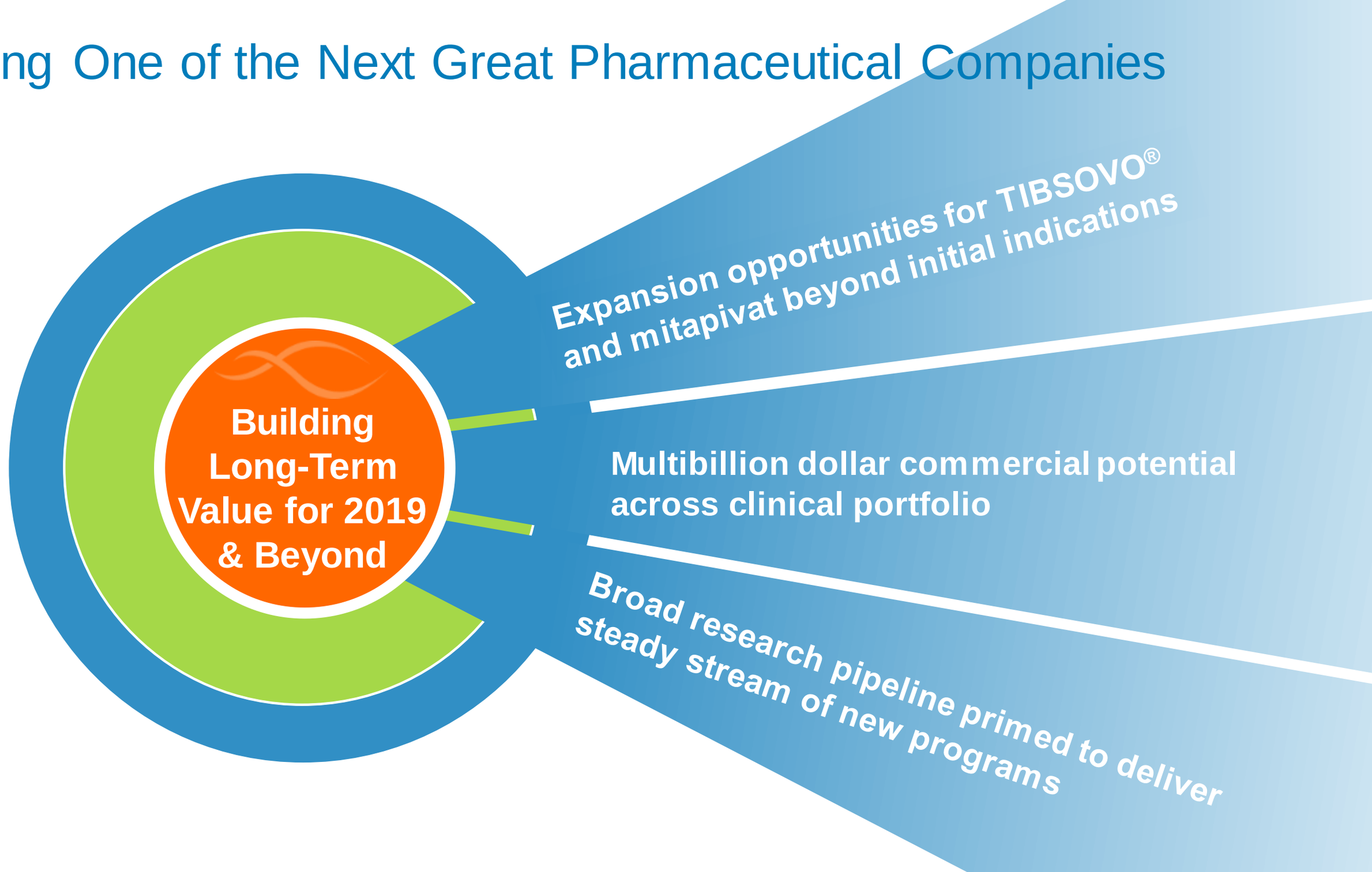
Initiated clinical trials

One drug approved

Two drugs approved

Sustainable multiproduct companies

Building One of the Next Great Pharmaceutical Companies



Agios' Scientific Platform Demonstrates Remarkable, Reproducible Productivity

DISCOVERY

$50-60M
INVESTED IN DRUG DISCOVERY ANNUALLY

7 INDs

SCIENCE

50+
PEER-REVIEWED PUBLICATIONS

15+ ACTIVE RESEARCH PROGRAMS

1,000+
PATIENTS TREATED IN CLINICAL TRIALS

CULTURE

500+ EMPLOYEES

1 VISION

8 DISEASES

5 PIVOTAL CLINICAL TRIALS

9 ADDITIONAL CLINICAL TRIALS

2 MEDICINES APPROVED

+

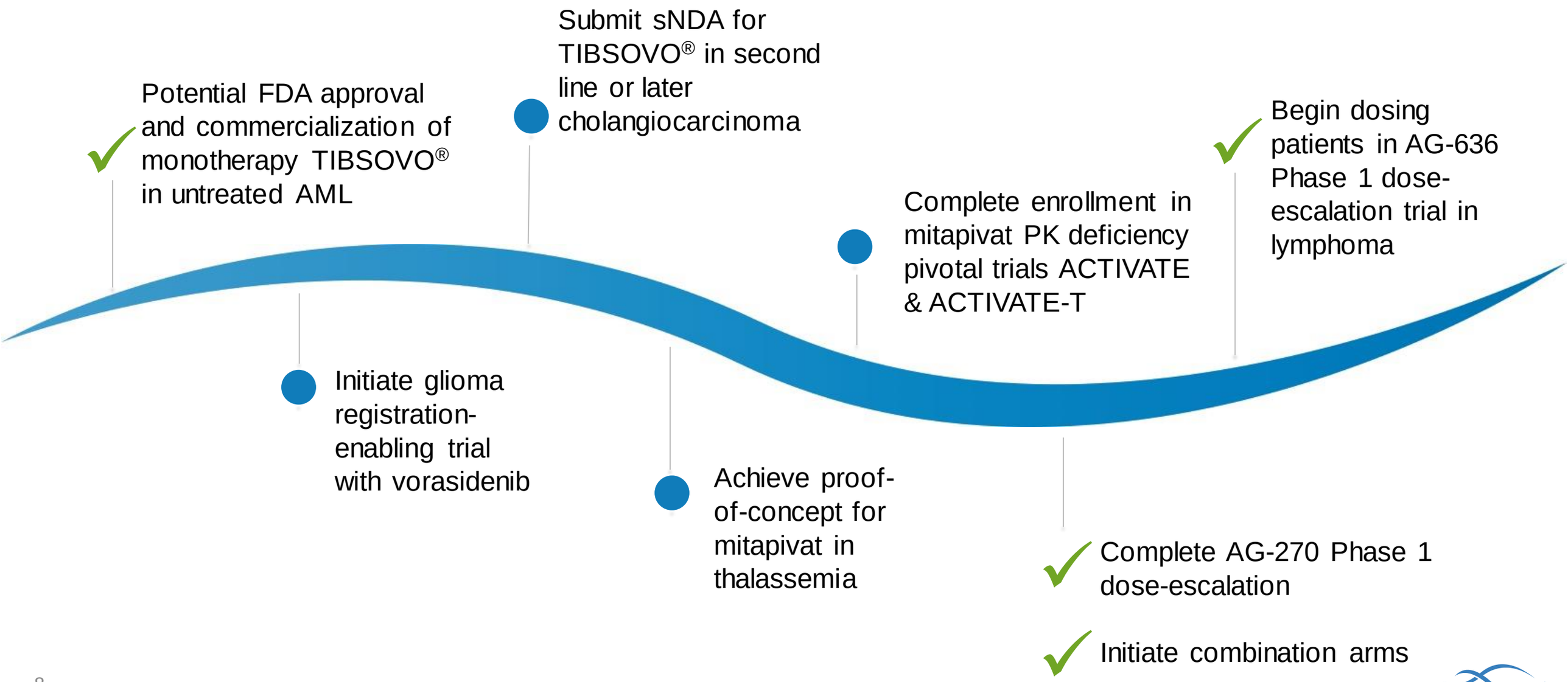
4 ADDITIONAL COMPOUNDS IN CLINICAL DEVELOPMENT

Agios Clinical Pipeline

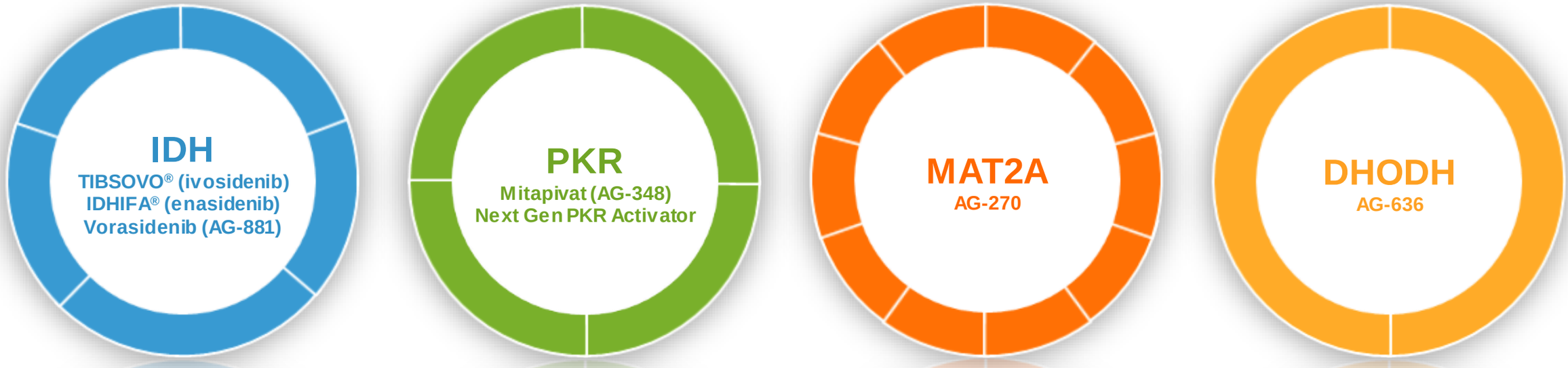
IC = Intensive Chemotherapy

CLINICAL PROGRAMS	INDICATION	DRUG DISCOVERY	EARLY STAGE CLINICAL DEVELOPMENT	LATE STAGE CLINICAL DEVELOPMENT	REGULATORY SUBMISSION	APPROVED	PRIMARY RIGHTS
TIBSOVO® **ivosidenib** (IDH1m inhibitor)	R/R AML		Phase 1 Dose-Escalation and Expansion		EU	U.S.	agios
	Frontline AML Monotherapy		Phase 1 Dose-Escalation and Expansion			U.S.	
	IC Eligible Frontline AML		Phase 1b 7+3 Combo	Phase 3 HOVON 7+3 Combo			
	IC Ineligible Frontline AML		Phase 1/2 Azacitidine Combo	Phase 3 AGILE Azacitidine Combo			
	Cholangio		Phase 1 Dose-Escalation and Expansion	Phase 3 ClarIDHy			
	Glioma		Perioperative Study				
IDHIFA® **enasidenib** (IDH2m inhibitor)	R/R AML			Phase 3 IDHENTIFY	EU	U.S.	agios Celgene Agios U.S. Co-promotion and Royalty
	IC Eligible Frontline AML		Phase 1b 7+3 Combo	Phase 3 HOVON 7+3 Combo			
	IC Ineligible Frontline AML		Phase 1/2 Azacitidine Combo				
Mitapivat (PKR activator)	Transfusion Independent PK Deficiency		Phase 2 DRIVE PK	Phase 3 ACTIVATE			agios
	Transfusion Dependent PK Deficiency			Phase 3 ACTIVATE-T			
	Thalassemia		Phase 2 Study				
Vorasidenib (brain-penetrant, pan-IDHm inhibitor)	Glioma		Perioperative Study	Phase 3 Study Planned for 4Q 2019			agios
	Solid Tumors		Phase 1 Dose-Escalation and Expansion				
AG-270 (MAT2A inhibitor)	MTAP-deleted Tumors		Phase 1 Dose-Escalation and Expansion				Celgene agios Subject to Celgene Option Joint Worldwide Collaboration
AG-636 (DHODH inhibitor)	Lymphoma		Phase 1 Dose-Escalation				agios

