

One Mission, Inspired by Patients: Defeat Cancer.™

February 2024



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This presentation may contain forward-looking statements that are based on our current expectations, estimates and projections about our industry, our operations and financial performance, as well as management's beliefs and assumptions. Words such as "anticipates," "expects," "intends," "plans," "believes," "seeks," "estimates," "may," "will," and variations of these words or similar expressions are intended to identify forward-looking statements. Such forward-looking statements are subject to various risks and uncertainties, including important factors that could cause actual outcomes or results to differ materially from those indicated in these statements. These statements include, without limitation, the potential for our pre-clinical and/or clinical stage pipeline assets to be first-in-class and/or best-in-class treatments, the ability to become a multi-product, self-sustaining company, plans to continue our geographic expansion of QINLOCK in European and international markets, our Phase 3 INSIGHT clinical study of QINLOCK versus sunitinib in second-line GIST patients with mutations in KIT exon 11 and 17/18, our expectations regarding the aggregate potential revenue opportunity for QINLOCK, our ability to expand the market opportunity for QINLOCK in second-line GIST in our INSIGHT Phase 3 study; the timing of our NDA and MAA submission for vimseltinib, the potential revenue opportunity for vimseltinib, if approved, the commercial synergies between QINLOCK and vimseltinib, plans to present additional data from our Phase 3 MOTION study and Phase 1/2 study of vimseltinib, each in TGCT patients, plans to initiate a Phase 2 study of vimseltinib in patients with cGVHD, subject to FDA feedback; plans for our ongoing phase 1/2 study of DCC-3116 and to select a recommended Phase 2 dose for at least one potential expansion cohort, subject to favorable data; initiating a Phase 1 study of DCC-3084 in the first half of 2024, submitting an IND for DCC-3009 in the first half of 2024 and initiating a Phase 1 study in the second half of 2024, each subject to FDA feedback; clinical studies including status, progress and results, timing for clinical data readouts, planning efforts for future clinical studies, NDA/MAA (and equivalent) filings and potential additional approvals, research and discovery efforts including the potential of our drug candidates, IND filings, regulatory designations and programs, timing and likelihood of success, plans and objectives of management for future operations, estimated patient populations, the market opportunity for our drug and drug candidates and business guidance, including discovery, clinical and regulatory milestones, cash guidance, expectation

regarding our financial performance and business strategy, and the potential impact of the Inflation Reduction Act (the "IRA"), speak only at the time this presentation was prepared. Such statements are based upon the information available to us now and are subject to change. We will not necessarily inform you of such changes. These statements are not guarantees of future performance and are subject to certain risks, uncertainties and assumptions that are difficult to predict. Therefore, actual results could differ materially and adversely from those expressed in any forward-looking statements as a result of various factors, including, among others, the success of our commercialization efforts with respect to QINLOCK, including our launch in key European markets, our limited experience as a commercial company, our ability to obtain, or any delays in obtaining, required regulatory approvals for our drug and drug candidates, our reliance on sole source third-party suppliers, our exposure to criminal sanctions, civil penalties, contractual damages, reputational harm, and diminished profits and future earnings from our relationships with customers and third-party payors that are subject to applicable anti-kickback, fraud and abuse, and other healthcare laws and regulations, and health information privacy and security laws, our failure to obtain or maintain adequate coverage and reimbursement for new or current products, recently enacted and future legislation may increase the difficulty and cost for us to obtain marketing approval of and commercialize our drug candidates, the potential for QINLOCK or any current drug candidates, such as vimseltinib and DCC-3116, or future drug candidates, if successfully developed and approved, to cause undesirable side effects that limit the commercial profile or result in other significant negative consequences for approved products or delay or prevent further development or regulatory approval with respect to drug candidates or new indications, or cause regulatory authorities to require labeling statements, such as boxed warnings, our competition may discover, develop, or commercialize products before or more successfully than we do, our estimates for market opportunities for our approved drug and drug candidates, market acceptance by physicians, patients, third-party payors, and others in the medical community of QINLOCK, and of any future approved drugs, such as vimseltinib or DCC-3116, if approved, our failure to obtain additional marketing approvals in other foreign jurisdictions, the potential for ongoing enforcement of post-marketing requirements for QINLOCK and any drug candidate for which we obtain marketing approval to subject us to substantial penalties, including withdrawal of QINLOCK or any future approved product

from the market, if we fail to comply with all regulatory requirements, our assumptions in connection with the market opportunity for the INSIGHT trial patient population including the aggregate potential revenue opportunity for QINLOCK, our ability to complete, and the costs and timing of completing, the development and commercialization of our drug and drug candidates, our success in enrolling patients in clinical trials, including in our clinical trials of vimseltinib or DCC-3116, the potential for serious adverse events or unacceptable side effects to be identified during the development of our drug or drug candidates, our ability to obtain or, if granted, retain orphan drug exclusivity for our drug or drug candidates; our incurrence of significant operating losses since our inception and our expectation that we will incur continued losses for the foreseeable future and may never achieve or maintain profitability, our ability to raise capital when needed, our reliance on third parties to conduct our clinical trials and preclinical studies, our reliance on third parties for the manufacture of our drug candidates for preclinical testing and clinical trials, and for the manufacture of QINLOCK for commercialization and clinical trials, and our ability to enforce our intellectual property rights throughout the world. New risk factors and uncertainties may emerge from time to time, and it is not possible to predict all risk factors and uncertainties. There can be no assurance that the opportunity will meet your investment objectives, that you will receive a return of all or part of such investment. Investment results may vary significantly over any given time period. The appropriateness of a particular investment or strategy will depend on an investor's individual circumstances and objectives. Investors should independently evaluate specific investments. For further information regarding these risks, uncertainties and other factors, you should read the "Risk Factors" section of our Annual Report on Form 10-K for the year ended December 31, 2023 filed with the Securities and Exchange Commission (the "SEC"), and our other SEC filings.

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ONE MISSION, INSPIRED BY PATIENTS: DEFEAT CANCER™

\$1 billion in peak revenue for QINLOCK® (ripretinib) and vimseltinib provides path to becoming self-sustaining company



QINLOCK®

Growing revenue globally in 4L GIST with label expansion potential in 2L

Vimseltinib

Planned **NDA and MAA** filings for TGCT and new clinical study in **cGVHD**



Focused Investment in Pipeline

Clinical programs with **first- or best-in-class** potential

Financials

Cash runway into **2H 2026**

ROBUST PIPELINE OF SWITCH-CONTROL KINASE INHIBITORS

		RESEARCH	IND-ENABLING	PHASE 1	PHASE 2	PHASE 3	REGULATORY SUBMISSION	APPROVED
 (ripretinib) 50mg tablets KIT Inhibitor	GIST ≥4 th Line	[Progress bar spanning RESEARCH to PHASE 3]						 Global Approvals
	GIST 2 nd Line KIT Exon 11 + 17/18 (INSIGHT Phase 3 Study) ²	[Progress bar spanning RESEARCH to PHASE 2]						
Vimseltinib CSF1R Inhibitor	TGCT (MOTION Phase 3 Study)	[Progress bar spanning RESEARCH to PHASE 3]						Submission to FDA and EMA planned ³
	TGCT (Phase 1/2 Study)	[Progress bar spanning RESEARCH to PHASE 2]						
	cGVHD (Phase 2 Study)	[Progress bar spanning RESEARCH to PHASE 2] Planned for 4Q 2024						
DCC-3116 ULK Inhibitor	+ KRAS ^{G12C} Inhibitor (Sotorasib)	[Progress bar spanning RESEARCH to PHASE 1]						
	+ KIT Inhibitor (QINLOCK)	[Progress bar spanning RESEARCH to PHASE 1]						
DCC-3084 Pan-RAF Inhibitor	Solid Tumors and Hematologic Malignancies	[Progress bar spanning RESEARCH to PHASE 1]						
DCC-3009 Pan-KIT Inhibitor	GIST	[Progress bar spanning RESEARCH to PHASE 1] IND planned for 1H 2024						
ISR Program GCN2 Activator	Solid Tumors	[Progress bar spanning RESEARCH to RESEARCH]						



Notes: ISR=Integrated Stress Response; BRAF=proto-oncogene b-RAF; CSF1R=colony-stimulating factor 1 receptor; EGFR=epidermal growth factor receptor; GCN2=general control nonderepressible 2; GIST=gastrointestinal stromal tumor; G12C=single point mutation with a glycine-to-cysteine substitution at codon 12; KIT=KIT proto-oncogene receptor tyrosine kinase; RAF=rapidly accelerated fibrosarcoma; RAS=rat sarcoma gene; TGCT=tenosynovial giant cell tumor; cGVHD=chronic graft versus host disease; IND=Investigational New Drug. ULK=unc-51-like autophagy-activating kinase; (1) Exclusive development and commercialization license with Zai Lab in Greater China for QINLOCK; (2) The patient population for the INSIGHT study consists of second-line GIST patients with mutations in KIT exon 11 and 17 and/or 18 and the absence of mutations in KIT exon 9, 13, and/or 14 (also referred to as KIT exon 11 + 17/18 patients); (3) The Company expects to submit a New Drug Application (NDA) to the U.S. Food and Drug Administration (FDA) for vimseltinib for the treatment of patients with TGCT in 2Q 2024 and a Marketing Authorisation Application (MAA) to the European Medicines Agency in 3Q 2024.

EXPECTED 2024 MILESTONES



QINLOCK®

- Continue enrolling INSIGHT pivotal Phase 3 study in 2L KIT exon 11+17/18 GIST patients (2024)
- ✓ Published in Nature Medicine the INTRIGUE clinical results in 2L KIT exon 11+17/18 GIST patients (January 2024)
- Continue geographic expansion for 4L GIST in European and international markets (2024)

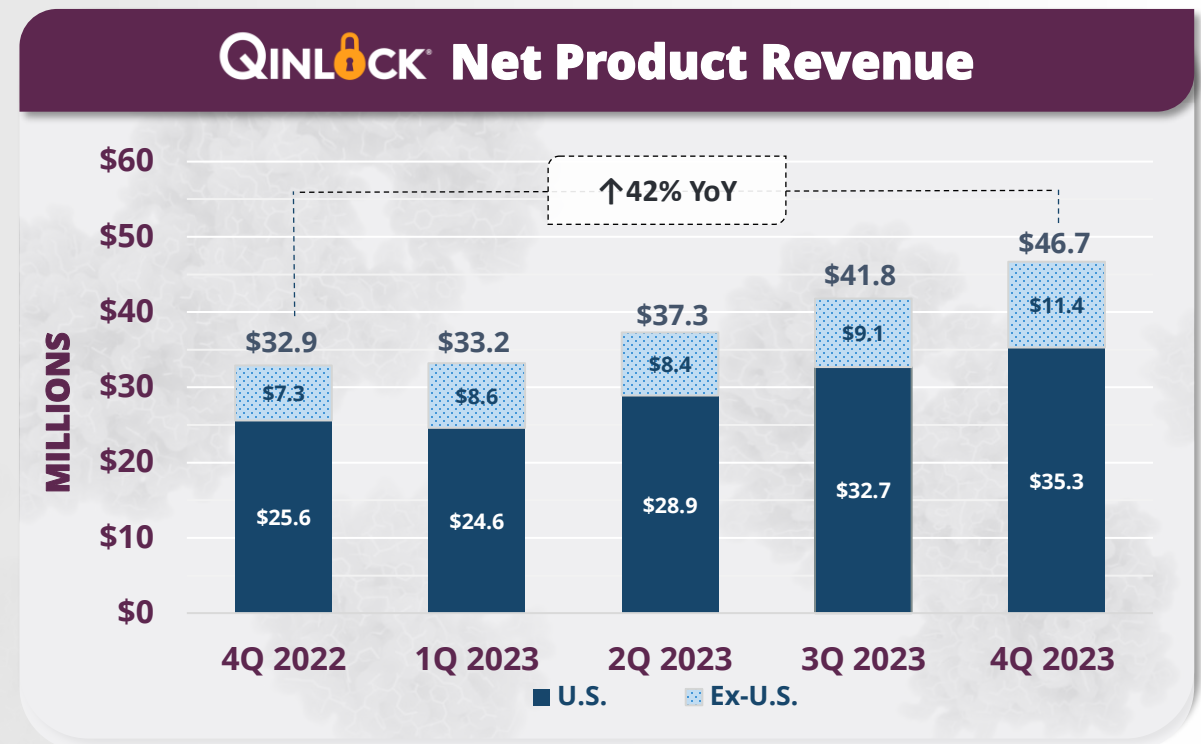
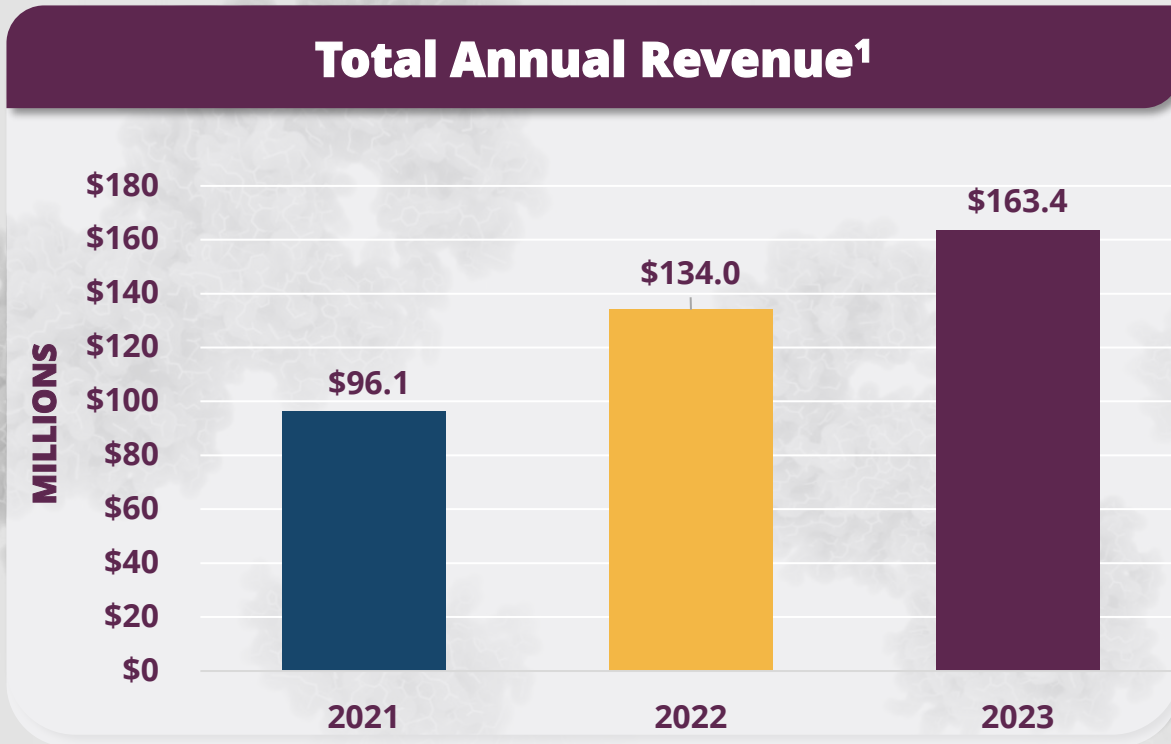
Vimseltinib

- Submit NDA (2Q 2024) and MAA (3Q 2024) for TGCT and prepare for commercial launch
- Present additional results from Part 1 of Phase 3 MOTION study in TGCT (2Q 2024)
- Present updated data from Phase 1/2 study in TGCT (2H 2024)
- Initiate Phase 2 POC study in cGVHD (4Q 2024)

Early-Stage Pipeline

- DCC-3116: Select recommended Phase 2 dose for expansion cohort(s) (2024)
- DCC-3084: Initiate Phase 1 study (1H 2024)
- DCC-3009: Submit IND to FDA (1H 2024) and initiate Phase 1 study (2H 2024)

