



Corporate Overview

August 2025



Forward-Looking Statements

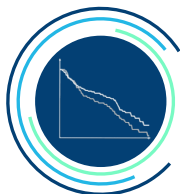
This presentation contains forward-looking statements about us, including our clinical trials and development plans, and our industry, that are based on management's beliefs and assumptions and on information currently available to our management. The words "anticipate," "believe," "continue," "could," "estimate," "expect," "intend," "may," "might," "ongoing," "plan," "potential," "predict," "project," "should," "target," "will," "would," or the negative of these terms or other comparable terminology are intended to identify forward-looking statements, although not all forward-looking statements contain these identifying words. All statements, other than statements related to present facts or current conditions or of historical facts, contained in this presentation are forward-looking statements. Accordingly, these statements involve estimates, assumptions, substantial risks and uncertainties which could cause actual results to differ materially from those expressed in them, including but not limited to that we have incurred significant operating losses, and we expect that we will incur significant operating losses for the foreseeable future; that our financial condition raises substantial doubt as to our ability to continue as a going concern and we require additional capital to finance our operations beyond the second quarter of fiscal year 2025, and a failure to obtain this necessary capital in the near term on acceptable terms, or at all, could force us to delay, limit, reduce or terminate our development programs, commercialization efforts or other operations; that we have a high risk of never generating revenue or becoming profitable or, if we achieve profitability, we may not be able to sustain it; that clinical and preclinical drug development involves a lengthy and expensive process with uncertain timelines and outcomes, and results of prior preclinical studies and early clinical trials are not necessarily predictive of future results, and elraglusib may not achieve favorable results in clinical trials or preclinical studies, and we may not be able to make regulatory submissions or receive regulatory approval on a timely basis, if at all; that we may not successfully enroll additional patients or establish or advance plans for phase 2 or other development, including through conversations with the FDA or EMA and the standards such bodies may impose for such development; that regulatory approval processes may involve delays, unfavorable determinations or other challenges due to various factors, including government funding, staffing and political uncertainties; the risk that clinical trial data are subject to differing interpretations and assessments by regulatory authorities and within the medical community; that elraglusib could be associated with side effects, adverse events or other properties or safety risks, which could delay or preclude regulatory approval, cause us to suspend or discontinue clinical trials or result in other negative consequences; that this presentation includes preliminary and unpublished data which may be subject to change following the availability of more data or following a more comprehensive review of the data and should not be relied upon as a final analysis; that we do not have, and may never have, any approved products on the market and our business is highly dependent upon receiving approvals from various U.S. and international governmental agencies and will be severely harmed if we are not granted approval to manufacture and sell our product candidates; our reliance on third parties to conduct our non-clinical studies and our clinical trials; our reliance on third-party licensors and ability to preserve and protect our intellectual property rights; that we currently depend entirely on the success of elraglusib, which is our only product candidate, and if we are unable to advance elraglusib in clinical development, obtain regulatory approval and ultimately commercialize elraglusib, or experience significant delays in doing so, our business will be materially harmed; that we face significant competition from other biotechnology and pharmaceutical companies; that we may not be successful in our efforts to investigate elraglusib in additional indications and we may expend our limited resources to pursue a new product candidate or a particular indication for elraglusib and fail to capitalize on product candidates or indications that may be more profitable or for which there is a greater likelihood of success; that the termination of third-party licenses could adversely affect our rights to important compounds or technologies; and our ability to fund development activities, including because our financial condition raises substantial doubt as to our ability to continue as a going concern and we require additional capital to finance our operations beyond the second quarter of fiscal year 2025, and a failure to obtain this necessary capital in the near term on acceptable terms, or at all, could force us to delay, limit, reduce or terminate our development programs, commercialization efforts or other operations. You are cautioned not to place undue reliance on these forward-looking statements, which speak only as of the date hereof, and we undertake no obligation to update such statements to reflect events that occur or circumstances that exist after the date hereof. In addition, any forward-looking statements are qualified in their entirety by reference to the factors discussed under the heading "Risk Factors" in our Annual Report on Form 10-K filed with the SEC on March 13, 2025, our Quarterly Report on Form 10-Q for the quarter ended March 31, 2025, filed with the SEC on May 15, 2025, and other filings with the SEC. This presentation also contains estimates and other statistical data that we obtained from industry publications and research and studies conducted by third parties relating to market size and growth and other data about our industry. This data involves a number of assumptions and limitations, and you are cautioned not to give undue weight to such estimates.