2019 Key Milestones Position Agios for Long-term Value Creation



Productive Research & Discovery Engine Has Produced Four Key Targets with Multiple Disease Opportunities



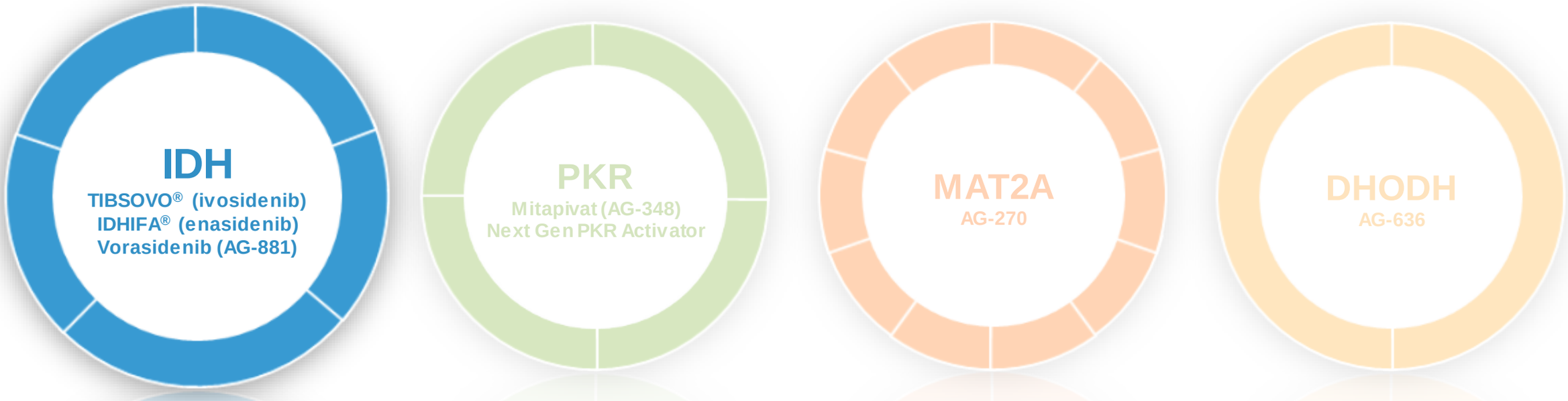
- AML
- Low Grade Glioma
- Cholangiocarcinoma
- Chondrosarcoma
- MDS

- Adult PK Deficiency
- Pediatric PK Deficiency
- Sickle Cell Disease
- Thalassemia

- NSCLC
- Bladder
- Melanoma
- Head & Neck
- Pancreatic
- Glioblastoma
- DLBCL
- Esophageal
- Gastric
- Mesothelioma

- Lymphoma
- AML

Productive Research & Discovery Engine Has Produced Four Key Targets with Multiple Disease Opportunities



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Esophageal
Gastric
Mesothelioma

Lymphoma
AML

Strong Launch in the Relapsed/Refractory Population Sets the Stage for IDHm Inhibitors as the Cornerstone of AML Therapy

~50K U.S. and EU Annual Newly Diagnosed AML Patients

IDH1/2m is ~20%

RELAPSED / REFRACTORY
~50% of Treated Patients

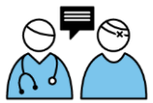
IDHIFA® (enasidenib) tablets
100mg • 50mg

$27M
Q2 2019 Worldwide Net Sales
U.S. Co-commercialization with Celgene

TIBSOVO® (ivosidenib) tablets

$13.7M
Q2 2019 U.S. Net Sales

MAA
Submitted & Validated

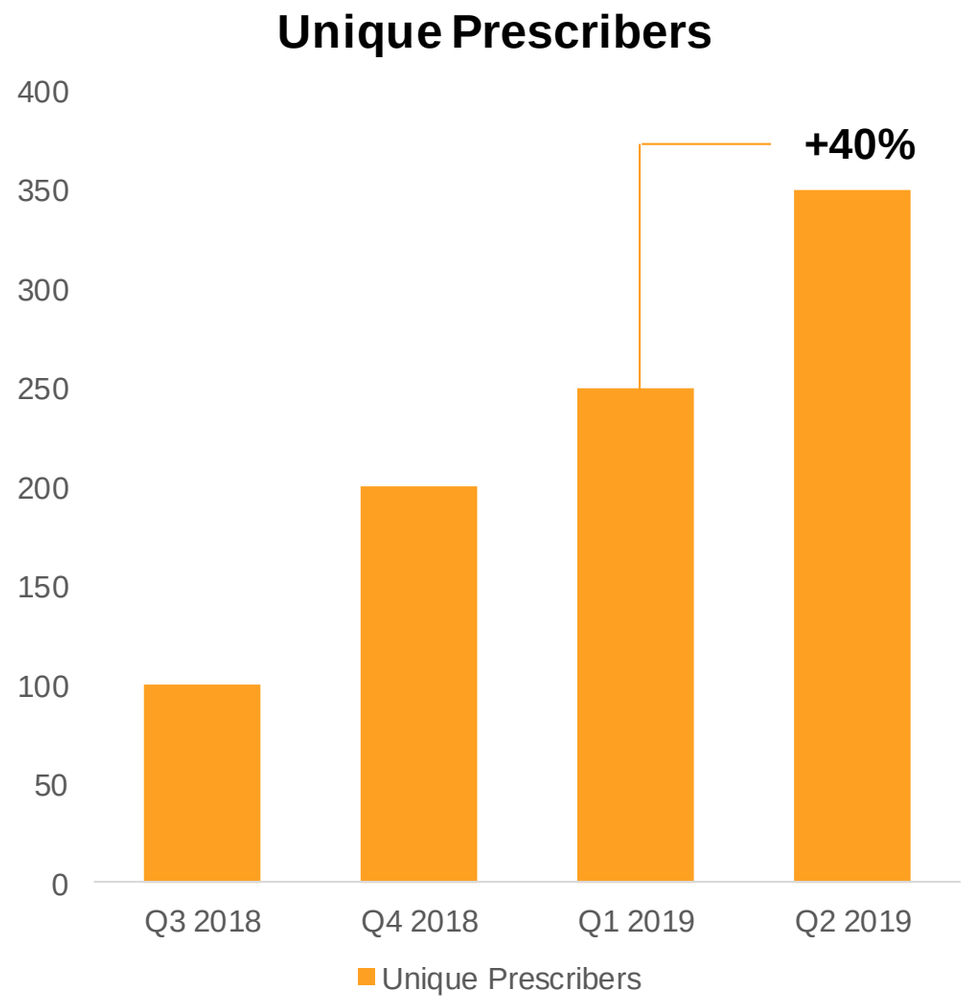


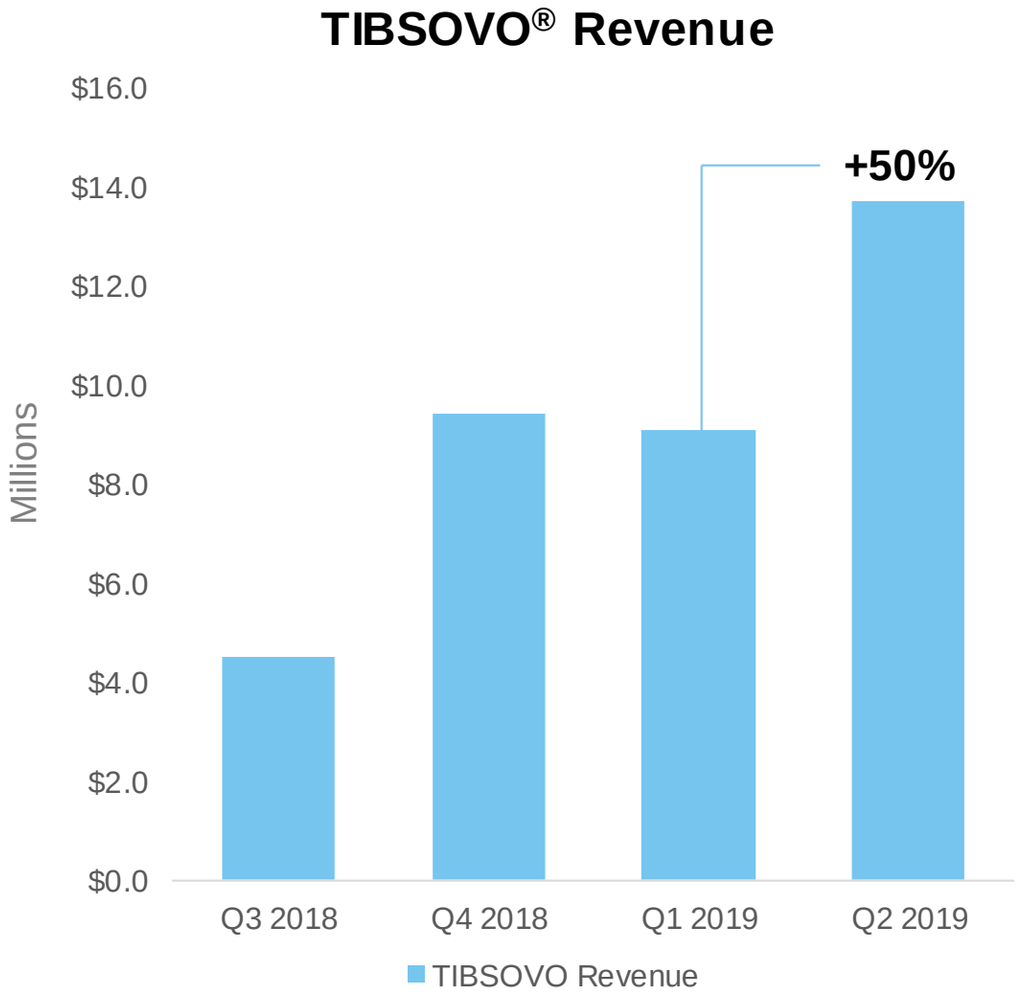
~90%
Physicians Testing for IDH1/IDH2 mutations

350
Unique Prescribers as of Q2

Sources: Market research as of August 2018; Agios estimates; SEER. Cancer Stat Facts: AML 2015 and Epiphany EPIC oncology numbers; American Cancer Society. AML 2017.