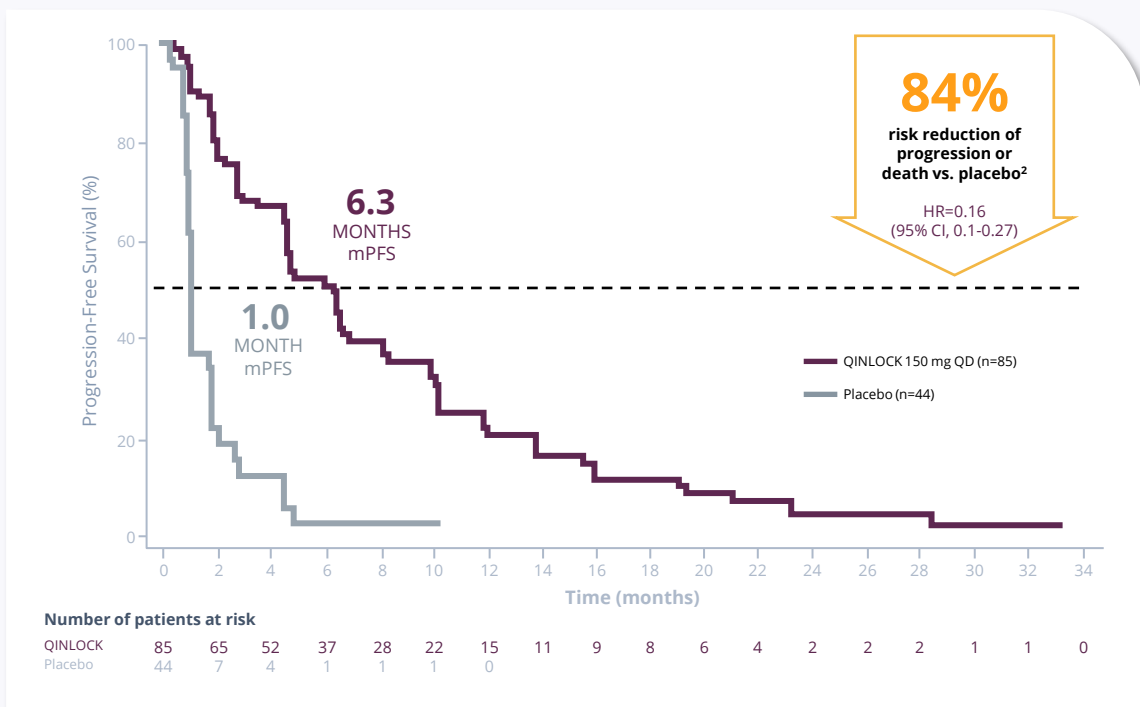
QINLOCK[®] (ripretinib)



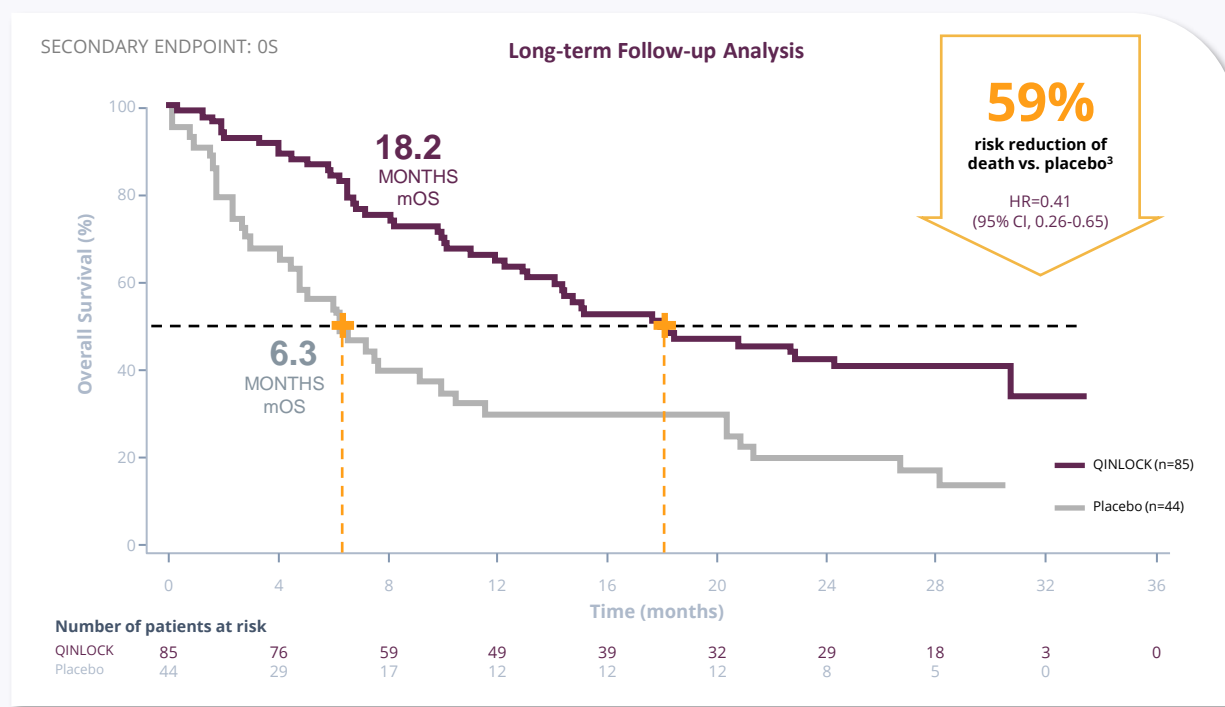
QINLOCK® | 4L GASTROINTESTINAL STROMAL TUMOR

STRONG CLINICAL BENEFIT SEEN IN PHASE 3 INVICTUS STUDY

Progression-Free Survival^{1,2}



Overall Survival^{1,2}



GLOBAL COMMERCIALIZATION CAPABILITIES OFFER SYNERGIES FOR QINLOCK AND VIMSELTINIB

QINLOCK now approved in **>40 Countries**



Direct Footprint

- Direct commercialization in US and major European countries
- Expansion to mid-sized European markets gated on market access



Partners




- Zai Lab collaboration for Greater China
- Distributors in Australia, Canada, Israel, New Zealand and Singapore
- New distributor for Central and Eastern Europe

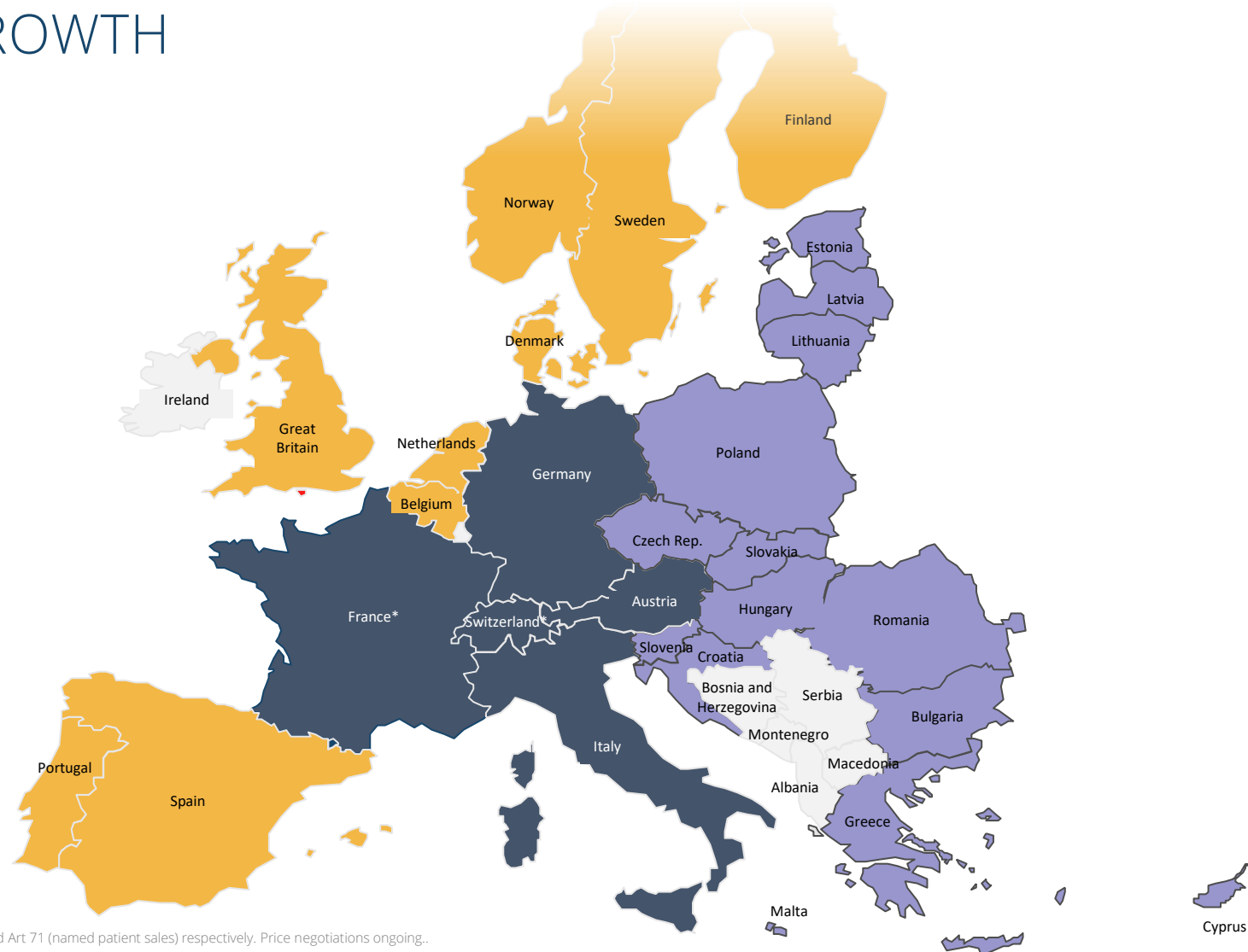


Complementary Commercial Opportunities

- Established relationships with physicians who treat GIST and TGCT
- 70%-80% overlap in US prescribing physicians for GIST and TGCT

SIGNIFICANT PROGRESS MADE IN EUROPE TO ENABLE FUTURE LAUNCHES POSITIONING QINLOCK FOR GROWTH

-  Launched countries
-  Planned countries
-  Partnered countries





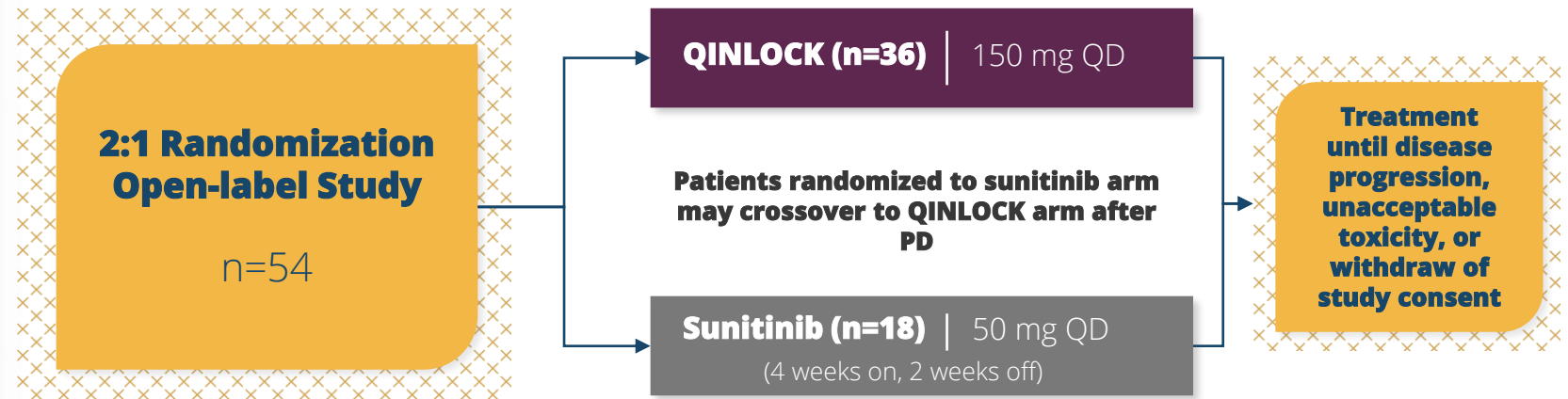
nature medicine

05 January 2024

Ripretinib versus sunitinib in gastrointestinal stromal tumor: ctDNA biomarker analysis of the phase 3 INTRIGUE trial¹

“The results of this exploratory analysis suggest ctDNA sequencing may improve the prediction of the efficacy of single-drug therapies, and support further evaluation of ripretinib in patients with KIT exon 11+17/18 mutations...”

PHASE 3, RANDOMIZED, MULTICENTER, OPEN-LABEL STUDY



Primary Endpoint

- PFS by IRR using mRECIST

Key Secondary Endpoints

- ORR by IRR using mRECIST
- OS

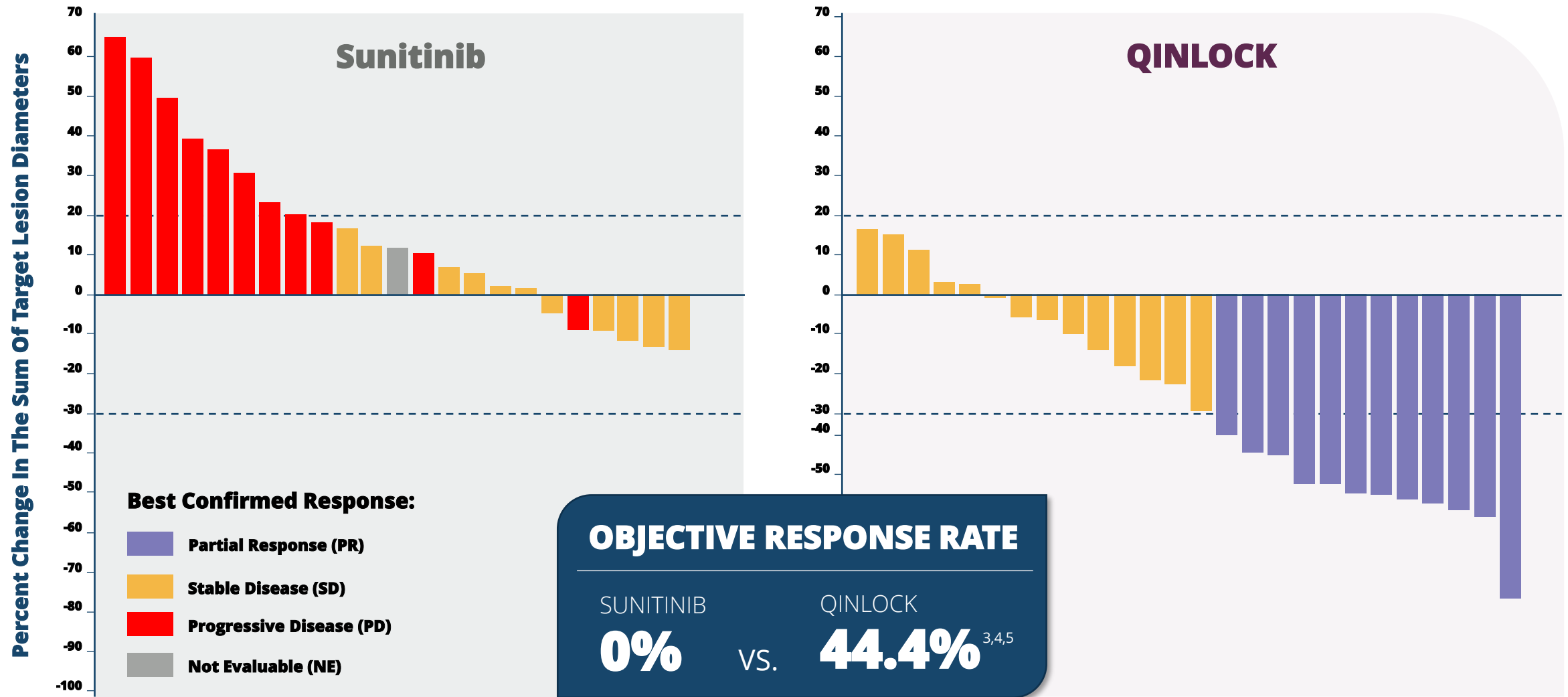


Notes: 2L=second-line; ctDNA=circulating tumor deoxyribonucleic acid; ECOG=Eastern Cooperative Oncology Group; GIST=gastrointestinal stromal tumor; IRR= individual research result; KIT=KIT proto-oncogene receptor tyrosine kinase; mRECIST=modified Response Evaluation Criteria in Solid Tumors (RECIST) 1.1 criteria; ORR=objective response rate; OS=overall survival; PD=progressive disease ; PFS=progression-free survival; QD=daily; (1) Heinrich, M.C., Jones, R.L., George, S. et al. Ripretinib versus sunitinib in gastrointestinal stromal tumor: ctDNA biomarker analysis of the phase 3 INTRIGUE trial. Nat Med (2024). <https://doi.org/10.1038/s41591-023-02734-5>