Company Highlights



Class-Leading GSK-3 β Inhibitor

- Highly specific small molecule kinase-inhibitor with excellent drug-like properties
- >500 patients treated to date



Compelling Survival Data in mPDAC

- Statistically significant improvements in OS in global phase 2 trial in 1L mPDAC
 - 40% improvement in mOS
 - 100% improvement in 1-year survival
 - Hazard Ratio: 0.63



Broad Therapeutic Potential

- Clinical activity (CRs/PRs and extended disease control) in multiple other oncology indications:
 - Melanoma, mCRC, NSCLC, and Ewing Sarcoma



Oral Dose Tablet Successfully Developed

- Oral liquid successfully evaluated in Healthy Volunteer Phase 1 study
- Solid dose achieved >95% bioavailability in preclinical studies
- Phase 1 dose escalation study planned in advanced cancer patients

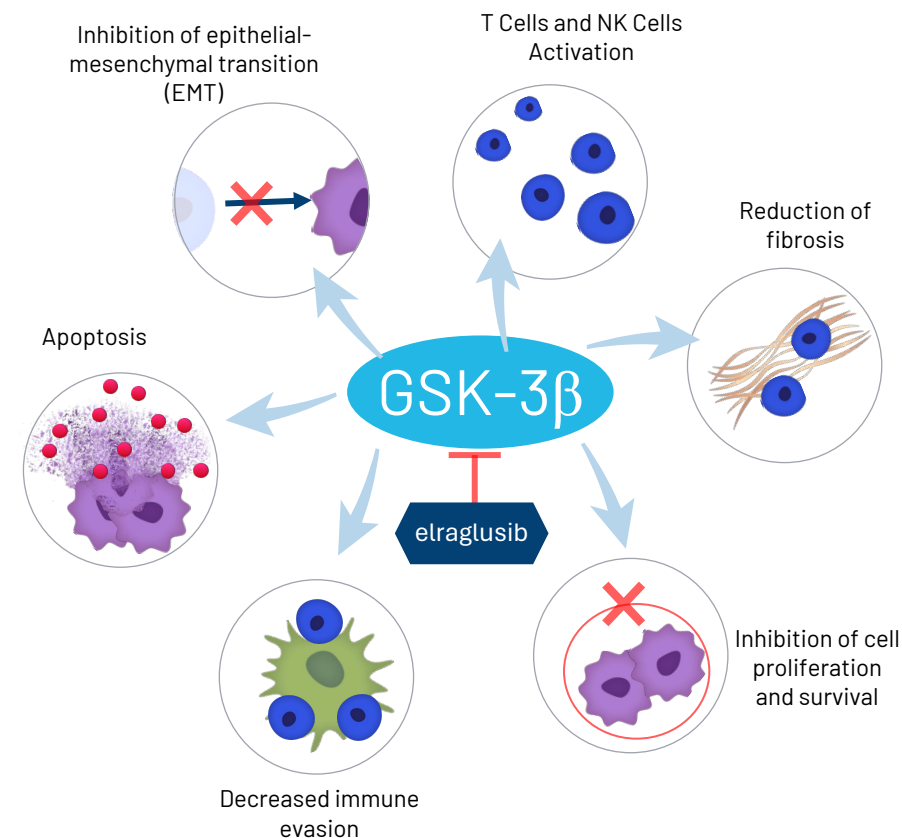


Extended IP Protection



- Broad composition of matter IP protection until 2038 before PTE
- Orphan Drug Designations for pancreatic and other cancer types
- Fast Track Designation for pancreatic cancer

Elraglusib: Multimodal MOA Supported by Clinical Data


- Elraglusib is an ATP-competitive inhibitor of GSK-3 β
 - GSK-3 β has been shown to potentially contribute to tumor progression in many treatment naive and refractory/resistant tumors
 - Pleiotropic effects as signaling adaptor
- Elraglusib downregulates well-credentialed molecular pathways that can lead to chemotherapy and drug resistance
 - NF- κ B pathway-anti-apoptotic protein expression
 - Alterations in TGF- β and pro-inflammatory cytokines suggest role in fibrosis in addition to immunomodulation
 - DDR pathways (ATR/ATM) including mismatch repair (PMS2)
 - Increase responsiveness of resistant/refractory tumors to chemo and immune therapy—"cold" tumors turned to "hot"
 - Inhibition of oncogenic epithelial-mesenchymal transitions