Demonstrated Ability to Drive Commercial Performance During First Year of the R/R AML Launch





Agios estimates

Shifting the Current Treatment Paradigm for Patients with Newly Diagnosed IDH1m AML

~50K U.S. and EU Annual Newly Diagnosed AML Patients
IDH1/2m is ~20%

Intensive Therapy
~60-70% Treated Patients

Intensive therapy + novel therapies (targeted & non-targeted)

Increase cure rate

Non-Intensive Therapy
~30-40% Treated Patients

Eligible for Combination Therapy

Combination of non-intensive therapy + novel therapies (targeted & non-targeted)

Prolong EFS/OS

Not Eligible for Combination Therapy

Single agent novel therapies (targeted & non-targeted)

Prolong EFS/OS

Untreated
Up to ~25% all Patients

Single agent novel therapies (targeted & non-targeted)

Clinical benefit

Sources: SEER. Cancer Stat Facts: AML 2015 and Epiphany EPIC oncology numbers; American Cancer Society. AML 2017.

Potential to Offer Clinical Benefit to Newly Diagnosed Patients Ineligible for Intensive Chemotherapy

~50K U.S. and EU Annual Newly Diagnosed AML Patients
IDH1/2m is ~20%

Intensive Therapy	Non-Intensive Combination Therapy	Non-Intensive Monotherapy

SINGLE AGENT TIBSOVO® FDA APPROVED IN NEWLY DIAGNOSED AML

TIBSOVO® indicated for use in adult patients with newly diagnosed AML with an IDH1 mutation who are ≥ 75 years old or who have comorbidities that preclude use of intensive induction chemotherapy.

Results from 28 Patients in the Phase 1 Study:

- Median age 77 years
- 79% had AML-MRC or therapy-related AML; 46% prior HMA
- Safety consistent previously reported data
- 29% CR rate
- 43% CR+CRh rate
- 58.3% of CR+CRh patients were in remission at 1 year after receiving treatment

Sources: SEER. Cancer Stat Facts: AML 2015 and Epiphany EPIC oncology numbers; American Cancer Society AML 2017; ; TIBSOVO® U.S. Prescribing Information

Compelling Phase 1 Combination Data for Patients Ineligible for Intensive Chemo Suggests Potential to Extend EFS/OS

~50K U.S. and EU Annual Newly Diagnosed AML Patients
IDH1/2m is ~20%

Intensive Therapy	**Non-Intensive Combination Therapy**	Non-Intensive Monotherapy

PHASE 1 AZACITIDINE COMBO DATA

(TIBSOVO® cohort)

Received Breakthrough Therapy Designation

- Median age 76 years
- Safety consistent with previously reported data
- 78% ORR (18 of 23)
- 82% 12-month overall survival rate
- 70% CR+CRh rate (16 of 23)
- 61% CR rate (14 of 23)
- Median duration of CR (95% CI 9.3, NE) and CR+CRh (95% CI 12.2, NE) not reached

NEXT STEPS

AGILE PHASE 3 STUDY

Enrollment Expected to Complete in 2020

BROAD IST SUPPORT

VENCLEXTA® Combination
XOSPATA® Combination
BEAT AML Master Trial

Sources: SEER. Cancer Stat Facts: AML 2015 and Epiphany EPIC oncology numbers; American Cancer Society AML 2017; ASCO 2019; VENCLEXTA® is a registered trademark of Abbvie; XOSPATA® is a registered trademark of Astellas

Encouraging Phase 1 Data in Combination with Intensive Chemo Supports Label Enabling Phase 3 Study

~50K U.S. and EU Annual Newly Diagnosed AML Patients
IDH1/2m is ~20%

Intensive Therapy | **Non-Intensive Combination Therapy** | **Non-Intensive Monotherapy**

PHASE 1 7+3 COMBO DATA
(TIBSOVO® cohort)

- Median age 63 years
- 70% de novo; 30% sAML
- Safety consistent with previously reported data
- 91% CR+CRi/CRp rate for de novo patients (31 of 34)
- 80% CR+CRi/CRp rate for all patients (39 of 49)

NEXT STEPS

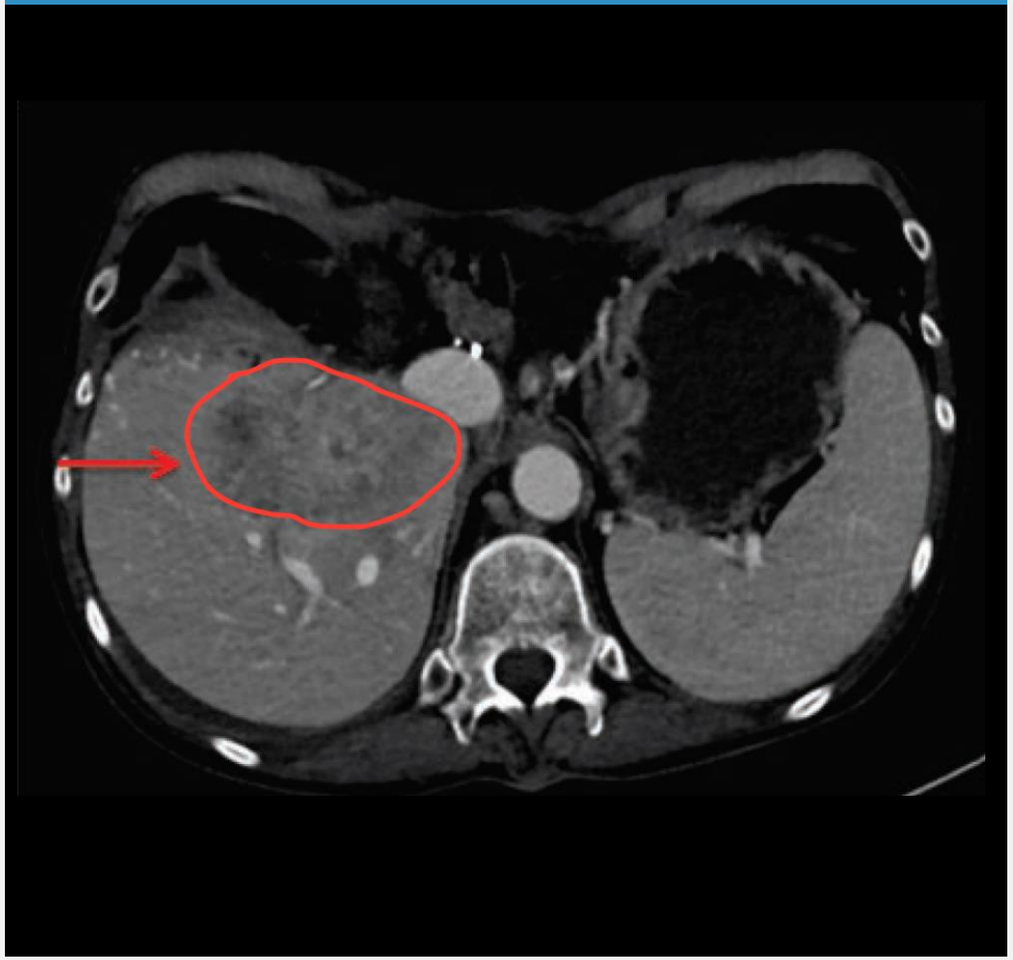
HOVON 150 AML / AMLSG 29-18 PHASE 3 STUDY
Trial initiated

BROAD IST SUPPORT
VYXEOS™ Combination

Sources: SEER. Cancer Stat Facts: AML 2015 and Epiphany EPIC oncology numbers; American Cancer Society AML 2017; ASCO 2018; ASH 2018; VYXEOS™ is a trademark of Jazz Pharmaceuticals