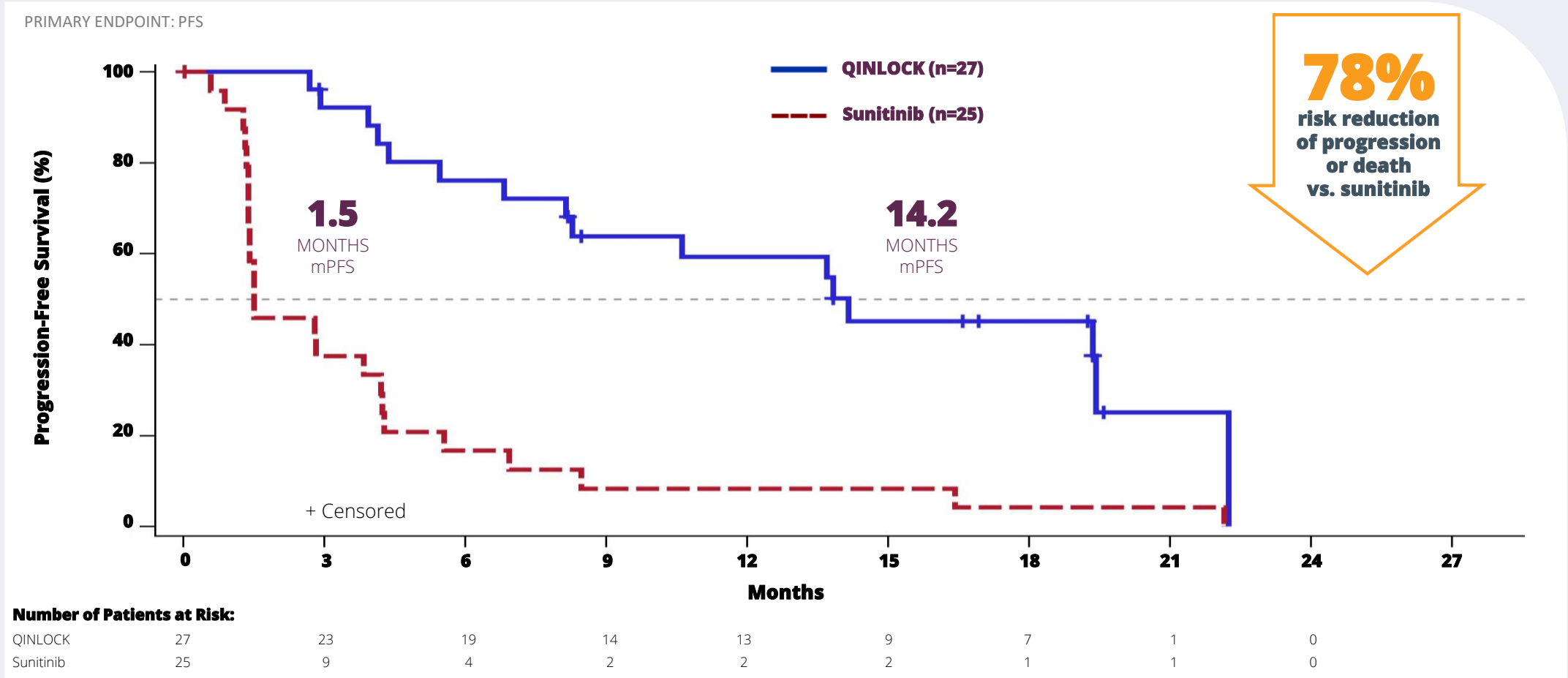
EXPLORATORY ANALYSIS FROM INTRIGUE STUDY IN 2L GIST

IMPRESSIVE ORR FOR QINLOCK IN KIT EXON 11+17/18 PATIENTS^{1,2}



Notes: Data presented at the ASCO Plenary Series Session 2023; Full prescribing information is available at www.QINLOCK.com; Deciphera data on file; 2L=second-line; (1) data cut off date of September 1, 2021; (2) for 2 patients in the sunitinib arm and 1 patient in the ripretinib arm, no postbaseline disease assessment was available; (3) ORR was confirmed with follow-up imaging; (4) determined using modified Response Evaluation Criteria in Solid Tumors (RECIST) 1.1 criteria; (5) response difference=44.4%, 95% CI (23.0, 62.7), nominal p value 0.0001; (6) Heinrich, M.C., Jones, R.L., George, S. et al. Ripretinib versus sunitinib in gastrointestinal stromal tumor: ctDNA biomarker analysis of the phase 3 INTRIGUE trial. Nat Med (2024). <https://doi.org/10.1038/s41591-023-02734-5>.

QINLOCK | EXPLORATORY ANALYSIS FROM INTRIGUE STUDY IN 2L GIST
 PFS STRONGLY FAVORS QINLOCK IN KIT EXON 11+17/18 PATIENTS¹



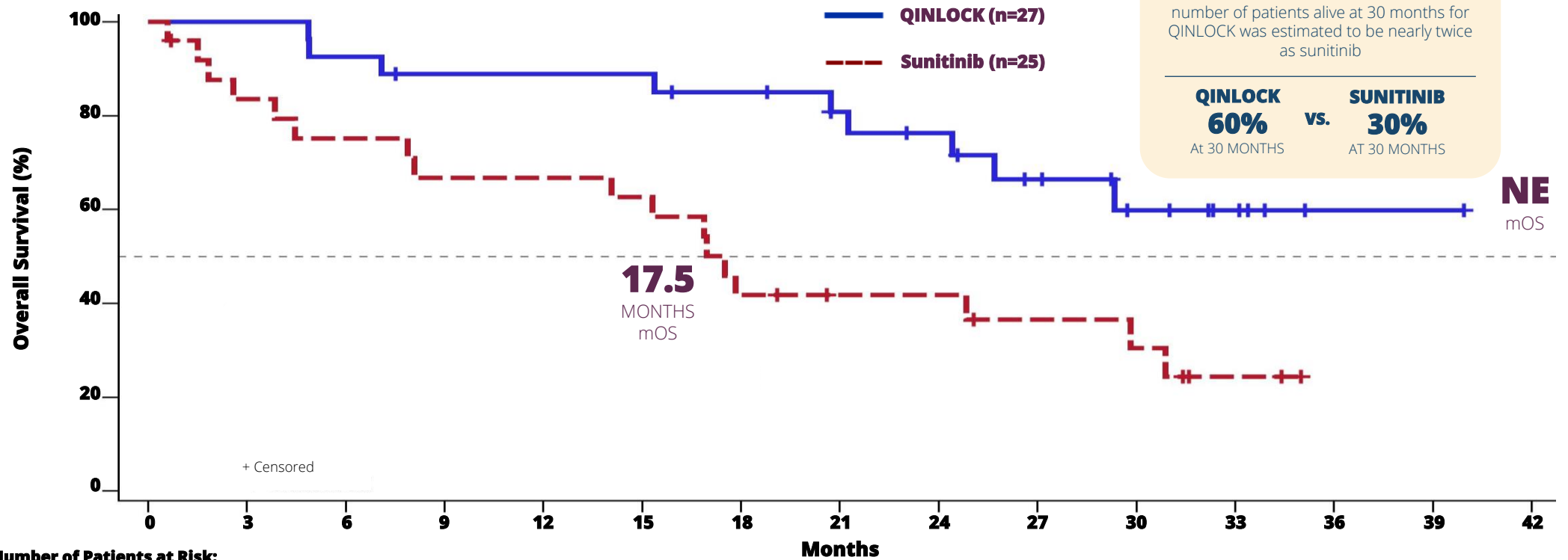
(median PFS of 14.2 months vs. 1.5 months; HR=0.22, 95% CI [0.11-0.44], nominal p value <0.0001)



Notes: Data presented at the ASCO Plenary Series Session 2023; Full prescribing information is available at www.QINLOCK.com; Deciphera data on file; 2L=second-line; HR=hazard ratio; KIT=KIT proto-oncogene receptor tyrosine kinase; mPFS=median progression-free survival; PFS=progression-free survival; (1) data cut off date of September 1, 2021; (2) Heinrich, M.C., Jones, R.L., George, S. et al. Ripretinib versus sunitinib in gastrointestinal stromal tumor: ctDNA biomarker analysis of the phase 3 INTRIGUE trial. Nat Med (2024). <https://doi.org/10.1038/s41591-023-02734-5>

QINLOCK® | EXPLORATORY ANALYSIS OF INTRIGUE STUDY IN 2L GIST SUBSTANTIAL OS FOR QINLOCK IN KIT EXON 11+17/18 PATIENTS¹

SECONDARY ENDPOINT: OS

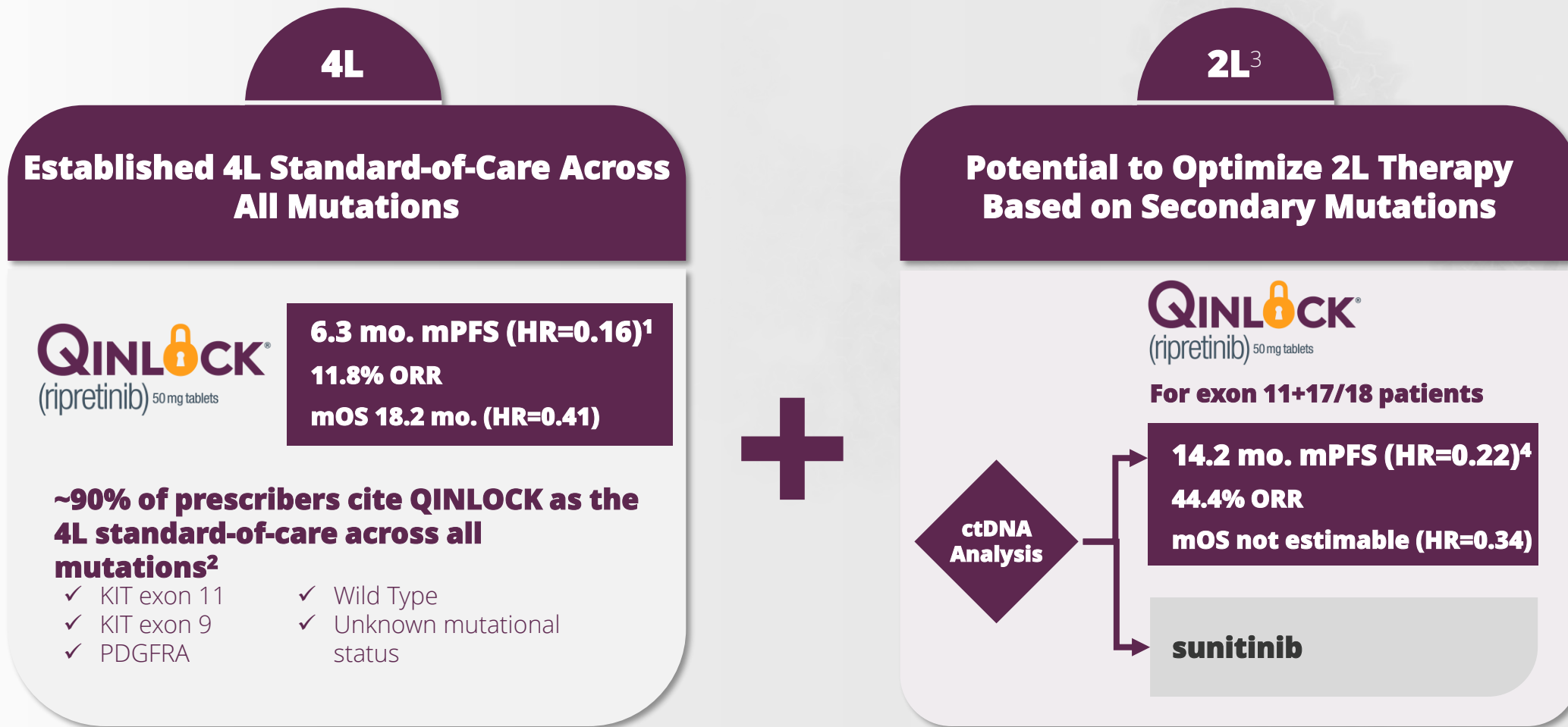


(median OS of NE months vs. 17.5 months; HR=0.34, 95% CI [0.15-0.76], nominal p value 0.0061)



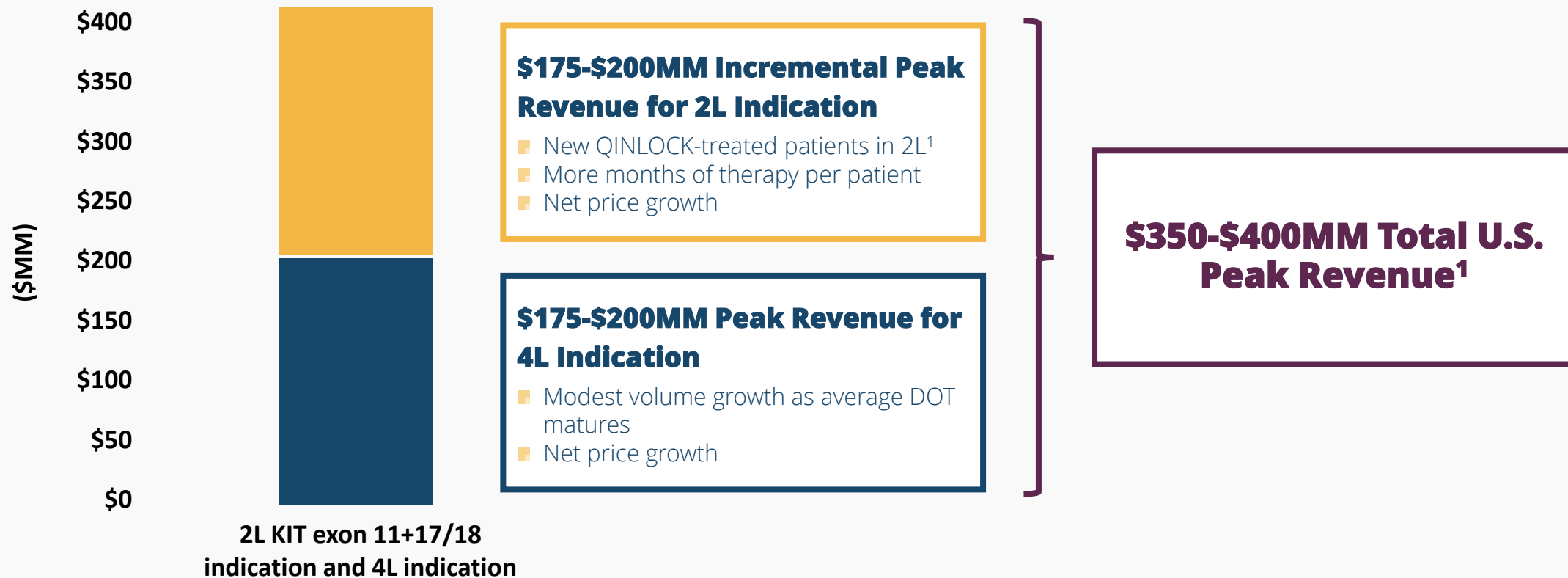
Notes: Data presented at the ASCO Plenary Series Session 2023; Full prescribing information is available at www.QINLOCK.com; Deciphera data on file; 2L=second-line; HR=hazard ratio; KIT=KIT proto-oncogene receptor tyrosine kinase; NE=not estimable; OS=overall survival; (1) the data cut off date for the second interim analysis for overall survival was September 1, 2022; (2) Heinrich, M.C., Jones, R.L., George, S. et al. Ripretinib versus sunitinib in gastrointestinal stromal tumor: ctDNA biomarker analysis of the phase 3 INTRIGUE trial. Nat Med (2024). <https://doi.org/10.1038/s41591-023-02734-5>

OPPORTUNITY TO ADVANCE THE STANDARD OF CARE ACROSS MULTIPLE LINES OF THERAPY



A 2L KIT EXON 11+17/18 INDICATION ESTIMATED TO DOUBLE QINLOCK U.S. PEAK REVENUE POTENTIAL¹

QINLOCK Estimated U.S. Peak Revenue (\$MM)¹



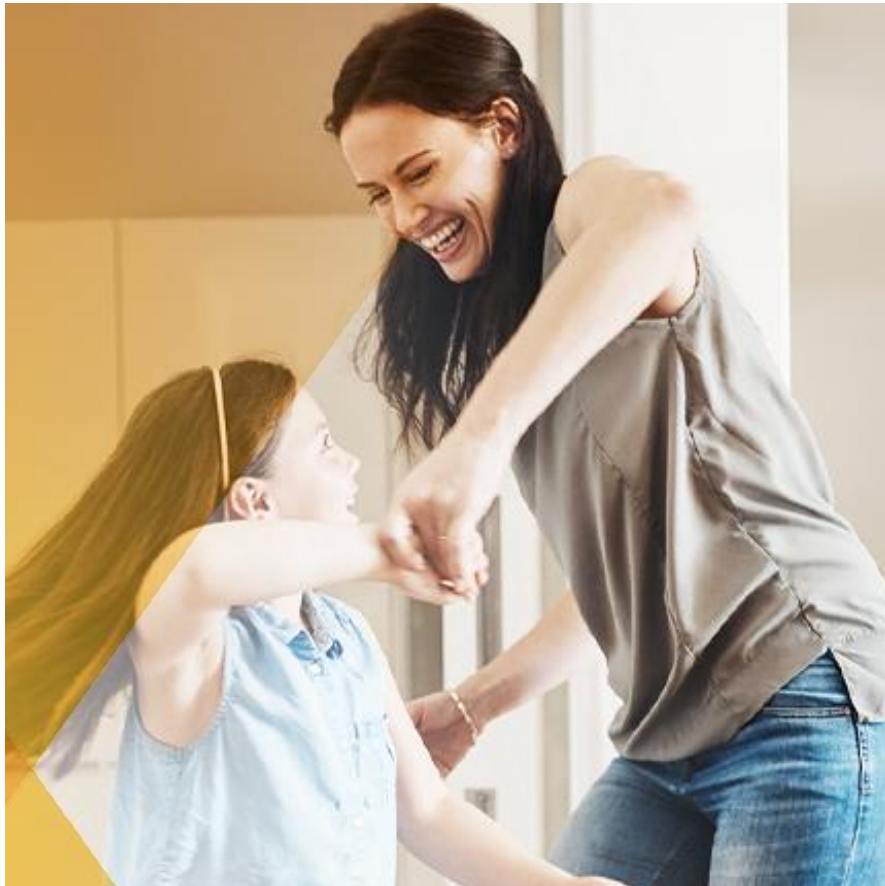
GROWTH OPPORTUNITIES AHEAD BUILDING ON STRONG MOMENTUM

- \$163.4M in total revenue in 2023
- 42% YoY growth in net product revenue (4Q 2023)
- Growth in 2024 expected from increasing treatment duration and geographic expansion
- Inclusion in NCCN guidelines for select 2L patients may impact unpromoted use based on independent physician decision
- Significant future growth opportunity in 2L GIST in patients with mutations in KIT exon 11+17/18 subject of ongoing Phase 3 INSIGHT study