Strategic Pipeline Growth for GSK-3β Associated Diseases

Elraglusib Injection (IV)	Program	Preclinical	Phase 1	Phase 2	Phase 3	Milestones
Pancreatic Cancer (with GnP) 1st line metastatic ★	Adult Actuate-1801 Part 3B					<ul style="list-style-type: none"> - BTD Submission & Response: Q4 2025 - FDA Type B pre-NDA meeting request: 2H 2025*
Pancreatic Cancer (with GnP) 1st line metastatic ★	Adult – Phase 3 or Confirmatory Trial (if required)*				<i>In Planning</i>	TBD**
Advanced Refractory Cancers - Ewing Sarcoma Cohort Only	Pediatric Actuate-1902					Topline Data: 2H 2025
Elraglusib (oral tablet)						
Phase 1 in Advanced, refractory solid cancers	Adult Actuate-2401		<i>In Planning</i>			TBD**
Advanced, refractory cancers (solid and hematological)	Adult /Pediatric			<i>In Planning</i>		TBD**

★ *Fast track designation*

 Ongoing Trial

* The Company plans to request a pre-NDA meeting with the FDA in the second half of 2025 to align on a path towards product registration

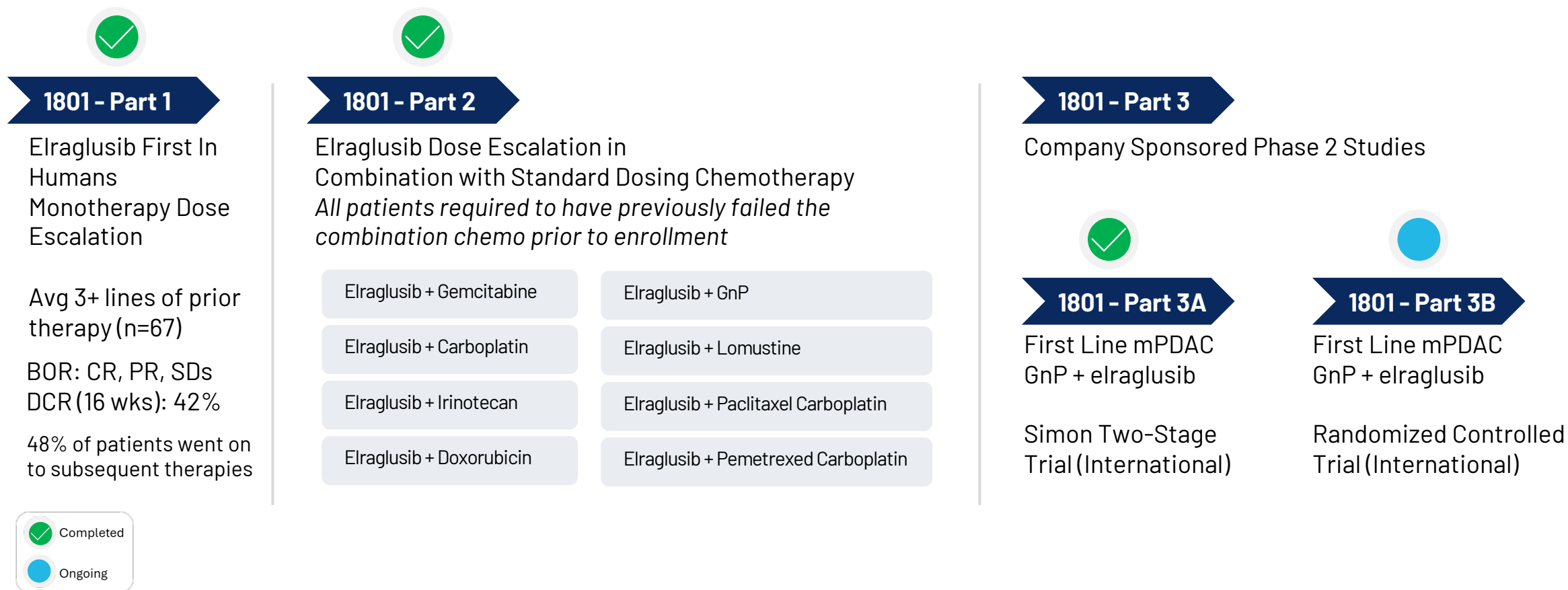
**Contingent upon future funding

GnP: gemcitabine/nab-paclitaxel; BTD: Breakthrough Therapy Designation

Clinical Study Actuate-1801

Phase 1/2 Study Design for Elraglusib Injection (IV)

Establishes process for transition from elraglusib monotherapy (Part 1) to evaluation of multiple chemotherapy combinations (Part 2) to Phase 2 efficacy studies (Part 3) under one protocol¹