Opportunity for an IDH1m Inhibitor in Solid Tumors

CHOLANGIOCARCINOMA



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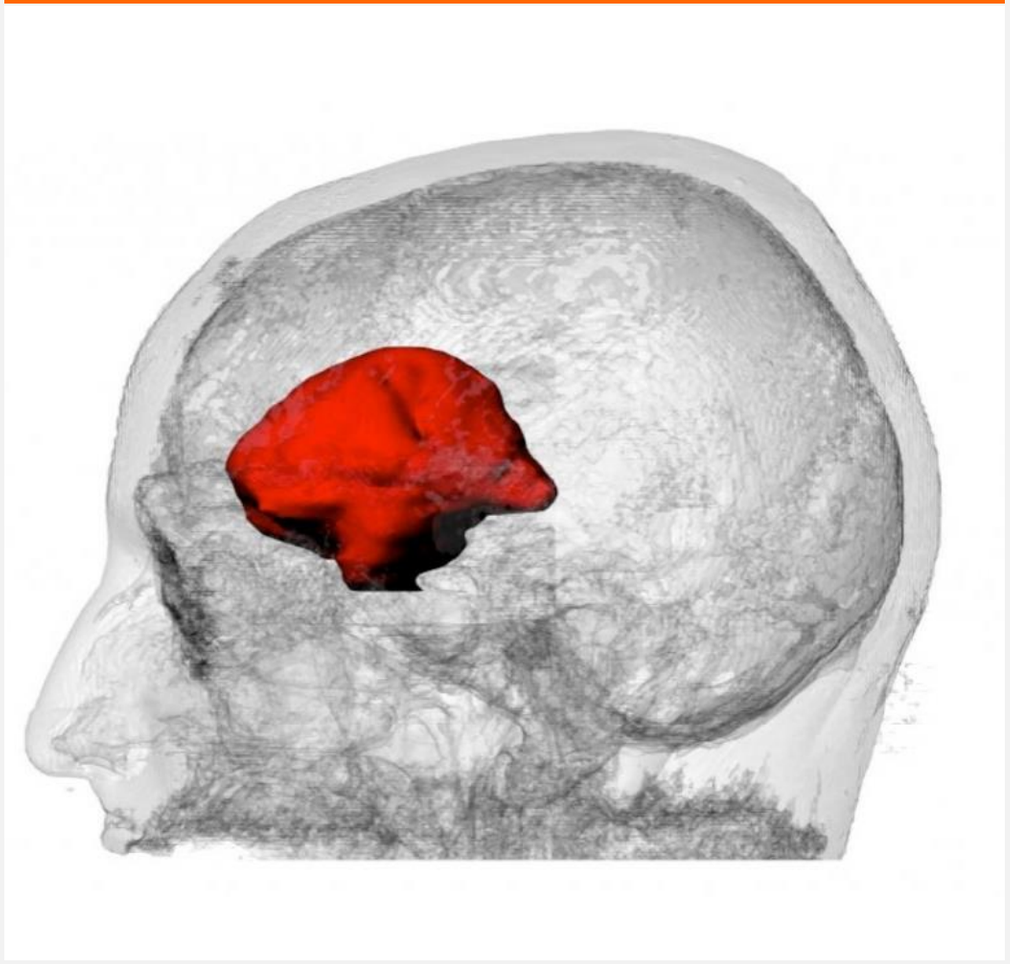
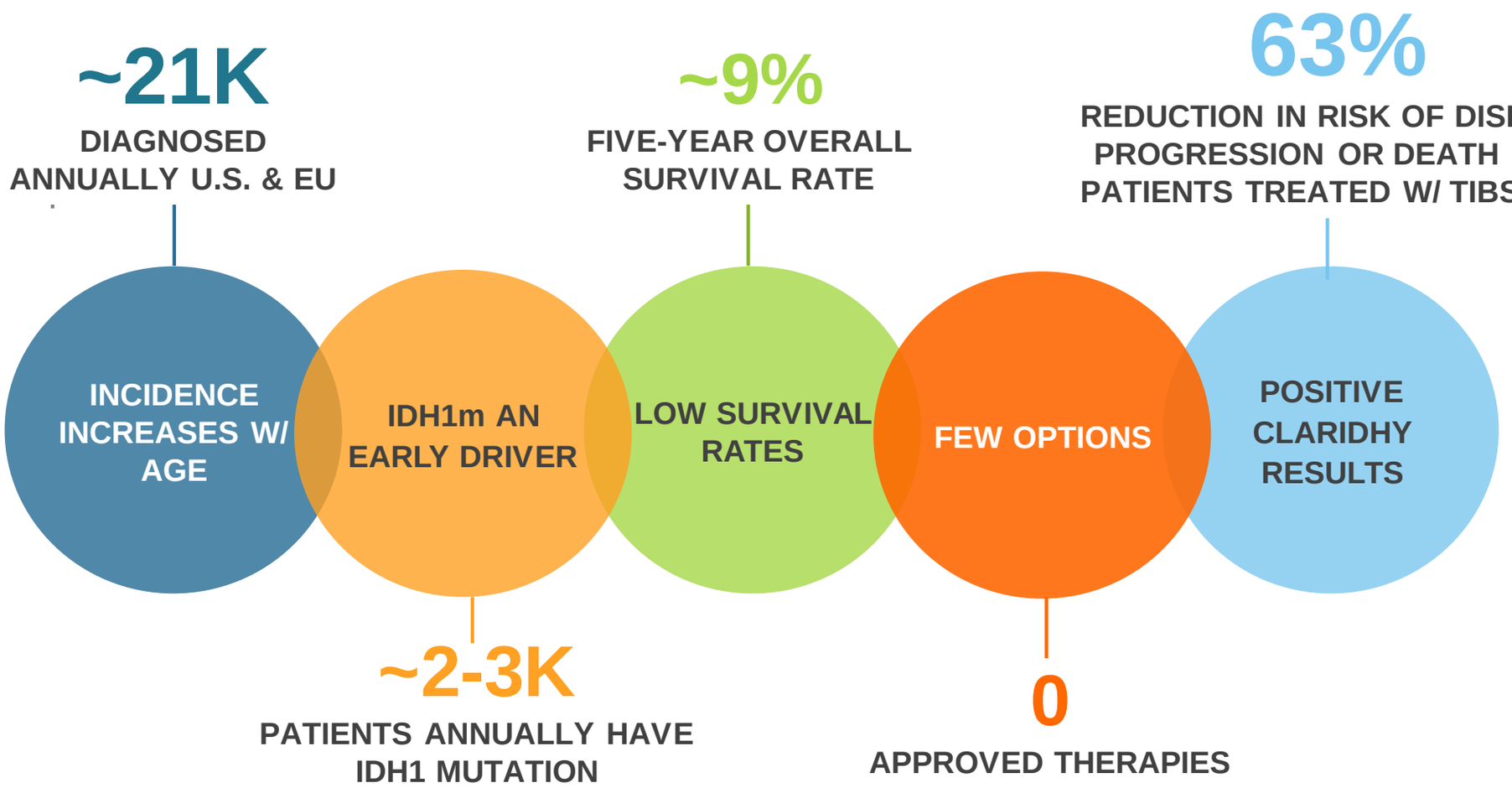
LOW GRADE GLIOMA



Sources: Steven Keating and Ahmed Hosny (right); Agios ASCO 2017 (left)

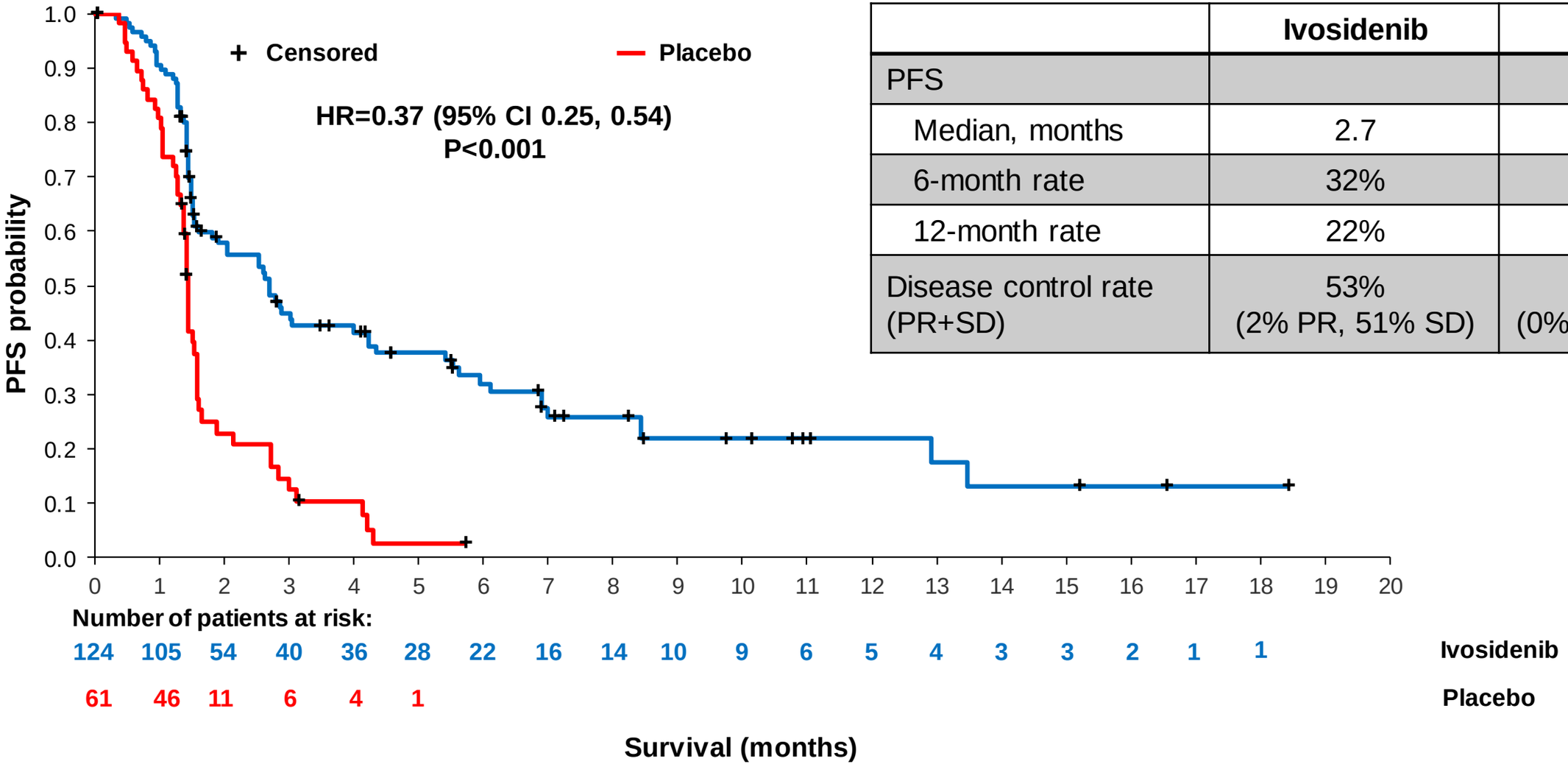
Plan to File sNDA for TIBSOVO® in Second-line or Later Cholangiocarcinoma by Year-end 2019



Sources: CDC National Program of Cancer Registries (NPCR); Epiphany Partners Epic Oncology; Decision Resources; Market Research; Borger DR et al. Oncologist 2012;17:72-9.; Kipp BR et al. Hum Pathol 2012;43:1552-8.; Goyal L et al. Oncologist 2015;20:1019-27; data from ESMO 2019

Phase 3 ClarIDHy Study Achieved Primary Endpoint, Demonstrating Statistically Significant Improvement in PFS

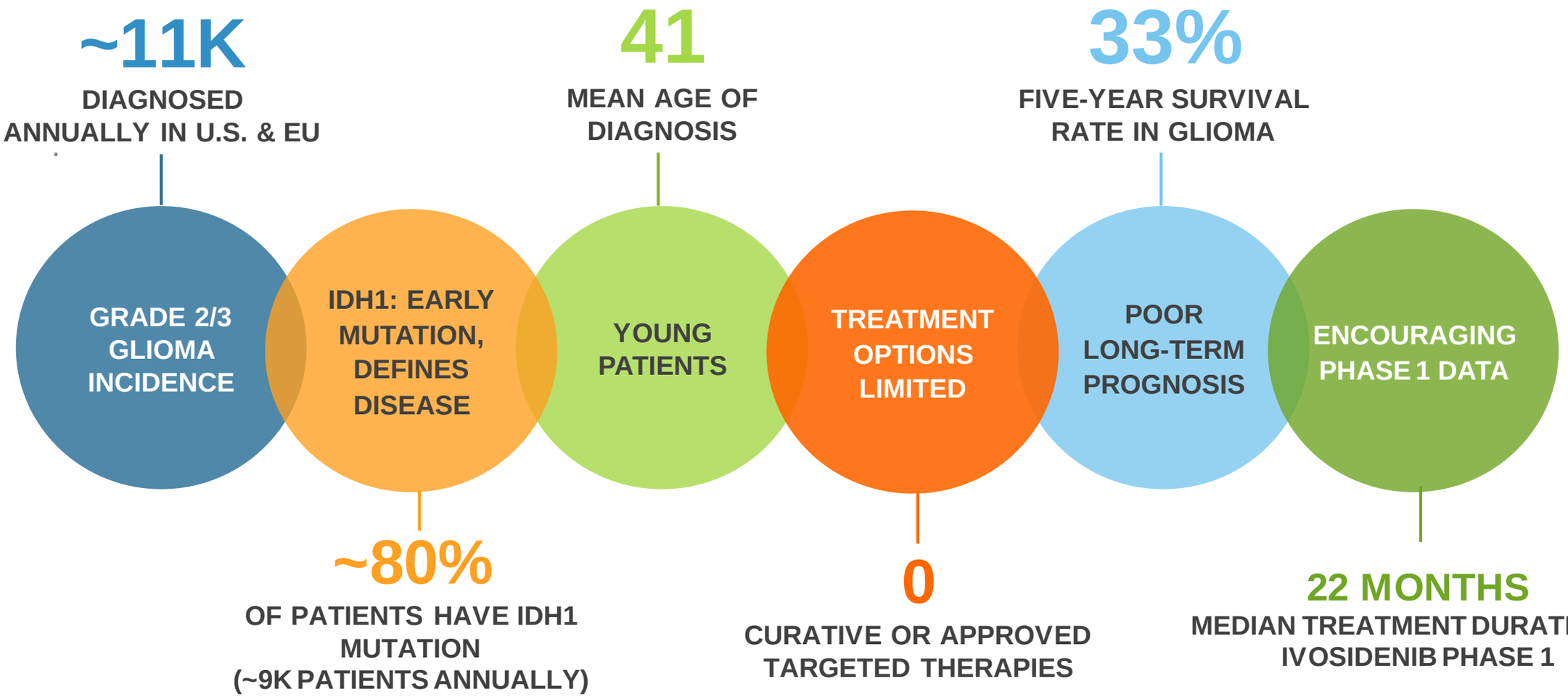
Safety Profile Consistent with Published Phase 1 Data in Patients with IDH1 Mutant Solid Tumors