VIMSELTINIB

POTENTIAL BEST-IN-CLASS TREATMENT FOR TGCT



- Vimseltinib is an oral, switch-control TKI specifically designed to selectively and potently inhibit CSF1R
- Successful pivotal Phase 3 MOTION study and Phase 1/2 study positions vimseltinib as potential differentiated therapy to address high unmet medical need
- NDA and MAA submissions expected in 2Q 2024 and 3Q 2024
- Large market opportunity in tenosynovial giant cell tumor (TGCT) with strong commercial synergies with QINLOCK
- New growth opportunity in chronic graft versus host disease (cGVHD); Phase 2 study planned to initiate in 4Q 2024¹

VIMSELTINIB | TENOSYNOVIAL GIANT CELL TUMOR SIGNIFICANT UNMET MEDICAL NEED

Locally aggressive tumor with substantial morbidity including severe pain, limited function, swelling, and stiffness

Many patients are not amenable to surgery or have disease recurrence after one or more surgeries

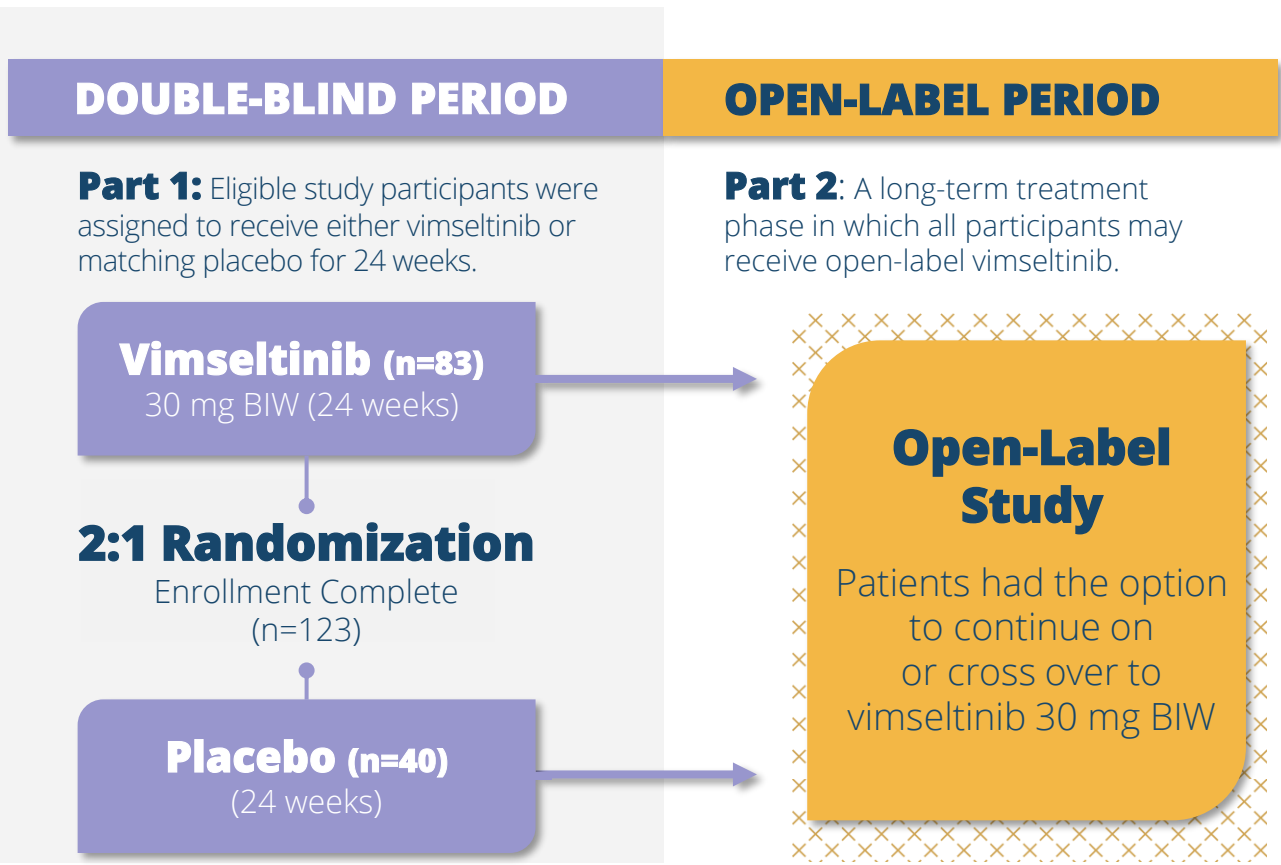
Only FDA approved therapy has a black box warning and REMS program due to hepatotoxicity risks limiting adoption; rejected by EMA

The impact is huge. You get really limited by the tumor...What bothers me the most are the **pain symptoms...You continuously take pain meds** to fight the pain.

— TGCT patient



International Study with 35 Sites



Phase 3 MOTION Study

Assessed the efficacy and safety of vimseltinib for the treatment of patients with TGCT not amenable to surgery¹

Primary Endpoint

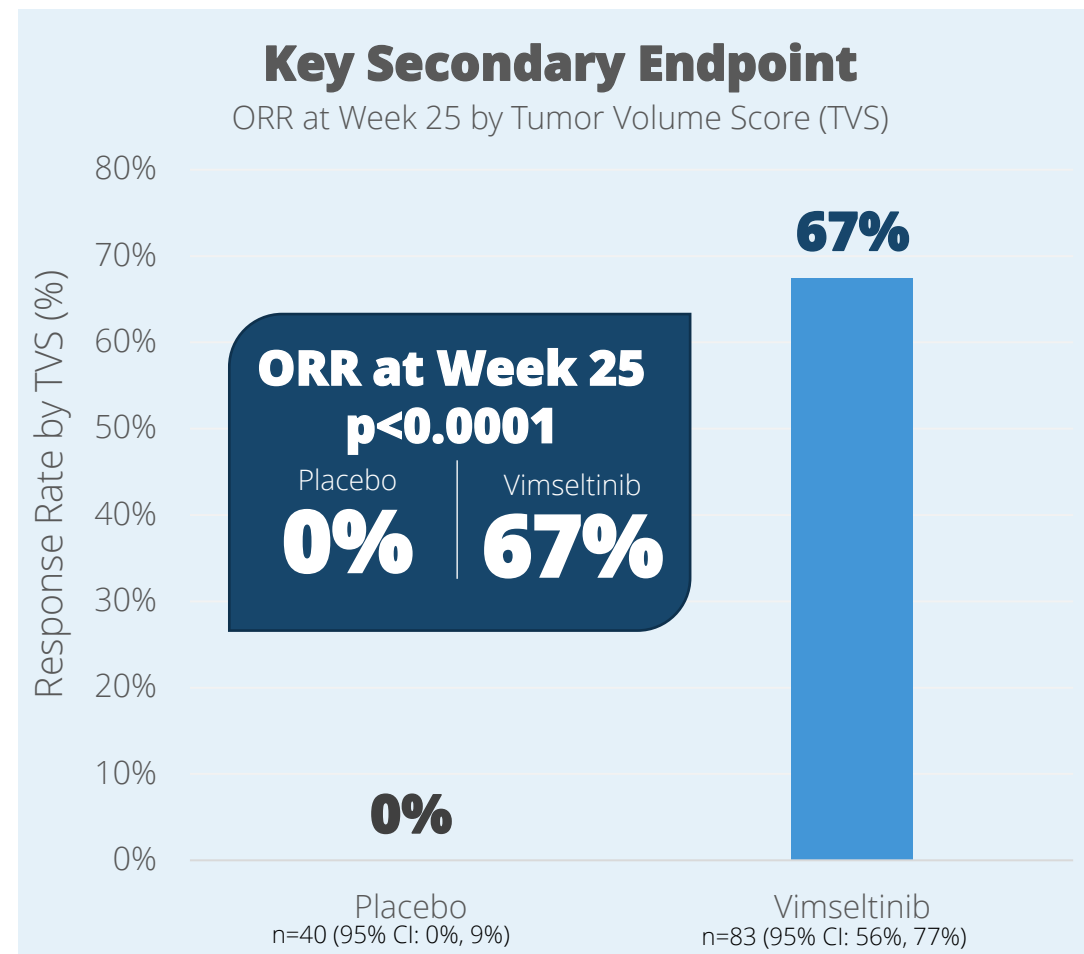
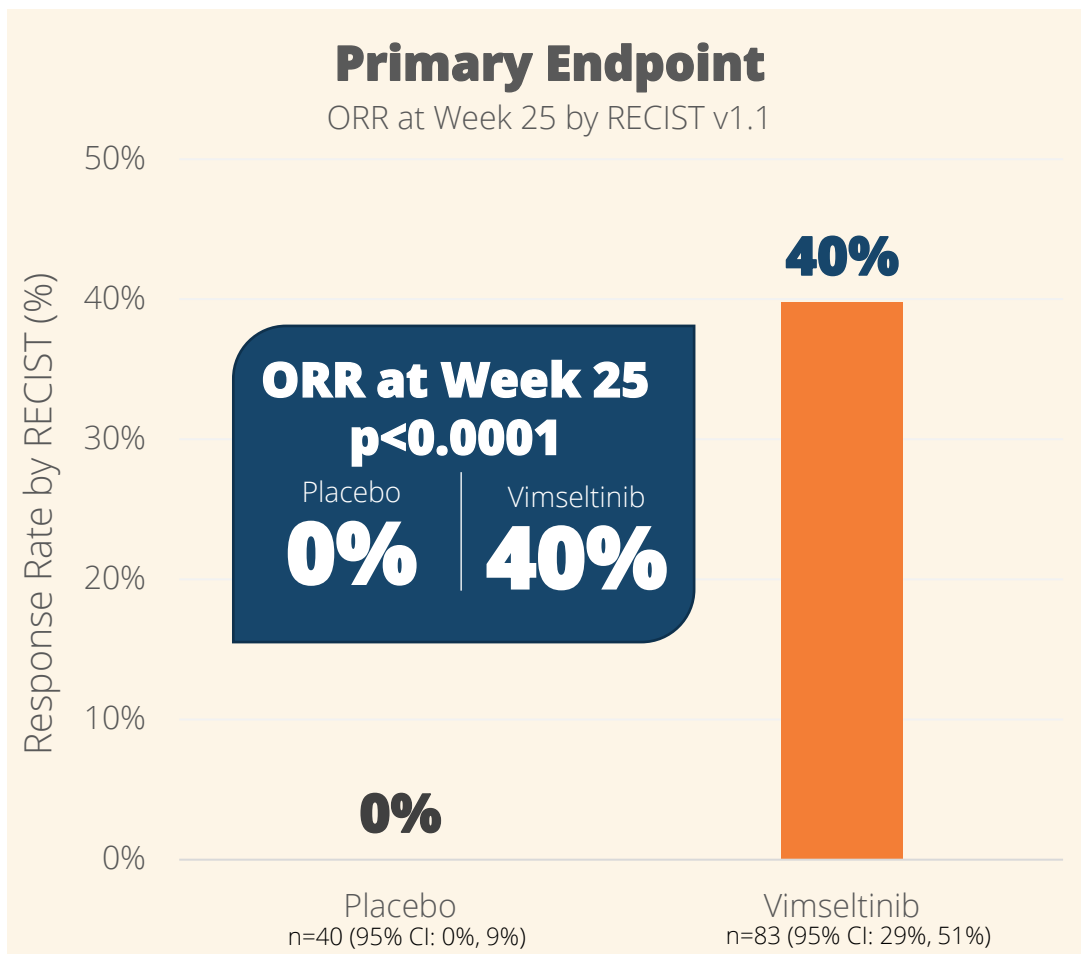
- Objective Response Rate (ORR)

Secondary Endpoints

- ORR per Tumor Volume Score
- Mean Change From Baseline (CFB) in Active Range of Motion (ROM)
- Mean CFB in PROMIS-PF
- Mean CFB in Worst Stiffness NRS
- Mean CFB in EQ-VAS
- BPI-30 Response Rate in Worst Pain

VIMSELTINIB | PHASE 3 MOTION STUDY OF PATIENTS WITH TGCT

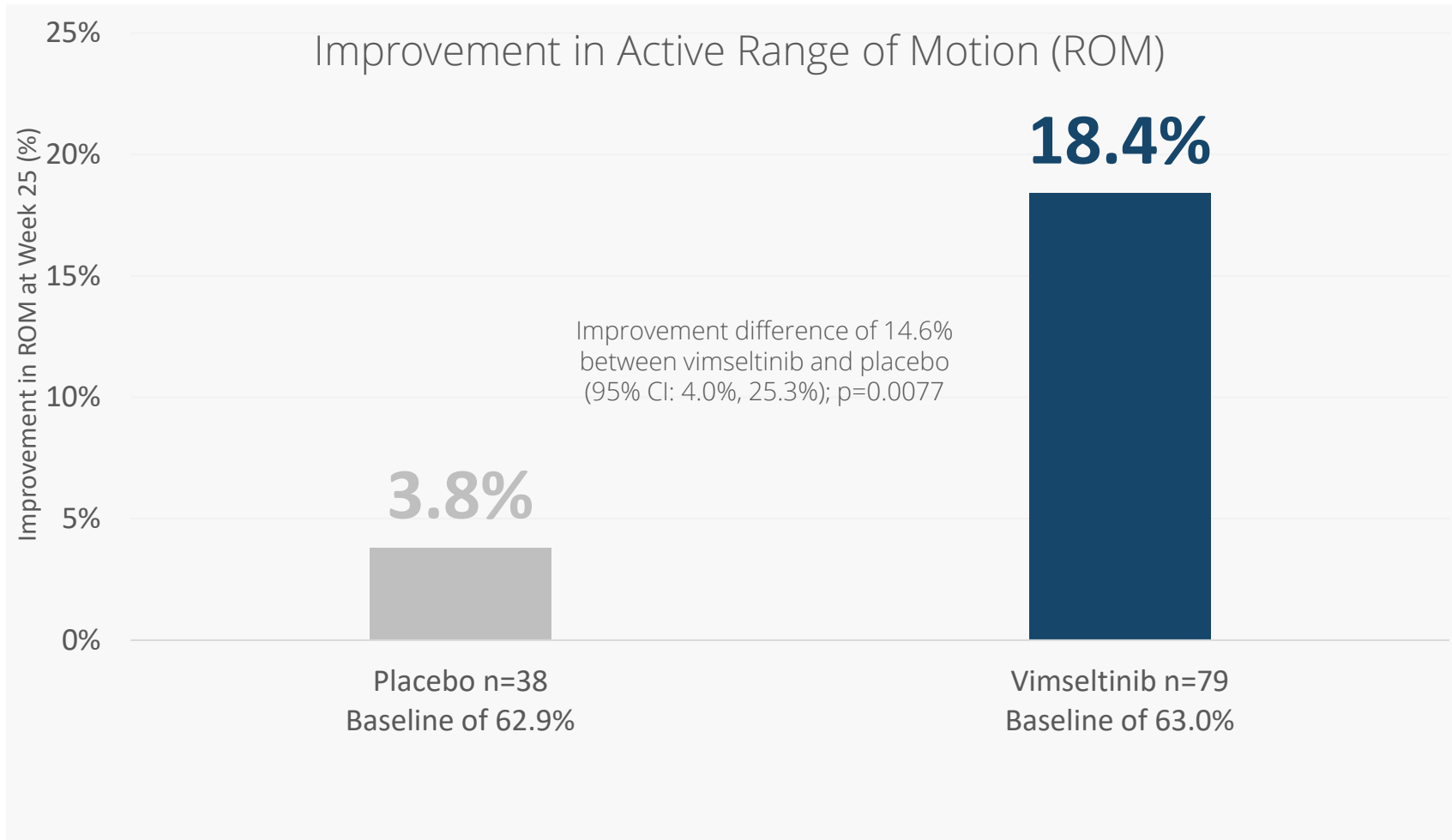
STUDY MET PRIMARY AND ALL SIX KEY SECONDARY ENDPOINTS



Notes: Results are based on a data cutoff date of August 22, 2023. Endpoints evaluated by blinded independent radiologic review (IRR). ORR=Objective Response Rate by Response Evaluation Criteria in Solid Tumors (RECIST) v1.1 Complete Response = 4 (5%); Partial Response = 29 (35%).

ORR by TVS Complete Response = 4 (5%); Partial Response = 52 (63%). A response by TVS is defined as a $\geq 50\%$ reduction in the tumor volume relative to baseline.

KEY SECONDARY ENDPOINT: ACTIVE RANGE OF MOTION



~5X
IMPROVEMENT
IN **ROM**
AT WEEK 25

VIMSELTINIB | PHASE 3 MOTION STUDY OF PATIENTS WITH TGCT

FAVORABLE SAFETY AND TOLERABILITY PROFILE FOR VIMSELTINIB

Treatment Emergent Adverse Events (TEAEs) in ≥15% of Patients

Preferred Term n (%)	Vimseltinib (n=83)		Placebo (n=39 ¹)	
	All Grades	Grade 3/4	All Grades	Grade 3/4
Periorbital edema [^]	37 (45%)	3 (4%)	5 (13%)	0
Fatigue [^]	27 (33%)	0	6 (15%)	0
Face edema [^]	26 (31%)	1 (1%)	3 (8%)	0
Pruritus [^]	24 (29%)	2 (2%)	3 (8%)	0
Headache [^]	23 (28%)	1 (1%)	10 (26%)	0
Asthenia [^]	22 (27%)	1 (1%)	9 (23%)	1 (3%)
Nausea [^]	21 (25%)	0	8 (21%)	1 (3%)
CPK increased	20 (24%)	8 (10%)	0	0
AST increased	19 (23%)	0	1 (3%)	0
Arthralgia [^]	16 (19%)	0	6 (15%)	1 (3%)
Rash [^]	16 (19%)	0	2 (5%)	0
Rash maculopapular [^]	16 (19%)	1 (1%)	0	0
Edema peripheral [^]	15 (18%)	0	3 (8%)	0
Hypertension	14 (17%)	4 (5%)	4 (10%)	1 (3%)
Diarrhea	10 (12%)	0	8 (21%)	1 (3%)

- **No evidence of cholestatic hepatotoxicity for vimseltinib**
- **Serum enzyme elevations were consistent with the known mechanism of action of CSF1R inhibitors**
- **5/83 (6%) treatment discontinuation due to TEAEs in the vimseltinib arm**



Notes: (1) Does not include one patient randomized to placebo that did not receive study drug.

TEAE incidence is based on maximum grades per CTCAE v5.0. The only Grade 4 adverse events were CPK Increased observed in two patients. TEAEs leading to dose interruption were 44 (53%) and dose reduction 35 (42%).

[^] Denotes adverse events without Grade 4 criteria per CTCAE v5.0.

AN INTERNATIONAL, MULTICENTER, OPEN-LABEL PHASE 1/2 STUDY

PHASE 1 (DOSE ESCALATION)

- A pharmacologically guided 3 + 3 design, to determine the recommended Phase 2 dose (RP2D) and the maximum tolerated dose

COHORT 5 (n=8)

Loading Dose
30 mg QD x 5 days

Dose
30 mg twice weekly

COHORT 8 (n=12)

Loading Dose
30 mg QD x 3 days

Dose
10 mg QD

COHORT 9 (n=12)

Loading Dose
20 mg QD x 3 days

Dose
6 mg QD

PHASE 2 (EXPANSION)

- Study to evaluate the safety, tolerability, and preliminary efficacy in two TGCT expansion cohorts
- Recommended Phase 2 dose of 30 mg twice weekly with no loading dose

RP2D
30 mg twice weekly

COHORT A (n=46)

TGCT patients with no prior anti-CSF1/CSF1R therapy
(previous therapy with imatinib or nilotinib is allowed)

PHASE 2 (n=65)

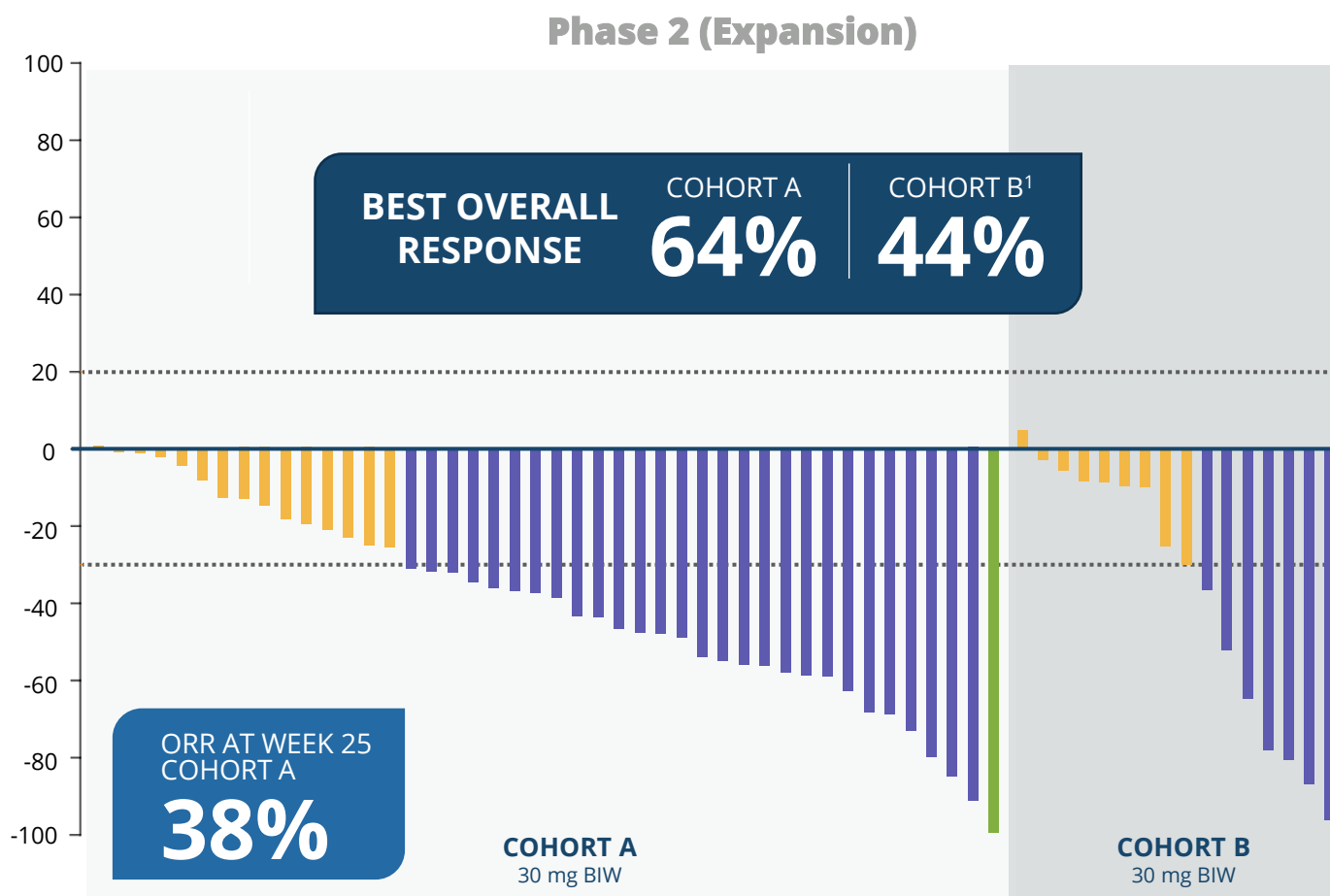
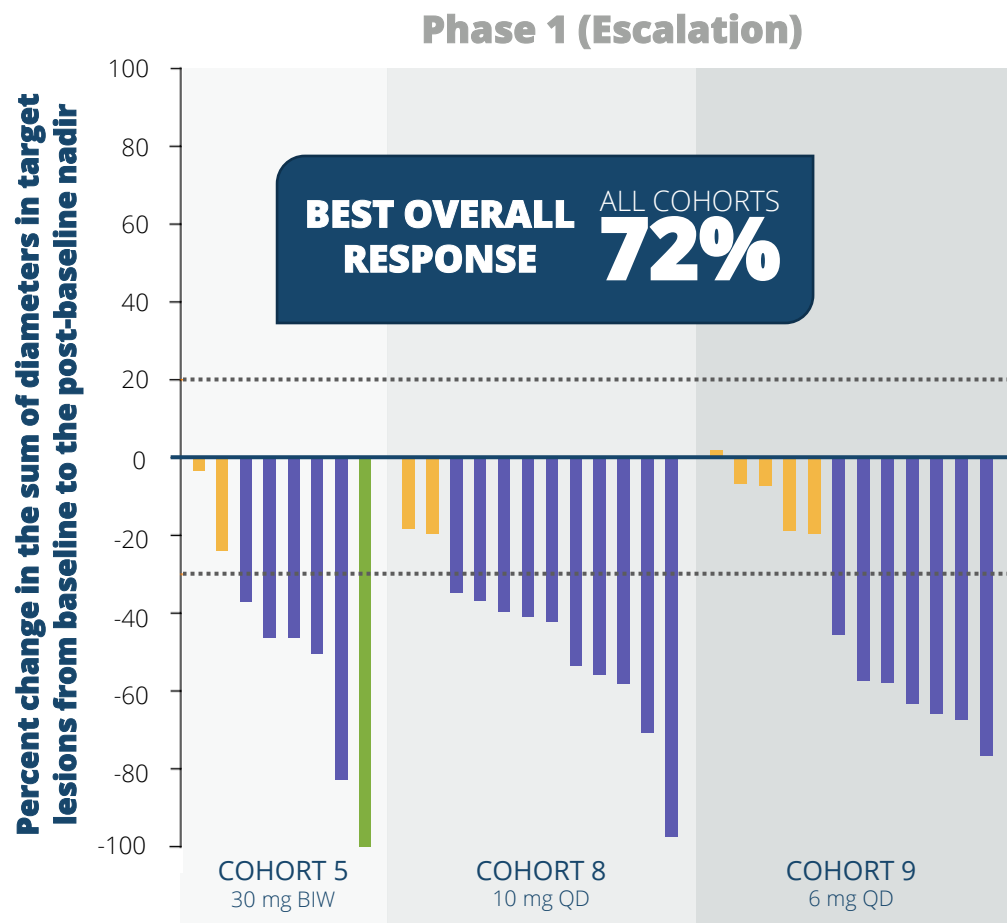
COHORT B (n=19)

TGCT patients with prior anti-CSF1/CSF1R therapy (previous
therapy with imatinib or nilotinib alone would not be eligible)

Cohort B ACTIVE AND NOT RECRUITING

VIMSELTINIB | PHASE 1/2 STUDY OF PATIENTS WITH TGCT

ROBUST ANTI-TUMOR ACTIVITY INCREASING OVER TIME



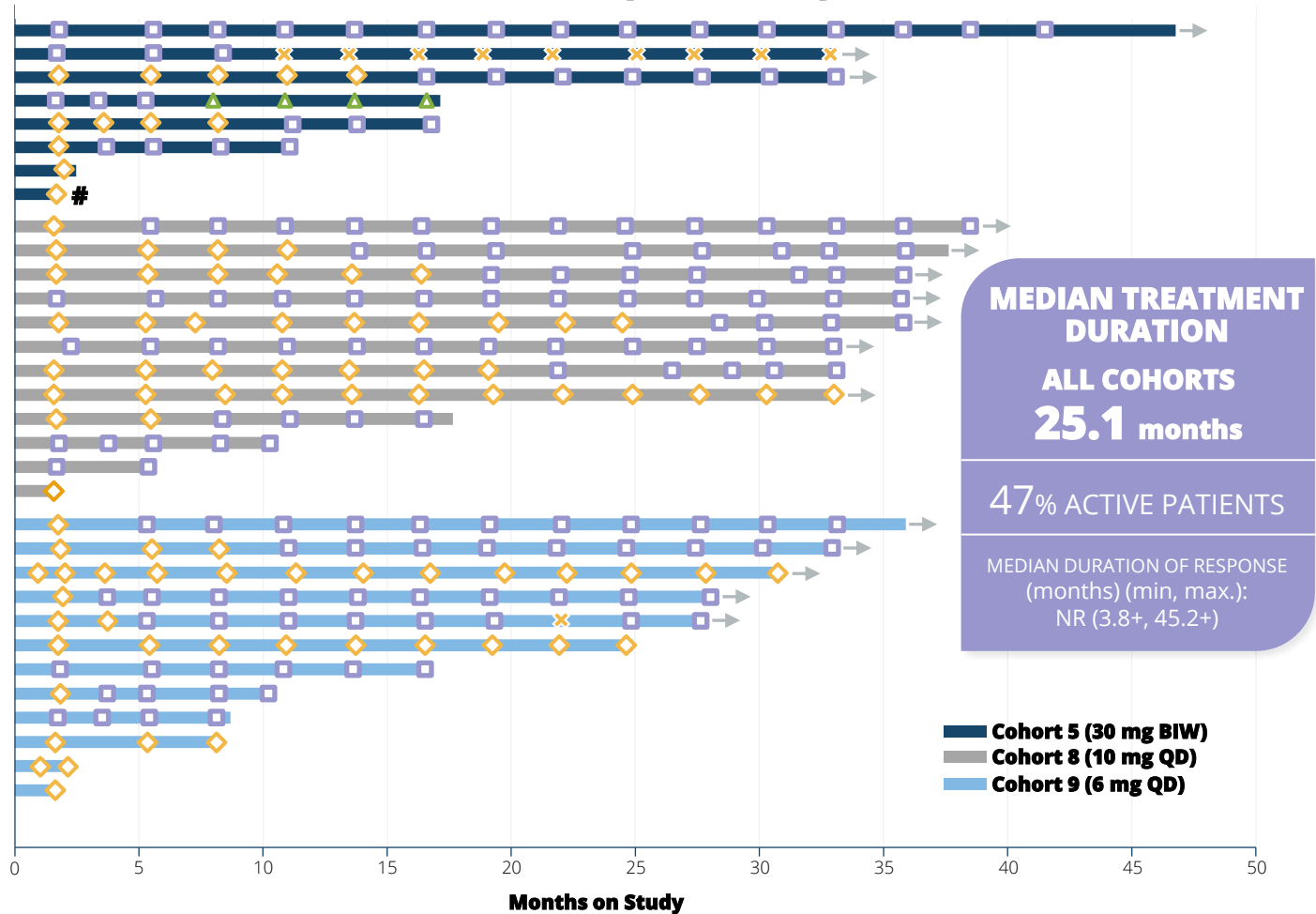
Notes: Results are reported for patients with TGCT with a data cutoff of June 27, 2023; BIW=twice weekly; QD=once daily; ORR=Objective Response Rate by Response Evaluation Criteria in Solid Tumors (RECIST) v1.1;(1) Previously treated with specific anti-CSF1/CSF1R agents

■ Complete Response (CR) ■ Partial Response (PR) ■ Stable Disease (SD)

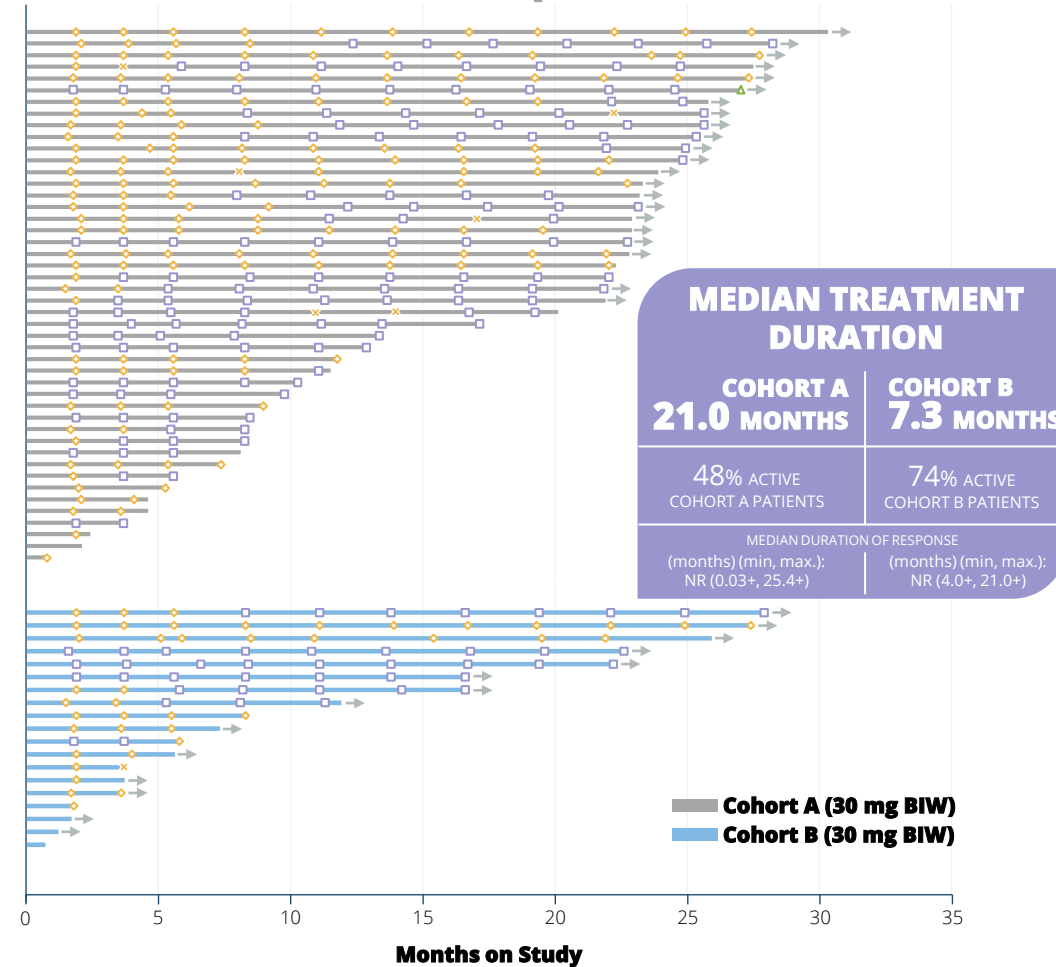
VIMSELTINIB | PHASE 1/2 STUDY OF PATIENTS WITH TGCT

INCREASING DURATION OF THERAPY AND DURABLE RESPONSES

Phase 1 (Escalation)



Phase 2 (Expansion)



Notes: Results are reported for patients with TGCT with a data cutoff of June 27, 2023. NR=not reached by Kaplan-Meier analysis. + indicates response is ongoing.