	Ivosidenib	Placebo
PFS		
Median, months	2.7	1.4
6-month rate	32%	NE
12-month rate	22%	NE
Disease control rate (PR+SD)	53% (2% PR, 51% SD)	28% (0% PR, 28% SD)

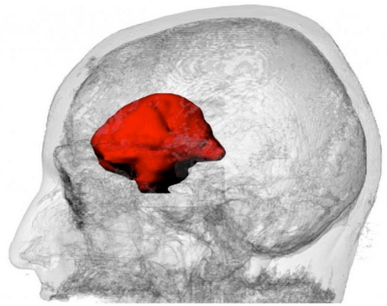
NE=not estimable; PR=partial response; SD=stable disease; Data presented at ESMO 2019

Low Grade Glioma: High Unmet Need Not Adequately Addressed by Chemotherapy or Radiation



Sources: CDC National Program of Cancer Registries (NPCR); SEER. Cancer Stat Facts; Market research; CBTRUS (Central Brain Tumor Registry in the US); Neurosurg Focus. 2015 Jan; 38(1): E6.; data presented at EANO 2019

Current Treatment Paradigm for IDHm Gliomas



SURGERY

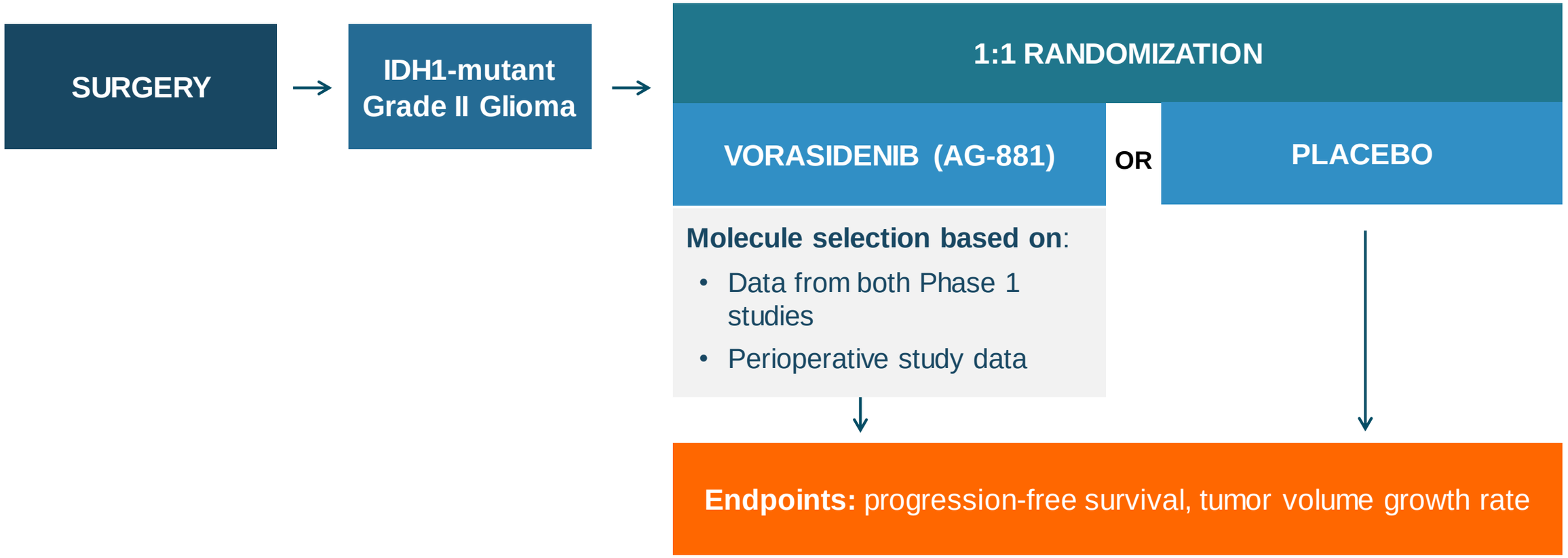
GLIOMA DIAGNOSIS
IDH1-mutant Glioma (~80%)

WHO GRADE II → **WATCH AND WAIT**

WHO GRADE III → Radiotherapy → PCV (or temozolomide plus radiotherapy → temozolomide)

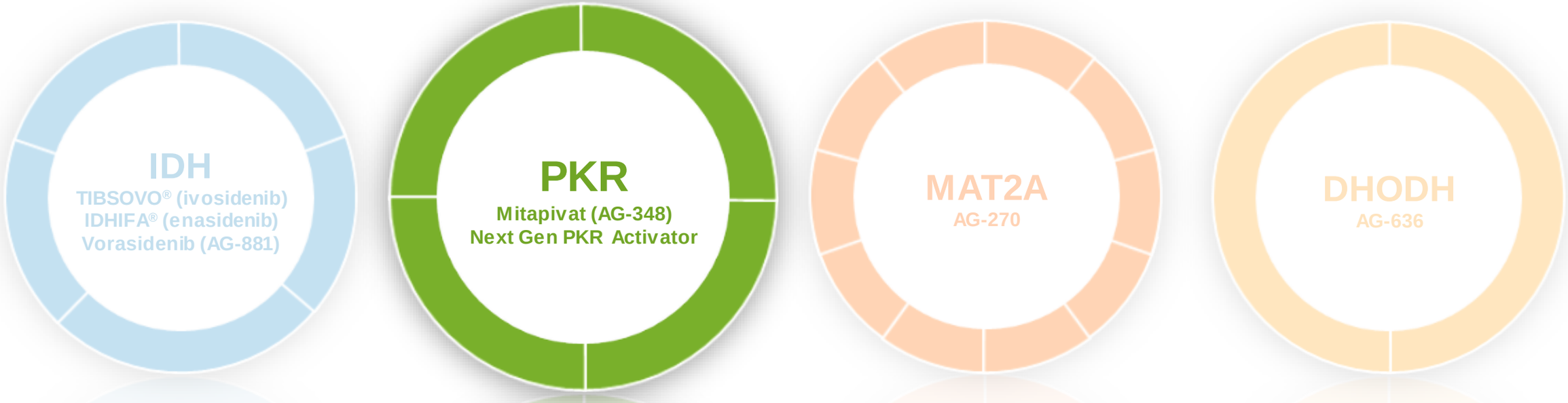
Sources: Steven Keating and Ahmed Hosny; N Engl J Med 2015; 372:2481-2498
PCV = procarbazine, lomustine and vincristine

Pivotal Path in WHO Grade II Glioma: Aim to Delay Progression to Chemotherapy and/or Radiotherapy



Registration-enabling Phase 3 study of vorasidenib to initiate by year-end 2019

Productive Research & Discovery Engine Has Produced Four Key Targets with Multiple Disease Opportunities



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Pancreatic
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DLBCL
Esophageal
Gastric
Mesothelioma

Lymphoma
AML

Our Approach to Rare Genetic Diseases
Part of a New Wave of Transformational Therapies

Understanding and correcting the root cause of the disease

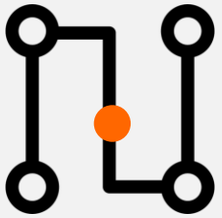
AGIOS APPROACH

Disease-modifying small molecules targeting intracellular pathways leading to transformative outcomes for patients

Mutated metabolic enzyme

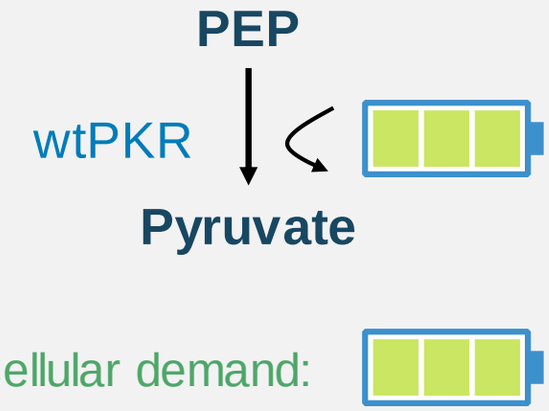
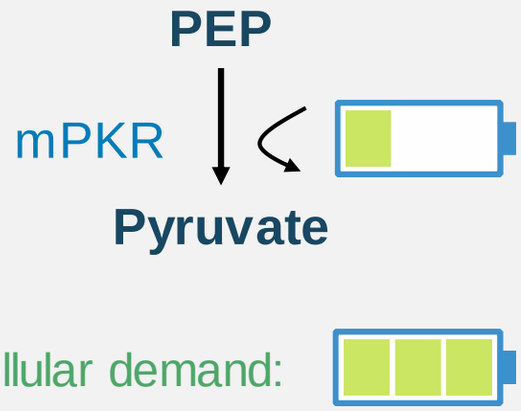
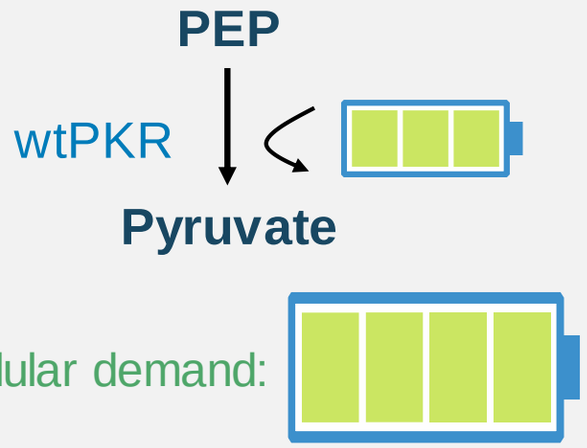
Biochemical defects