- ▲ Complete Response (CR)**
- Ongoing**
- ◻ Partial Response (PR)**
- ✕ Not Evaluable**
- ◇ Stable Disease (SD)**
- # From Local Data**

FAVORABLE SAFETY AND TOLERABILITY PROFILE FOR VIMSELTINIB WITH LONG TERM FOLLOW UP

Treatment Emergent Adverse Events (TEAEs) in ≥15% of Patients Receiving Vimseltinib

Preferred Term n (%)	Phase 1/2 Combined: All Patients (n=95)	
	All Grades	Grade 3/4
Blood CPK increased	63 (66%)	39 (41%)
Periorbital edema [^]	45 (47%)	0
Headache [^]	37 (39%)	0
Fatigue [^]	35 (37%)	2 (2%)
Myalgia [^]	28 (29%)	3 (3%)
Nausea [^]	28 (29%)	0
AST increased	27 (28%)	4 (4%)
Arthralgia [^]	27 (28%)	2 (2%)
Asthenia [^]	23 (24%)	1 (1%)
Edema peripheral [^]	23 (24%)	0
Rash maculopapular [^]	21 (22%)	1 (1%)
Face edema [^]	21 (22%)	0
Pruritus [^]	20 (21%)	0
Diarrhea	19 (20%)	1 (1%)
Rash [^]	18 (19%)	0
COVID-19	18 (19%)	0
Hypertension	15 (16%)	6 (6%)
Lipase increased	15 (16%)	4 (4%)
Amylase increased	15 (16%)	3 (3%)
ALT increased	15 (16%)	1 (1%)

- **No evidence of cholestatic hepatotoxicity**
- **Serum enzyme elevations were consistent with the known mechanism of action of CSF1R inhibitors**
- **9/95 (9%) treatment discontinuation due to TEAEs in combined Phase 1/2**



Notes: Results are reported for patients with TGCT with a data cutoff of June 27, 2023. TEAE incidence is based on maximum grade per CTCAE v4.03. TEAEs were summarized in n=95 patients with TGCT across all cohorts in the Phase 1/2 study. One patient from Phase 1 and one patient from Cohort A discontinued and enrolled into Cohort B. The only Grade 4 adverse events were CPK increased.

[^] Denotes adverse events without Grade 4 criteria per CTCAE v4.03.

PLANNED REGULATORY SUBMISSIONS: NDA IN Q2 2024 AND MAA IN Q3 2024

PHASE 1/2 STUDY UPDATE

Results demonstrate strong clinical benefit, well-tolerated safety profile, and long duration of treatment

Best Overall Response:

- 72% (Phase 1) and 64% (Phase 2 Cohort A)

Median Treatment Duration:

- 25.1 months (Phase 1), 21.0 months (Phase 2 Cohort A)

Active Patients on Treatment:

- 47% (Phase 1) and 48% (Phase 2 Cohort A)

PIVOTAL PHASE 3 MOTION STUDY

Met its primary and all key secondary endpoints and demonstrated a well-tolerated safety profile

Primary Endpoint ORR at Week 25:

- 40% for vimseltinib vs. 0% for placebo ($p < 0.0001$)

Key Secondary Endpoints:

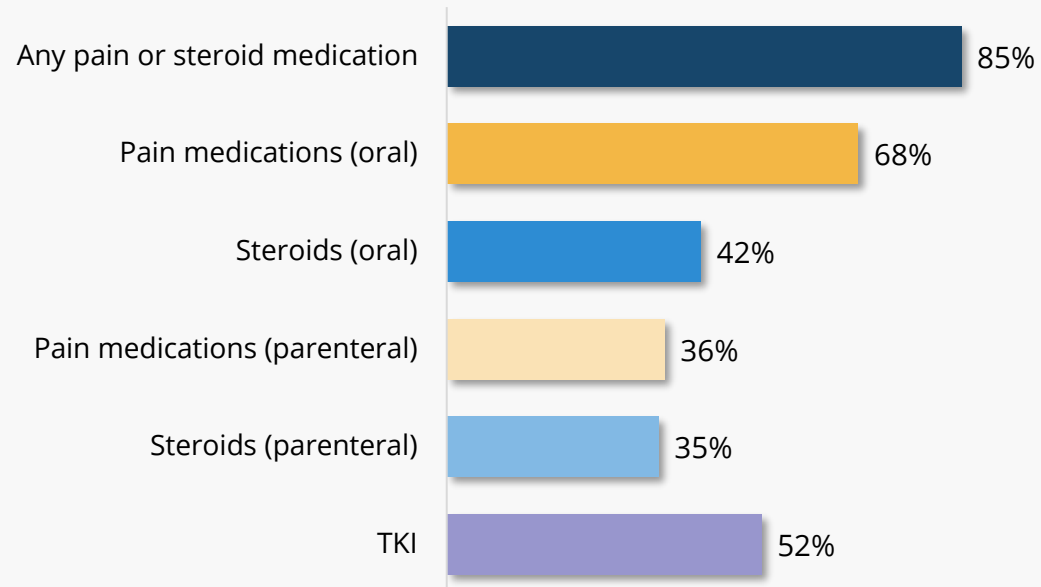
Statistically significant and clinically meaningful improvement across all key secondary endpoints, including:

- 67% for vimseltinib vs. 0% for placebo ($p < 0.0001$) ORR by Tumor Volume Score
- ~5X improvement in active range of motion vs. placebo ($p = 0.0077$)

Vimseltinib was well-tolerated and the safety profile was consistent with previously disclosed data with no evidence of cholestatic hepatotoxicity

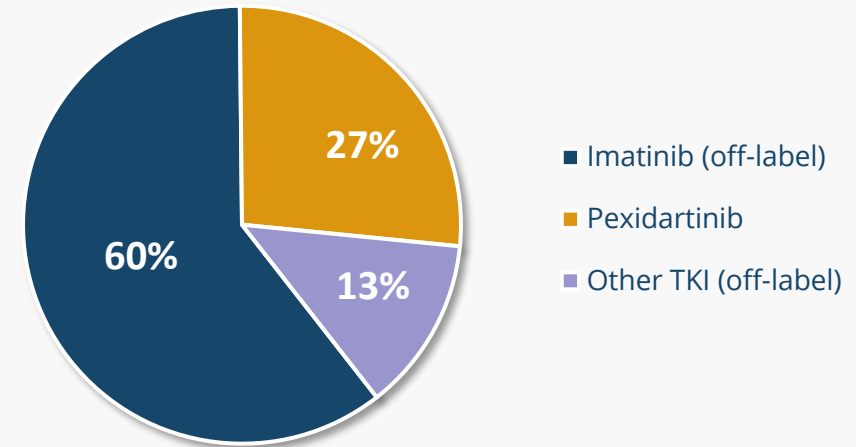
EXTENSIVE POLYPHARMACY USED TO MANAGE DISEASE MORBIDITY IN THE U.S.

Rx Therapies Received by U.S. TGCT Patients (n=~1,400)¹



~75% of TKI-treated patients have pain or steroid medications in their history¹

U.S. Incident TKI-treated Patient Share¹



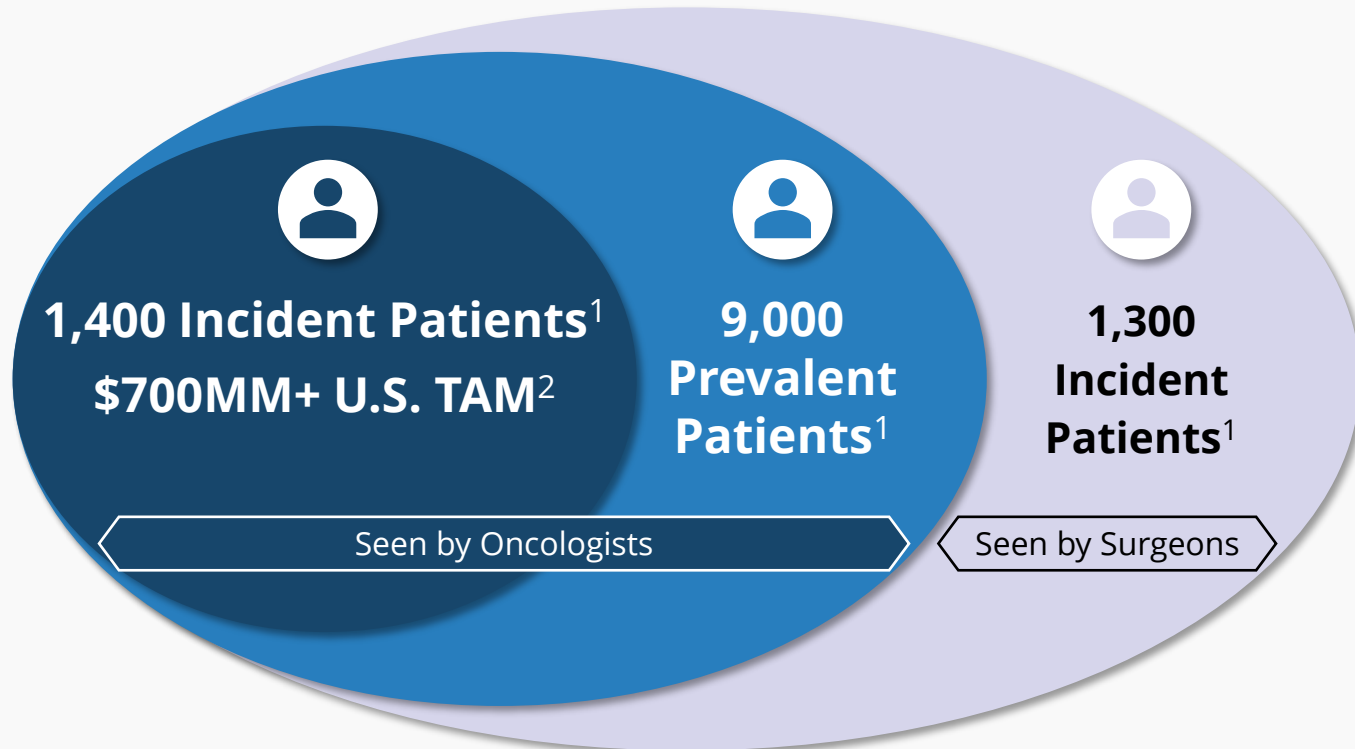
Average Duration of Therapy¹

- Imatinib ~18 months
- Pexidartinib ~10 months

SIGNIFICANT OPPORTUNITY TO BENEFIT PATIENTS WITH TGCT



U.S. Opportunity



E.U. Opportunity

- Comparable incidence and recurrence rates in Europe³
- No approved therapies

HIGHLY DIFFUSE U.S. MARKET WITH SIGNIFICANT PRESCRIBER OVERLAP

	Higher Volume HCPs	Lower Volume HCPs
Incident Rx-treated patients	~500	~900
Healthcare providers	~150	~700
Incident Rx-treated patients / HCP	~3	~1
HCP academic % / community %	60% / 40%	30% / 70%
TKI treatment rate	~50%	~50%
TKI prescriber overlap with GIST	>80%	>70%
TKI patient share (all HCPs)	<ul style="list-style-type: none"> Imatinib (off-label) 35% Pexidartinib 54% Other TKI (off-label) 11% 	<ul style="list-style-type: none"> Imatinib (off-label) 71% Pexidartinib 16% Other TKI (off-label) 13%

LIFE-LONG DISEASE BURDEN IMPACTS HOW PATIENTS FEEL AND FUNCTION



Liza, 34¹ – Surgery, Pain/Steroid Rx

Engagement with oncologist

Surgery

Pain/steroid Rx

TKI Rx

"I will be in pain, at least part of the day, every day until I die and sometimes that is really hard to deal with."



David, 50¹ – Surgery, Pain/Steroid Rx, TKI Rx

Engagement with oncologist

Surgery

Pain/steroid Rx

TKI Rx

"[After my first recurrence], I called my wife to tell her I had to go through this all over again. I was pretty devastated at that point."

Treatment

- Pain Rx
- Steroid Rx
- TKI Rx
- ◆ Surgery

2018

2019

2020

2021

2022



Notes: TKI=tyrosine kinase inhibitor; (1) Illustrative patient cases based on insights from U.S. claims data (data span 2012-2022) and patient market research (2023).

VIMSELTINIB | TENOSYNOVIAL GIANT CELL TUMOR

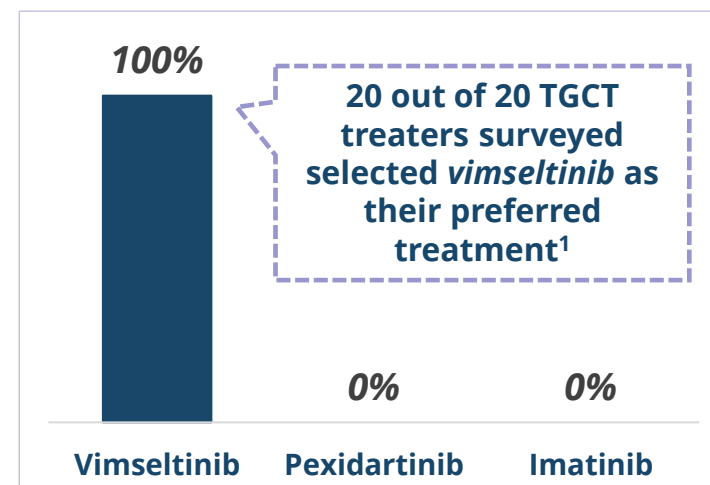
MARKET RESEARCH HIGHLIGHTS THE POTENTIAL FOR VIMSELTINIB TO DELIVER A BEST-IN-CLASS PROFILE AND ESTABLISH A NEW STANDARD OF CARE

Relative Scoring of Key Product Attributes

Clinical Attribute		Vimseltinib	Pexidartinib	Imatinib
Efficacy	Tumor Response <i>(Objective Response, CBR)</i>	Highly Compelling	Highly Compelling	Less Compelling
	PROs <i>(Improvement in Pain & Stiffness)</i>	Highly Compelling	Moderately Compelling	Limited Data
Safety	Grade 3/4 AEs	Highly Compelling	Less Compelling	Highly Compelling
	Hepatotoxicity	Highly Compelling	Less Compelling	Not Reported in TGCT
	Discontinuation Rates <i>(Due to any TEAEs)</i>	Highly Compelling	Moderately Compelling	Moderately Compelling

■ Highly Compelling
 ■ Moderately Compelling
 ■ Less Compelling

Preferred Systemic Treatment For TGCT



TGCT Treater Sentiments on Vimseltinib Profile

CLINICAL PROFILE

"This is very impressive data. Well over half the patients responded to the medication with excellent outcomes. Pain measurements and mobility scores are quite remarkable compared to anything currently available." – Onc

CLINICAL ACTIVITY

"It's great to see that the best overall response numbers improve over long-term. In fact, this would probably lead me to keep some patients on it longer than I usually would." – Onc

TREATMENT CHOICE

"I would give [vimseltinib] to all my future TGCT patients." – Onc



Notes: Qualitative market research conducted by Deciphera based on vimseltinib Phase 1/2 data presented at ESMO in Aug 2022 comparing target product profiles of vimseltinib (blinded), pexidartinib, and imatinib based on USPIs and published/presented literature for each product's efficacy and safety in TGCT diagnosed patients (n=20 HCPs). No head-to-head/comparative studies have been conducted. CBR=Clinical Benefit Rate, PROs=Patient Reported Outcomes, AEs=Adverse Events, TEAEs=Treatment-Emergent Adverse Events. (1) HCP asked to select their preferred (only 1) product to systemically treat TGCT patients based on current clinical profiles.

NEW GROWTH OPPORTUNITY IN cGVHD



- Chronic GVHD affects **30-50%** of allogeneic hematopoietic cell transplant recipients (**14,000 U.S. prevalence**)
- Significant unmet medical need in steroid refractory patients (~**50%**); movement toward combination therapy
- CSF1R inhibition clinically validated **in Phase 3 study** with antibody (axatilimab)
- As oral agent, **vimseltinib may offer best-in-class CSF1R option** as single agent or in combination with other oral cGVHD therapies
- “Very few of my patients can’t take pills so **I’d prefer oral vs. IV in almost every case**”¹
- **Vimseltinib single-agent Phase 2 in cGVHD expected to start 4Q 2024**¹

SIGNIFICANT GROWTH OPPORTUNITIES IN TGCT AND cGVHD

- Successful pivotal Phase 3 MOTION study in TGCT with expected NDA submission in 2Q 2024 and MAA submission in 3Q 2024
- Potential for 2+ years treatment duration based on Phase 1/2 data in TGCT
- Significant commercial opportunity in TGCT that is highly synergistic with GIST
- Label expansion opportunity in cGVHD



PROPRIETARY DRUG DISCOVERY ENGINE

DRIVING INNOVATION THROUGH OUR PROVEN DISCOVERY ENGINE

Fueled by our **proprietary drug discovery platform**, we intend to advance multiple drug candidates to treat cancer

DCC-3116 (ULK)

- Potential first-in-class ULK inhibitor
- Designed to inhibit cancer autophagy, a broad potential resistance mechanism

EXPECTED 2024 MILESTONE

RP2D decision for expansion cohort(s)

DCC-3084 (RAF)

- Potential best-in-class pan-RAF inhibitor
- Validated target with single agent and combination opportunities

EXPECTED 2024 MILESTONE

Initiate Phase 1 study

DCC-3009 (KIT)

- Potential best-in-class pan-KIT inhibitor
- Designed to inhibit the spectrum of KIT mutations that drive GIST

EXPECTED 2024 MILESTONE

File IND and initiate Phase 1 study

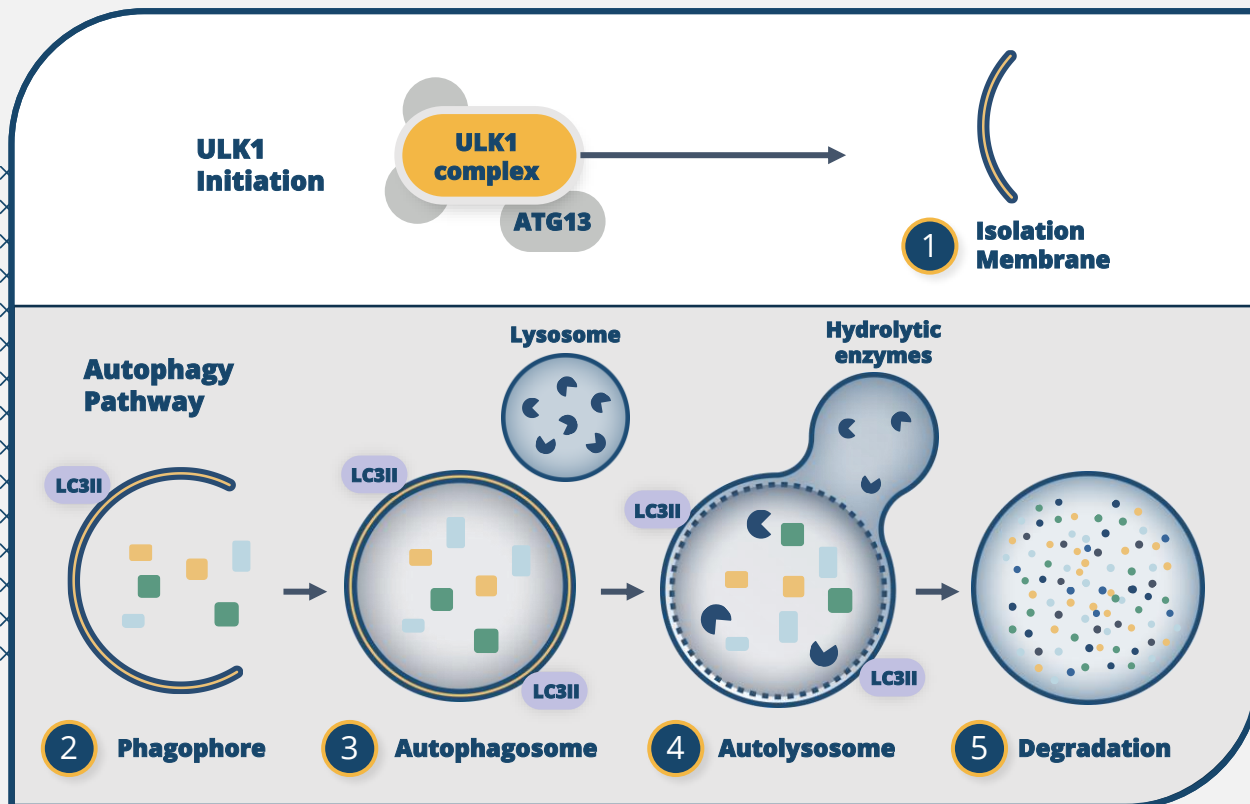
Early-Stage Pipeline

- DP-9149, a potent and selective activator of the GCN2 kinase

EXPECTED 2024 MILESTONE

Advance research-stage programs

ULK: Initiating Factor for Autophagy

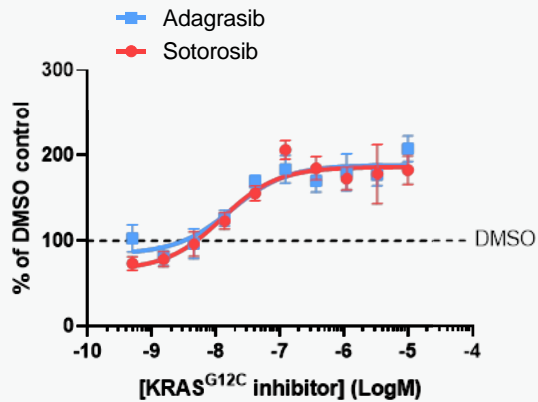


- The **ULK kinase initiates the autophagy pathway** and provides a potential targeted approach to selectively inhibit autophagy in these cancers
- **DCC-3116** is a potential first-in-class small molecule designed to inhibit cancer autophagy by targeting the ULK kinase
- **DCC-3116** Phase 1 combination escalation studies with sotorasib and QINLOCK are underway, goal to select RP2D for expansion in 2024

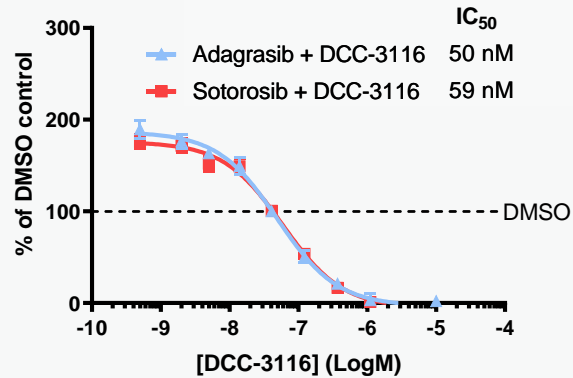
DCC-3116 INHIBITS RAS PATHWAY INHIBITOR-INDUCED ULK ACTIVITY

DCC-3116 Reverses KRAS^{G12C} Inhibitor-Induced ULK Activation

NSCLC: H358 pATG13 ELISA
KRAS^{G12C} Inhibitors Induce ULK Activity

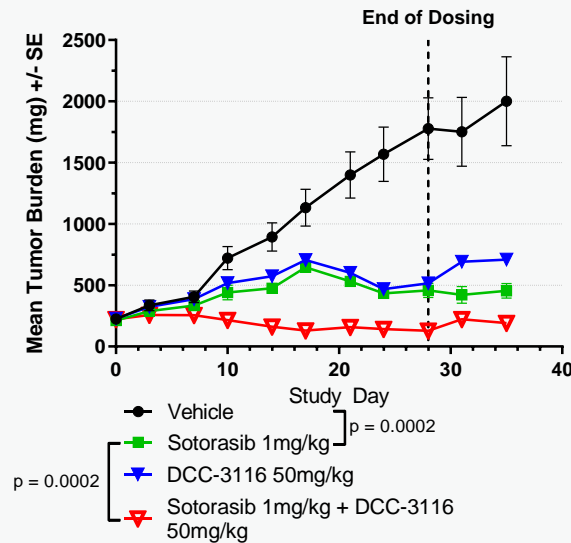


NSCLC: H358 pATG13 ELISA
DCC-3116 Inhibits KRAS^{G12C} Inhibitor-Induced ULK Activity

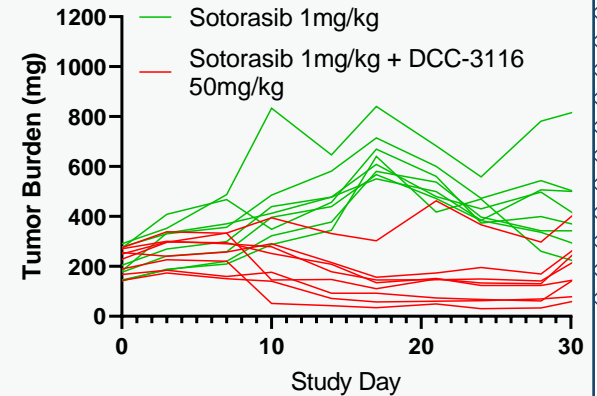


DCC-3116 Demonstrated Deeper and Longer Regressions in Combination with Sotorasib