Disrupted metabolic networks

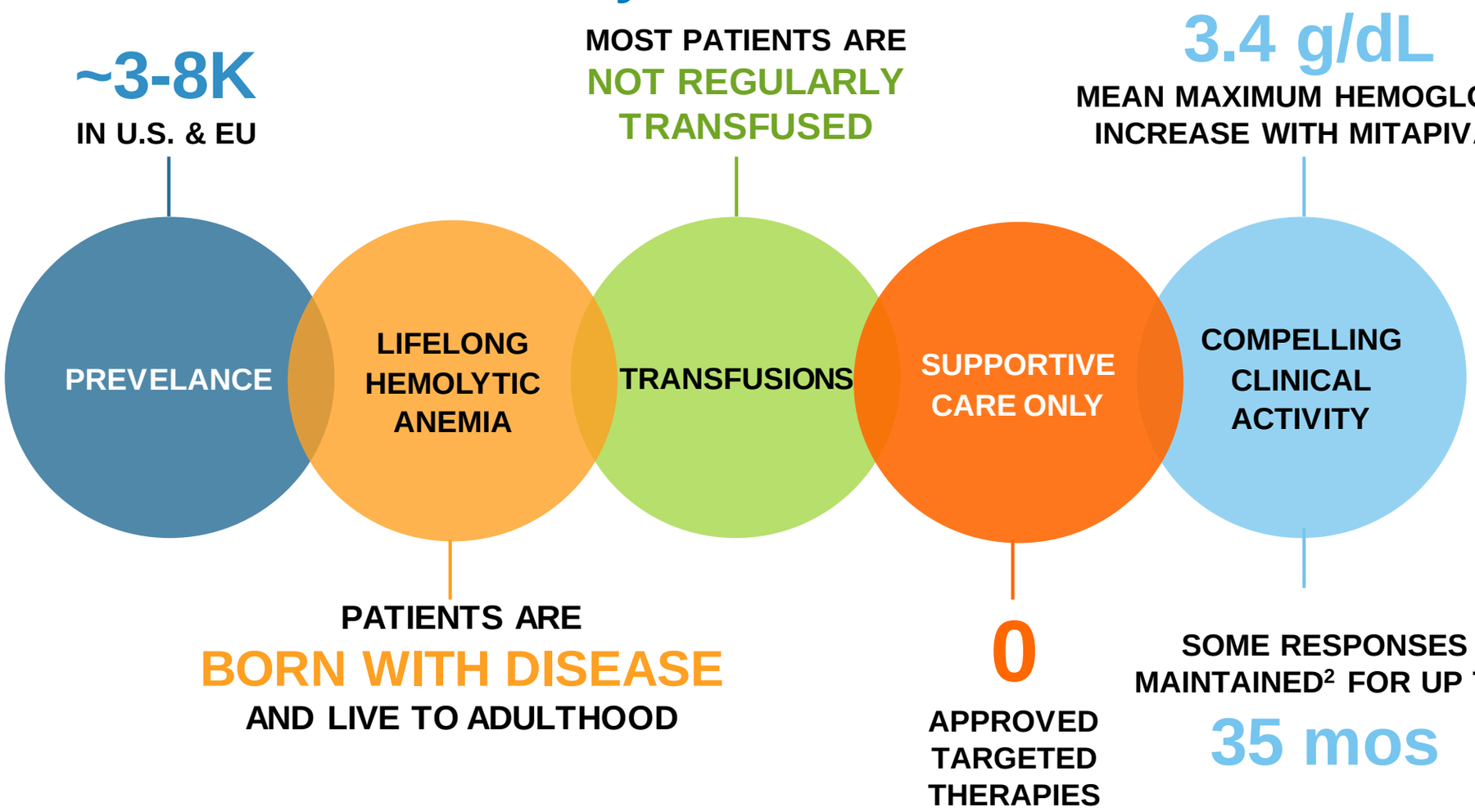


Toxic or deficient metabolites

PK Activation Represents Opportunities Across Hemolytic Anemias

Normal Red Cell	Pyruvate Kinase Deficiency	Other Hemolytic Anemias
		
ATP production meets demand	**Inadequate production: ATP deficiency**	**Increased demand: ATP deficiency**
	✓ **Proof of concept achieved**	**Thalassemia Phase 2 initiated; NIH sponsored trial in sickle cell disease initiated**

Opportunity for Mitapivat to be the First Disease-Modifying Treatment for PK Deficiency



Sources: Estimated prevalence range from ~1:20K to ~1:485K Grace R et al. *Am J Hematol* 2015;90(9):825-30; [1]Mohrenweiser HW *PNAS* 1981;78(8):5046-50; [2]Carey PJ et al. *Blood* 2000;96(12):4005-6; [3]Beutler E & Gelbart T *Blood* 2000;95(11):3585-8; [4]deMedicis et al. *Hum Hered* 1992;42(3):179-83; Grace R et al. *N Engl J Med 2019;381:933-44*

[1]Mean maximum hemoglobin increase of 3.4 g/dL in patients to had a >1.0 g/dL increase in haemoglobin on study; [2] 19 pts remain in the extension phase with a median treatment duration of 28.9 months [range 21.6-34.8]

New data from the extension phase of the Phase 2 DRIVE PK study of mitapivat in adults with PK deficiency submitted for presentation at ASH

Mitapivat Path to Approval

ACTIVATE

- **~80 patients** treated for 6 months
- **Primary endpoint:** portion of patients achieving 1.5 g/dL Hb increase over multiple visits

ACTIVATE-T

- **Up to 40 patients,** minimum of 6 transfusions 1 year before enrollment
- **Primary endpoint:** reduction in transfusion burden over 6 months compared to patient's transfusion history

- **Disease awareness**
- **Improving path to diagnosis**
- **Patient voice**

Broadening the Opportunity for Mitapivat in Thalassemia and Pediatric PK Deficiency Patients

PHASE 2 THALASSEMIA STUDY INITIATED

- ~20 non-transfusion dependent adults
- Evaluating 50 and 100 mg BID
- Primary endpoint: hemoglobin response (1.0 g/dL increase over baseline at 12 weeks)
- Goal to achieve proof of concept in 2019

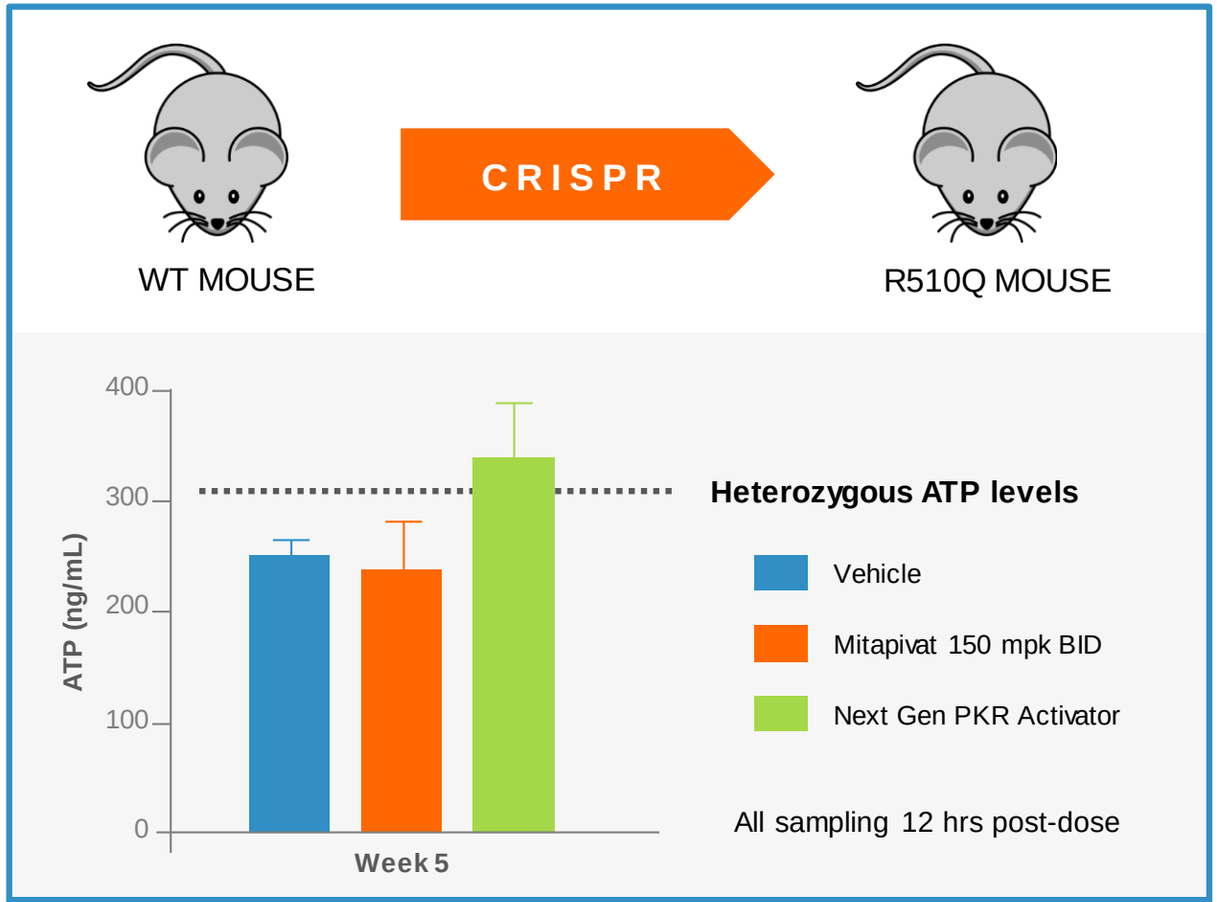
POTENTIAL PATH FORWARD FOR MITAPIVAT IN PK DEFICIENCY PEDIATRICS

- Safety and efficacy observed in DRIVE PK extension phase warrants evaluation of mitapivat in pediatric PK deficiency patients
- Juvenile toxicology studies underway
- Discussion with regulators planned for 2019
- Primary goal to develop mitapivat in a pediatric population

Committed to Continued Development of PKR Activators for the Treatment of Every Patient with PK Deficiency

DEVELOPMENT CANDIDATE FOR A NEXT GENERATION PKR ACTIVATOR SELECTED

- More potent across a range of PKR mutations
- Address patients who do not have a sufficient response to mitapivat
- IND planned in next 12-18 months



Next generation molecule superior at increasing ATP levels in a mouse model with the R510Q mutation

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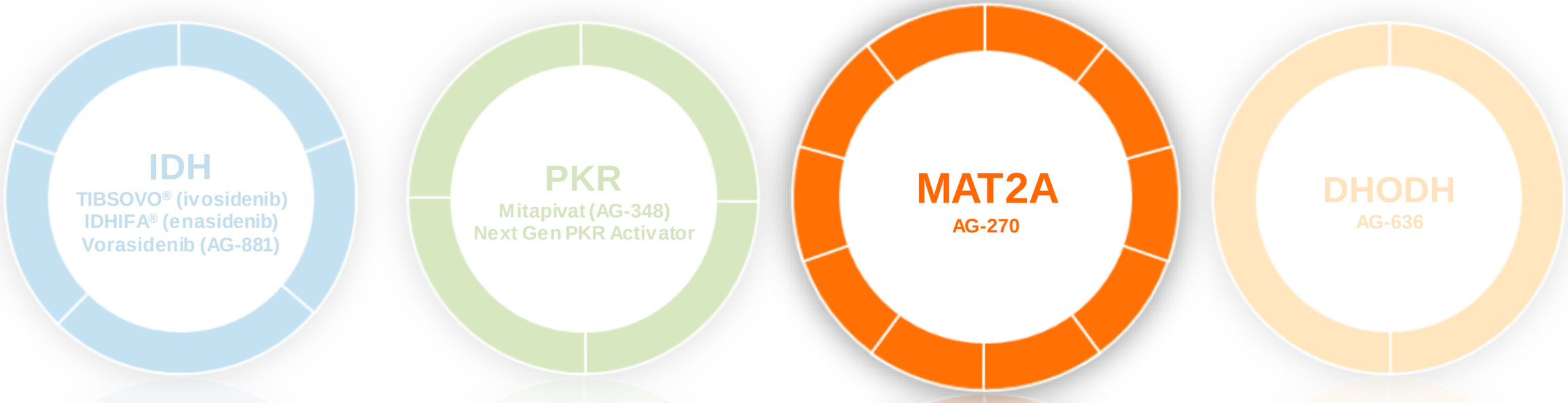

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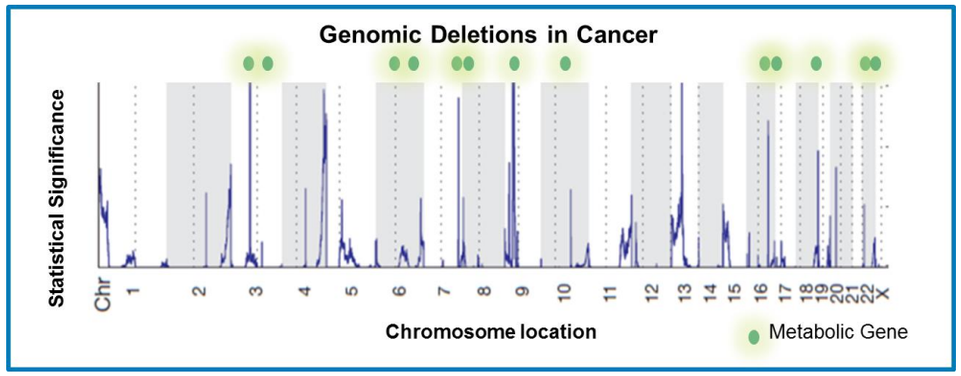
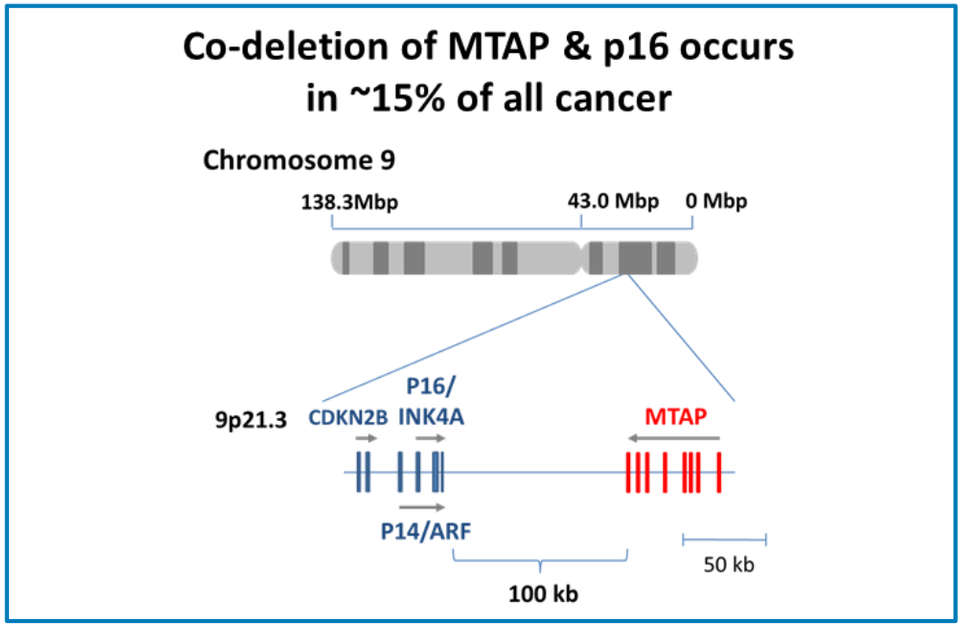
Mesothelioma

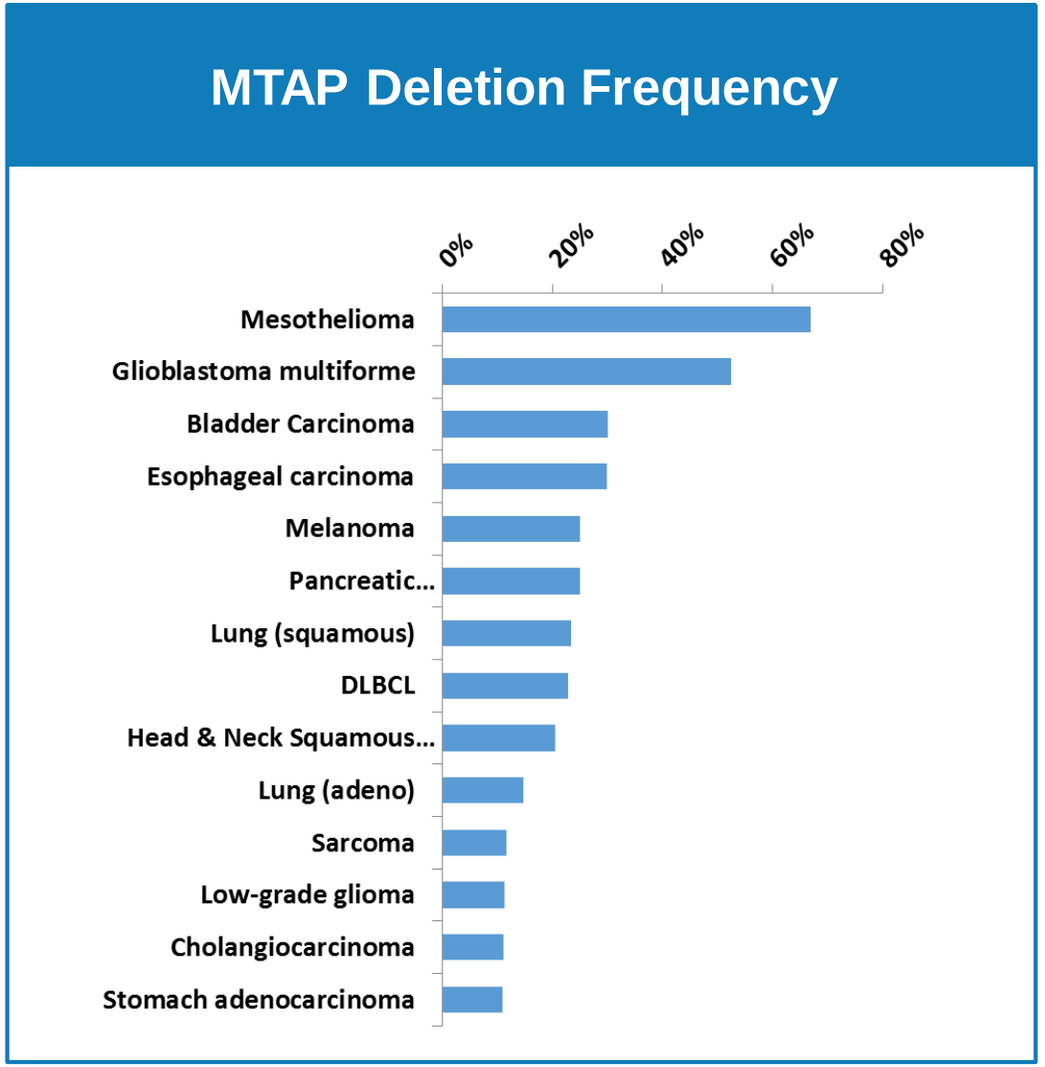
Lymphoma
AML

MTAP Deletions Occur in ~15% of All Cancers



Source: Adapted from Beroukhim et al Nature 2010

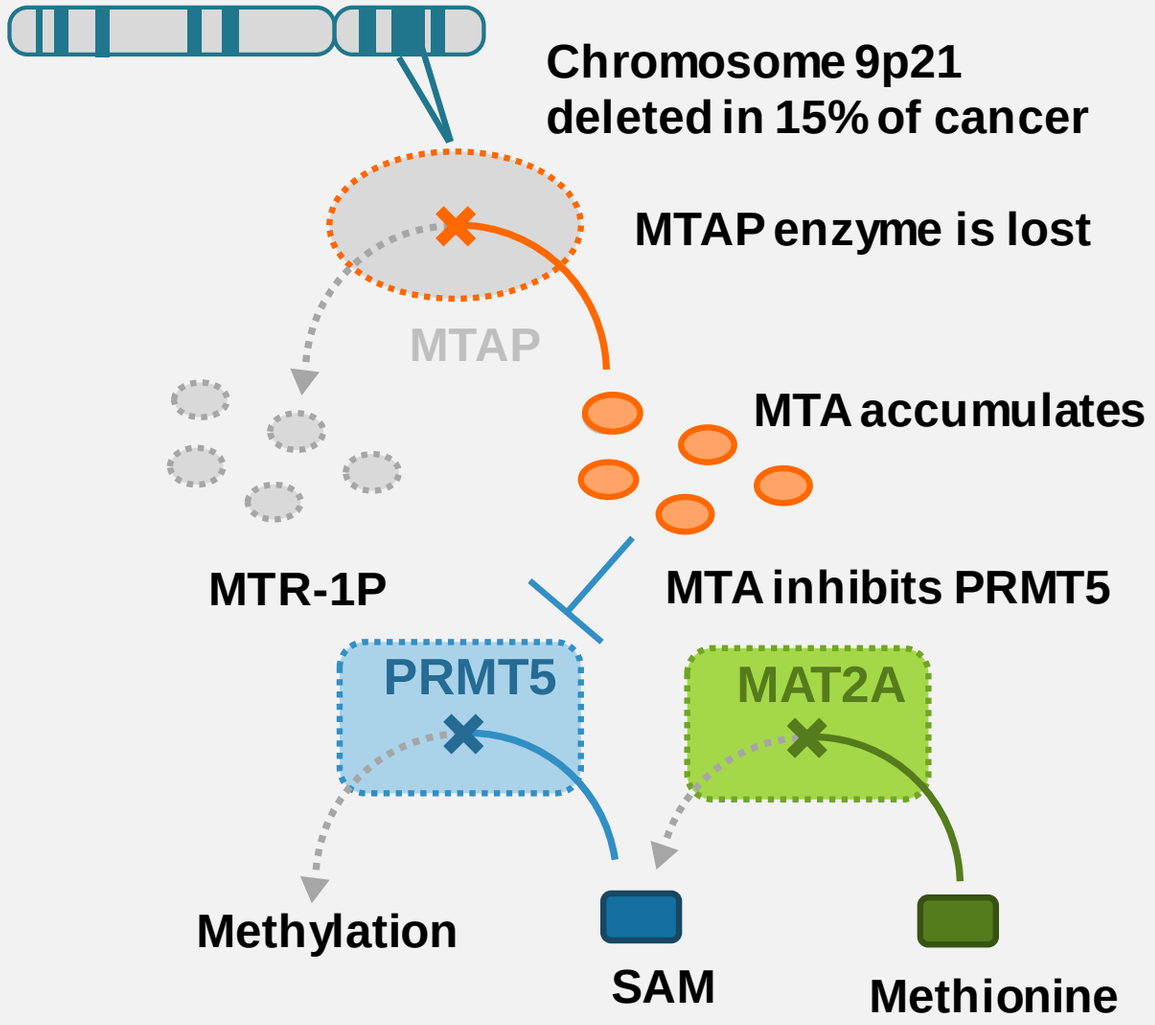




Sources: Marjon et al Cell Reports. 2016 Apr 19;15(3):574-587; Agios data on file; Illei et al Clinical Cancer Research. 2003 Jun; 9(6):2108-13;
MTAP deletion frequencies are from Agios analysis of data from The Cancer Genome Atlas