NSCLC: H358 Tumor Growth
DCC-3116 + Sotorasib 1mg/kg

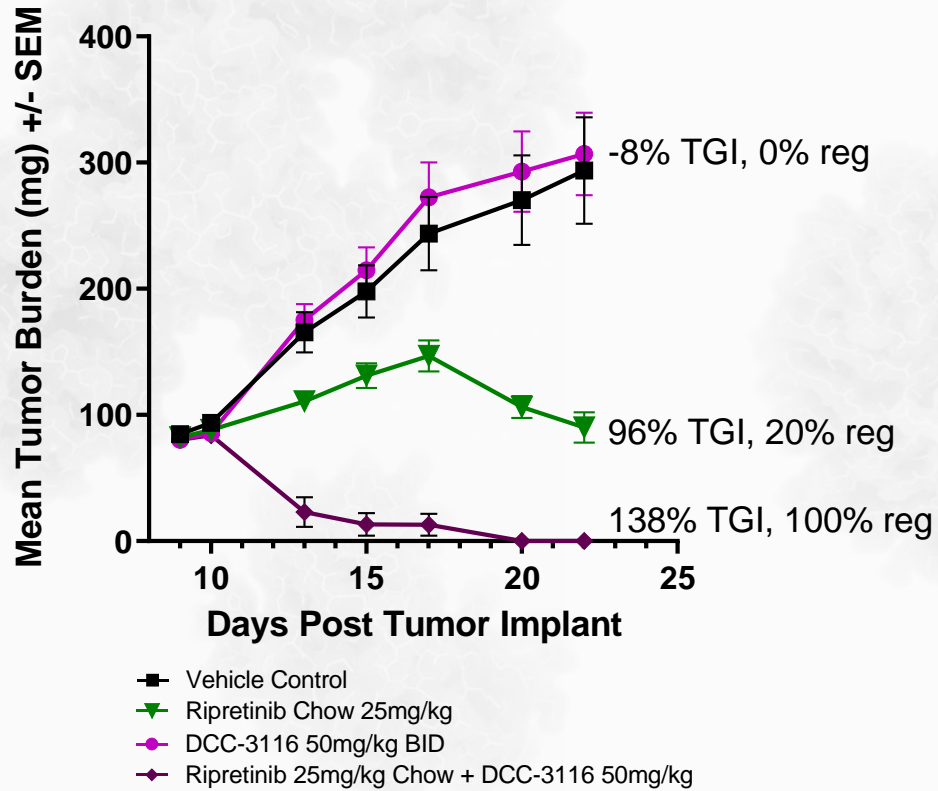


NSCLC: H358 Tumor Growth
DCC-3116 + Sotorasib 1mg/kg

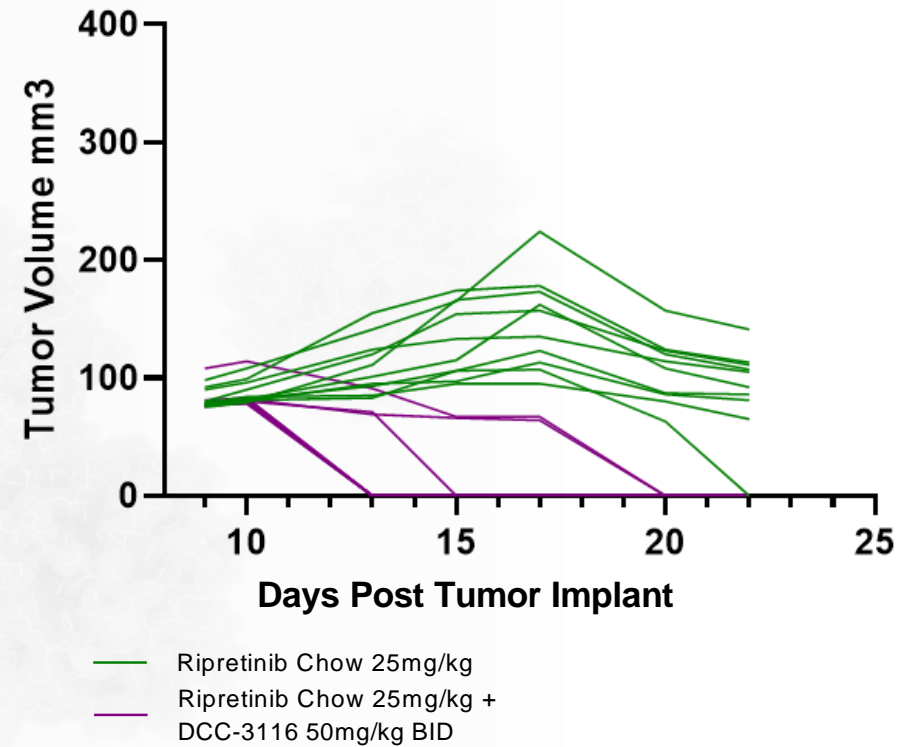


DCC-3116 SHOWS 100% TUMOR REGRESSIONS IN COMBINATION WITH RIPRETINIB IN KIT EXON 11 MUTATED GIST XENOGRAFT MODEL

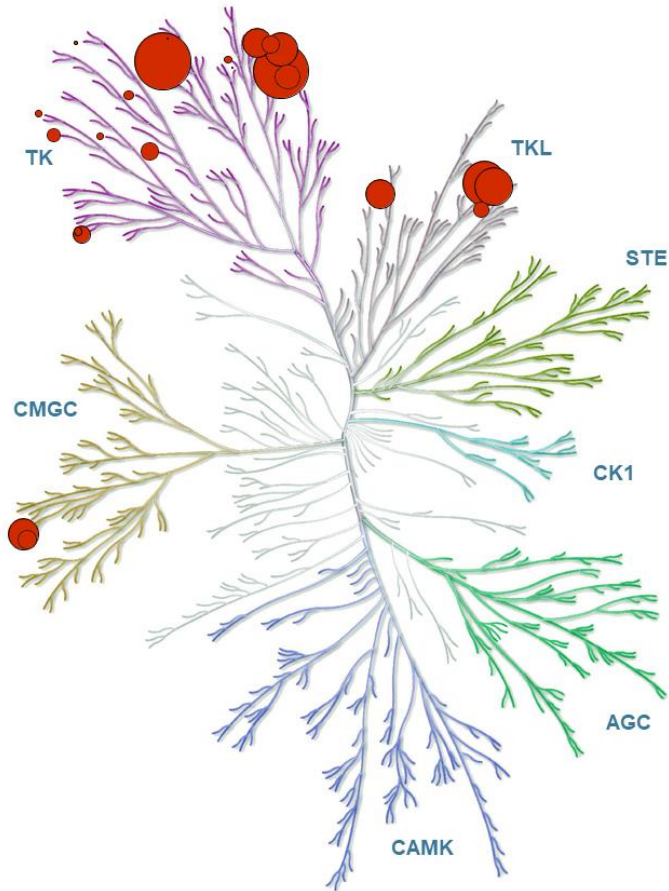
GIST-T1: Tumor Growth Inhibition



GIST-T1: Tumor Volume

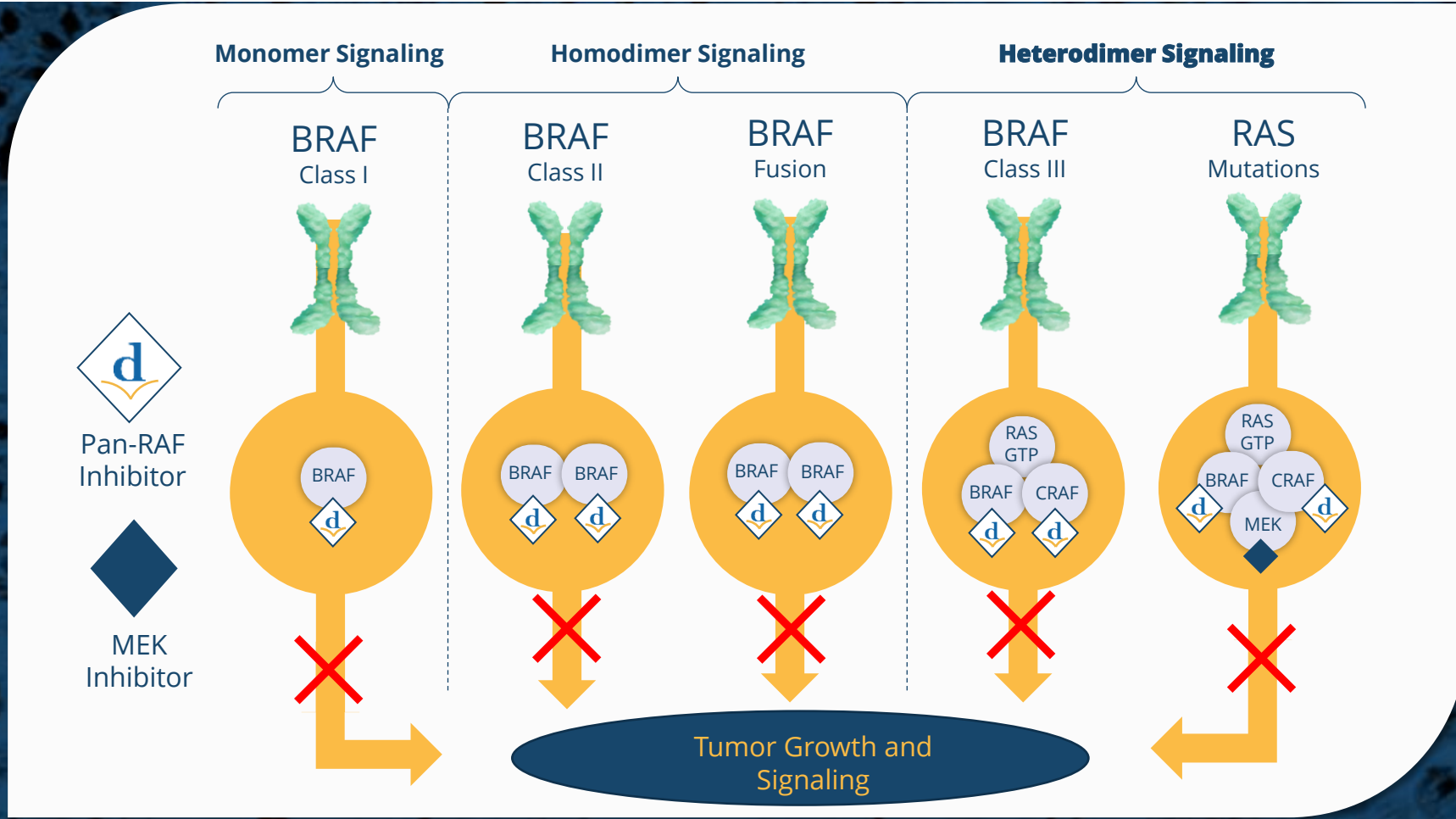


DCC-3084 IS A POTENT AND SELECTIVE PAN-RAF INHIBITOR



- DCC-3084 is a **potential best-in-class pan-RAF inhibitor** engineered using Deciphera's proprietary switch-control platform
- **Potent and selective inhibitor of BRAF and CRAF kinases**, shown preclinically to target all relevant aberrant signaling mechanisms (monomers, homodimers, heterodimers)
- **High permeability, CNS penetration**, and **solubility** at gastric pH to facilitate tumor access
- **Long on-target residency time, low efflux**, and **transporter inhibition** to enable durable efficacy
- **Strong pre-clinical data** supports single agent use in RAF and RAS mutant cancers, and deeper responses in combination with MEK inhibitors

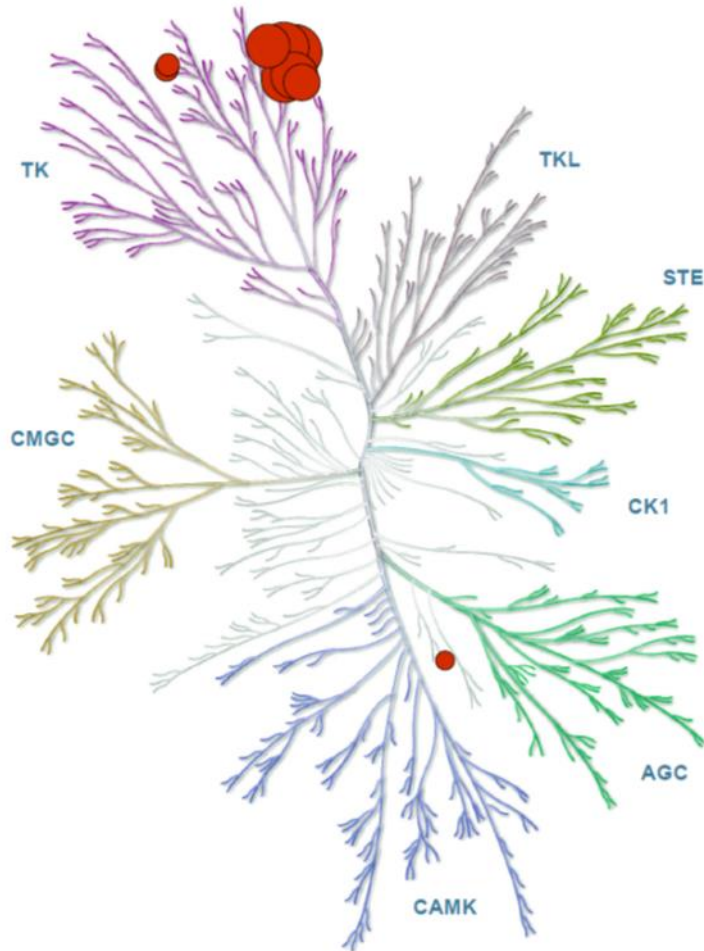
POTENTIAL BEST-IN-CLASS BRAF/BRAF HOMODIMER AND BRAF/CRAF HETERODIMER INHIBITOR



DCC-3084 EXHIBITS OVERALL BEST-IN-CLASS INHIBITION OF CLASS I, II, AND III BRAF-MUTANTS AND RAF FUSION CELL LINES

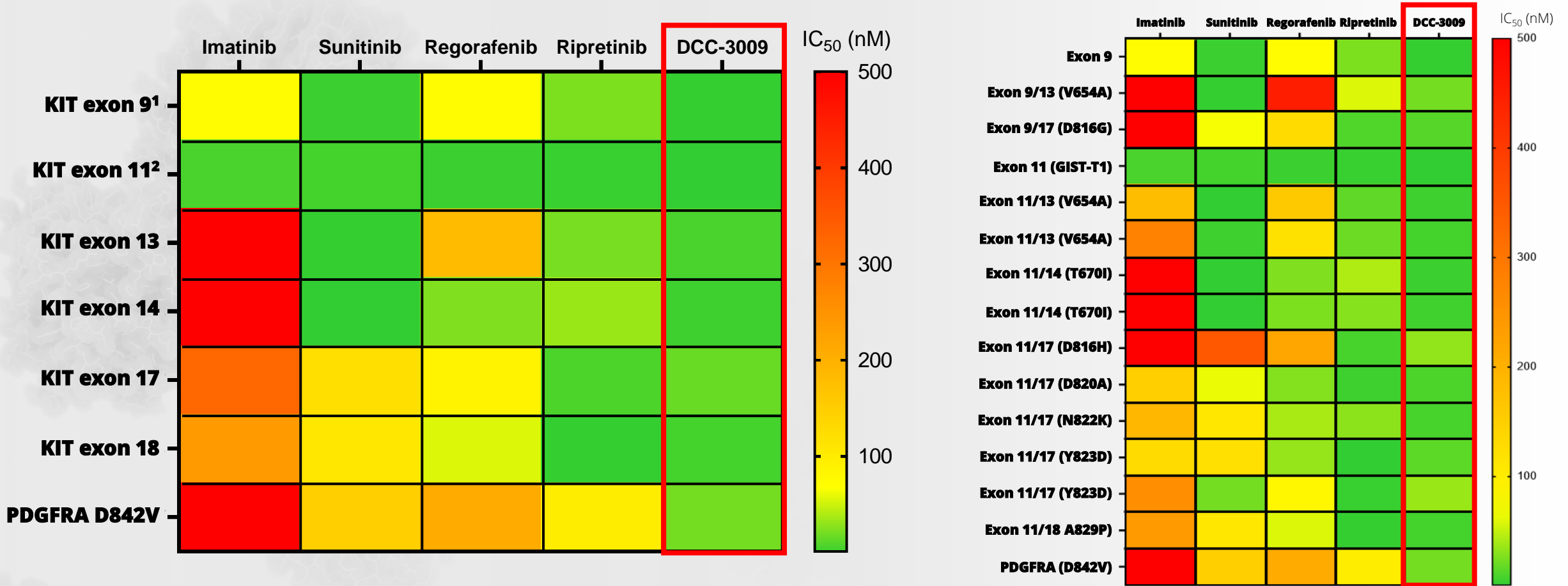
Inhibitor	Class I		Class II		Fusion	Class III + NRAS	IC ₅₀ (nM)
	A375	HT-29	BxPC-3	H2405	WM3928	WM3629	
DCC-3084	54	13	61	74	42	3	
tovorafenib	3,000	5,270	1,100	603	669	305	
naporafenib	438	228	19	465	90	3	
belvarafenib	144	128	59	149	14	2	
exarafenib	170	101	254	549	98	17	
JZP815	141	47	200	47	133	2	

DCC-3009 IS A POTENT AND SELECTIVE NEXT-GENERATION KIT INHIBITOR



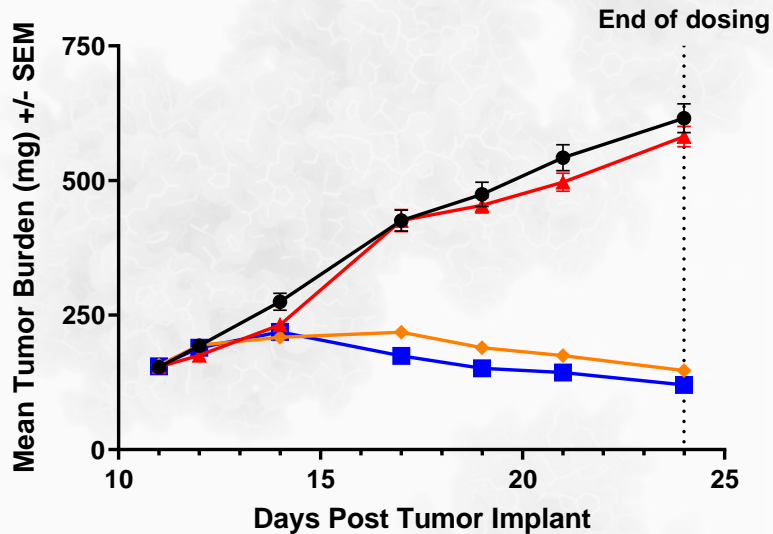
- DCC-3009 is a **potential best-in-class pan-KIT inhibitor** engineered using Deciphera's proprietary switch-control platform
- Unmet medical need remains for a **pan-KIT inhibitor** that can broadly and potently inhibit the **spectrum of KIT mutations** that drive GIST
- Potent inhibitor of primary KIT mutations in **exons 9 and 11 and secondary mutations across exons 13, 14, 17, and 18**
- Highly selective for KIT with **optimized pharmaceutical and ADME properties**
- **Strong pre-clinical efficacy data** in xenograft models driven by drug resistant KIT mutations

DCC-3009 POTENTLY INHIBITS THE SPECTRUM OF KNOWN PRIMARY AND SECONDARY DRUG-RESISTANT MUTATIONS IN GIST



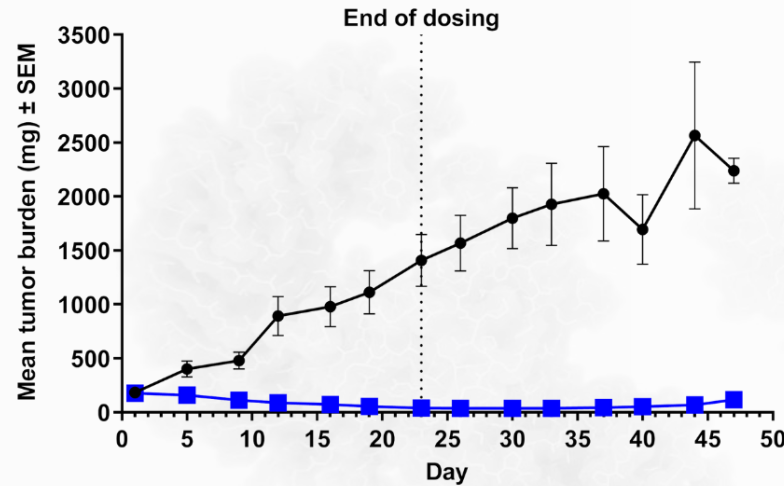
DCC-3009 RESULTED IN TUMOR REGRESSIONS IN GIST XENOGRRAFT MODELS, INCLUDING KIT EXONS 9, 11, 13 AND 17 MUTATIONS

V654A: BaF3 KIT Exon 9
AY dup / Exon 13



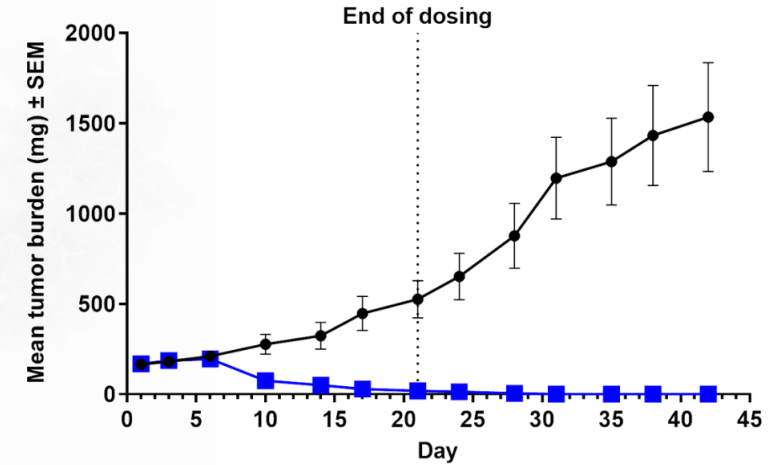
- Vehicle
- DCC-3009 50 mg/kg BID 22% regression
- ◆ Sunitinib 20 mg/kg BID 6% regression
- ▲ Ripretinib 100 mg/kg/day 7% tumor growth inhibition

V654A: GIST PDX KIT
Exon 11 delWK / Exon 13



- Vehicle
- DCC-3009 50 mg/kg BID 80% regression

Y823D: GIST PDX KIT Exon 11
delWK / Exon 17



- Vehicle
- DCC-3009 50 mg/kg BID 99.7% regression

FINANCIAL HIGHLIGHTS AND EXTENDED CASH RUNWAY

As of December 31, 2023

**Weighted-Average
Shares
Outstanding¹****86.7MM**

Weighted average shares includes outstanding common stock and common stock issuable upon exercise of prefunded warrants

**Cash, Cash Equivalents
& Marketable Securities****\$352.9MM****Cash Expected to Fund
Operating Expenses into
Second Half of 2026¹**

EXPECTED 2024 MILESTONES



QINLOCK®

- Continue enrolling INSIGHT pivotal Phase 3 study in 2L KIT exon 11+17/18 GIST patients (2024)
- ✓ Published in Nature Medicine the INTRIGUE clinical results in 2L KIT exon 11+17/18 GIST patients (January 2024)
- Continue geographic expansion for 4L GIST in European and international markets (2024)

Vimseltinib

- Submit NDA (2Q 2024) and MAA (3Q 2024) for TGCT and prepare for commercial launch
- Present additional results from Part 1 of Phase 3 MOTION study in TGCT (2Q 2024)
- Present updated data from Phase 1/2 study in TGCT (2H 2024)
- Initiate Phase 2 POC study in cGVHD (4Q 2024)

Early-Stage Pipeline

- DCC-3116: Select recommended Phase 2 dose for expansion cohort(s) (2024)
- DCC-3084: Initiate Phase 1 study (1H 2024)
- DCC-3009: Submit IND to FDA (1H 2024) and initiate Phase 1 study (2H 2024)

THANK YOU

decīphera™