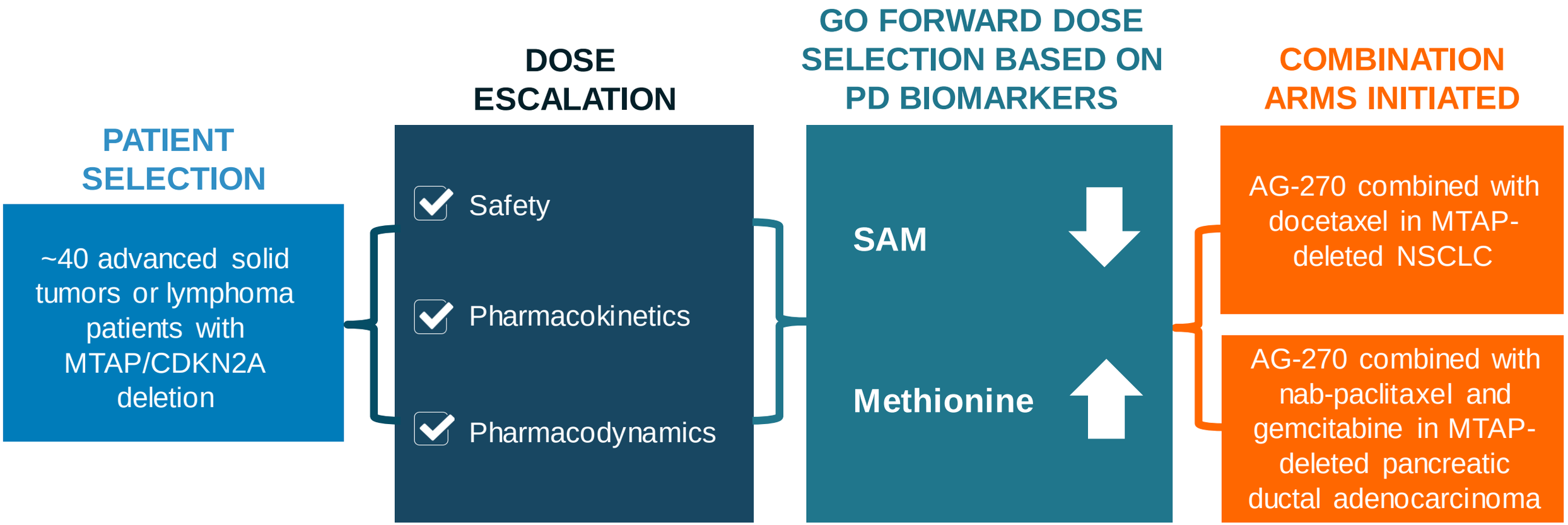
A Key Insight: Deletion of MTAP Makes Cancers Vulnerable to Targeting of MAT2A

1. **MTAP deletion**
2. **Substrate MTA accumulates**
3. **Partial inhibition of PRMT5**
4. **Sensitivity to a ‘second hit’: targeting MAT2A starves PRMT5 of its substrate**



Sources: Marjon et al Cell Reports. 2016 Apr 19;15(3):574-587 and MTAP deletion frequency from Agios analysis of data from The Cancer Genome Atlas

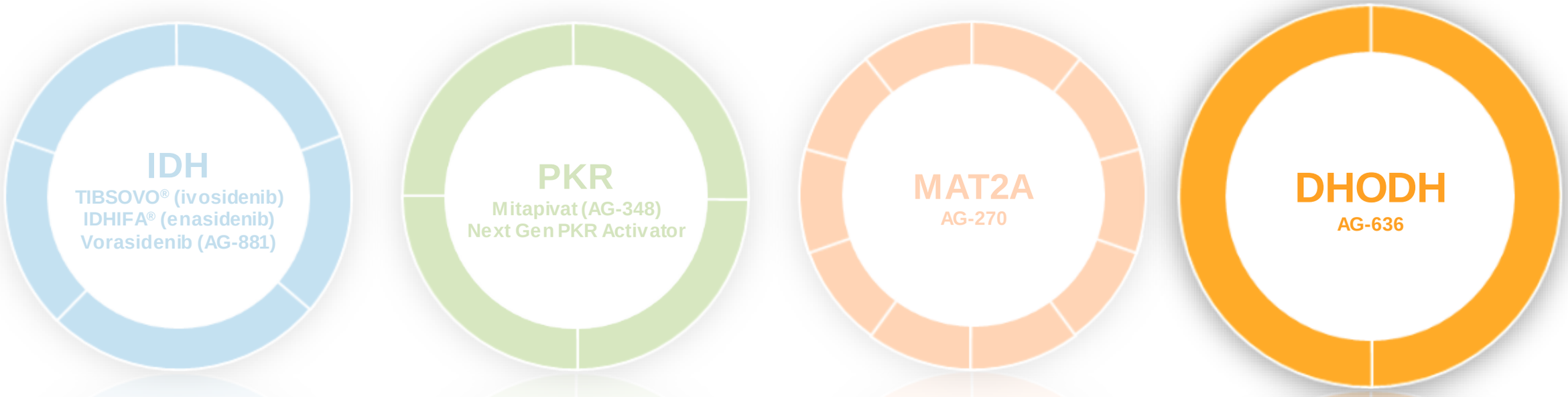
Single Agent Dose-Escalation Complete; Advancing AG-270 to Next Phase of Clinical Development



ClinicalTrials.gov Identifier: NCT03435250

First clinical data from the Phase 1 dose escalation to be presented at AACR-NCI-EORTC

Productive Research & Discovery Engine Has Produced Four Key Targets with Multiple Disease Opportunities



- AML
- Low Grade Glioma
- Cholangiocarcinoma
- Chondrosarcoma
- MDS

- Adult PK Deficiency
- Pediatric PK Deficiency
- Sickle Cell Disease
- Thalassemia

- NSCLC
- Bladder
- Melanoma
- Head & Neck
- Pancreatic
- Glioblastoma
- DLBCL
- Esophageal
- Gastric
- Mesothelioma

- Lymphoma
- AML

Phase 1 Study of DHODH Inhibitor AG-636 in Lymphoma

DHODH catalyzes a critical step in pyrimidine biosynthesis

Dihydroorotate

DHODH

Orotate

UMP

RNA/DNA biosynthesis

LYMPHOMA

Phase 1 Study in Treatment Refractory Lymphoma Ongoing

Dose Escalation

- Determine MTD
- PK and PD to guide dose and schedule
- Safety and tolerability
- Evaluation of anti-lymphoma activity

Dose Expansion

- Confirm safety of Phase 2 dose
- Further assessment of anti-lymphoma activity

Agios Preclinical Pipeline

Program	Target Discovery	Target Validation	Drug Discovery	Drug Candidate
Oncology				
MAT2A Follow-Ons			●	
PTEN-mutant Solid Tumors			●	
Genetically Defined Heme Target			●	
Genetically Defined Heme Target			●	
Other Exploratory Programs	◐	◐		
Rare Genetic Diseases				
Pyruvate Kinase Activator Follow-Ons				●
Phenylketonuria (PKU)			●	
Erythroid Porphyria			●	
Friedreich's Ataxia			●	
Other Exploratory Programs	◐	◐		
Metabolic Immuno-Oncology (Celgene Collaboration)				
T-cell and Tumor Target			●	
Macrophage Target			●	
Macrophage Target		●		
Tumor Target		●		
Other Targets (T-cell, Macrophage, Tumor)	●	●		

● Metabolic Target ● Non-Metabolic Target ◐ Metabolic and Non-Metabolic Targets ▬ Celgene Collaboration

CORPORATE

Second Quarter 2019 Financial Results

Statement of Operations	Three Months Ended 6/30/19	Three Months Ended 6/30/18
Total Revenue	$26.2M	$40.4M
Collaboration Revenue	9.8M	38.8M
TIBSOVO® Net Sales	13.7M	--
Royalty Revenue	2.7M	1.6M
Cost of Sales	0.3M	--
Research & Development Expense	107.4M	86.7M
Selling, General & Administrative Expense	32.4M	26.6M

Balance Sheet	6/30/19	12/31/18
Cash, Cash Equivalents and Marketable Securities	$624.0M	$805.4M

June 30, 2019 cash balance provides runway through at least the end of 2020

2019 Key Milestones & Data Presentations Position Agios for Long-term Value Creation

Key 2019 Milestones

- ✓ FDA approval and commercialization of monotherapy TIBSOVO® in untreated AML
- ✓ Initiate AG-636 Phase 1 dose-escalation trial in lymphoma in 1H 2019
- ✓ Complete AG-270 Phase 1 dose-escalation and select go forward dose
- ✓ Initiate expansion arms in the AG-270 Phase 1 study in Q3 2019
- Achieve proof-of-concept for mitapivat in thalassemia in 2H 2019
- Submit sNDA for TIBSOVO® in second line or later cholangiocarcinoma by YE
- Initiate glioma registration-enabling trial with vorasidenib by YE
- Complete enrollment in PK deficiency pivotal trials ACTIVATE-T and ACTIVATE by YE

Key Upcoming Data Presentations

- Data from single agent dose-escalation portion of Phase 1 trial of AG-270 in MTAP-deleted tumors to be presented at AACR-NCI-EORTC
- Data from IDH and PKR programs have been submitted for presentation at ASH, including:
  - New data from the extension phase of the Phase 2 DRIVE PK study of mitapivat in adults with PK deficiency
  - Important translational data from the Phase 1 study of TIBSOVO® and azacitidine in frontline AML