¹Database for 1801 Parts 1-3A locked; final CSR in development

BOR: Best Overall Response; CR: Complete Response; PR: Partial Response; SD: Stable Disease; DCR: Disease Control Rate; GnP: gemcitabine/nab-paclitaxel

Elraglusib Potential in Metastatic Pancreatic Cancer (mPDAC)



Pancreatic Cancer

Metastatic pancreatic cancer is highly aggressive and accounts for approximately 80-85% of all pancreatic cancer diagnoses. Projected market growth to >\$5 billion by 2030



Survival Rate and Economic Burden

The prognosis remains poor with a 5-year survival rate of less than 10% and a high economic burden with annual treatment costs exceeding \$100,000 per patient



Current Treatment

FOLFIRINOX and gemcitabine with nab-paclitaxel (GnP) are standard but offer limited survival benefits. Elraglusib is currently in clinical trials with FOLFIRINOX and GnP

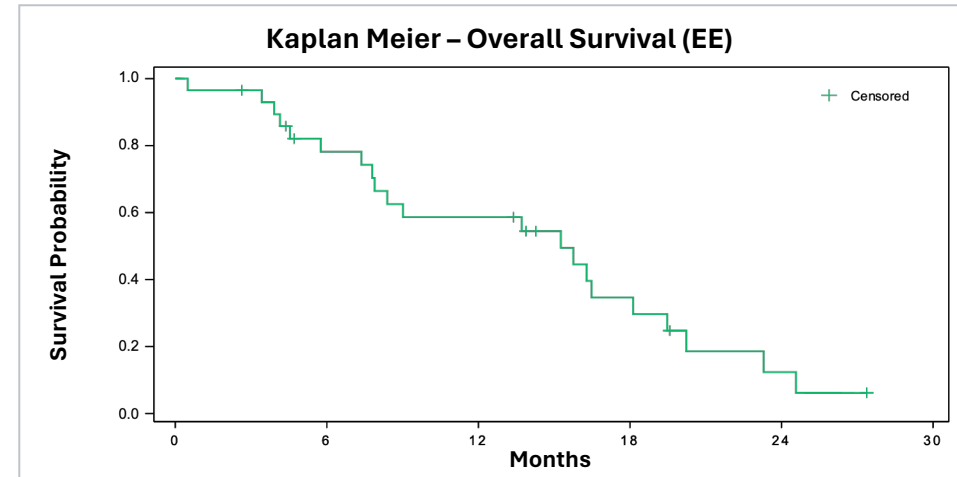


Elraglusib Opportunity

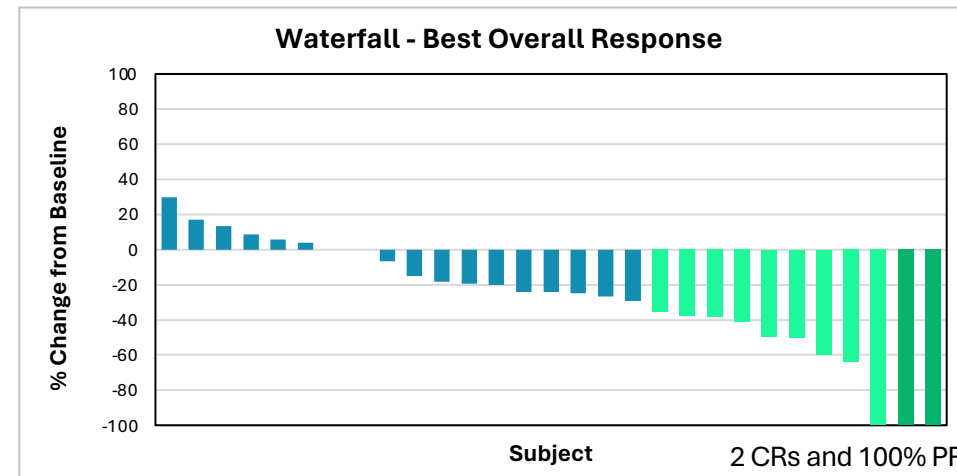
Novel GSK-3 β inhibitor that targets multiple molecular pathways in cancer cells but also impacts the TME and immune response

Phase 2 – Clinical Activity with Extended Median Overall Survival

- 1801 Part 3A in mPDAC
- Simon's Two-Stage trial design - Stage 1
- Evaluate the combination of elraglusib and gemcitabine/nab-paclitaxel (GnP)
 - mOS of 15.3 (EE population)
 - 2 CRs confirmed
 - 9 PRs confirmed
 - DCR: 52%, ORR: 38%
 - Met Simon's stage 1 threshold of DCR>50%
- 42 total patients enrolled (ITT)



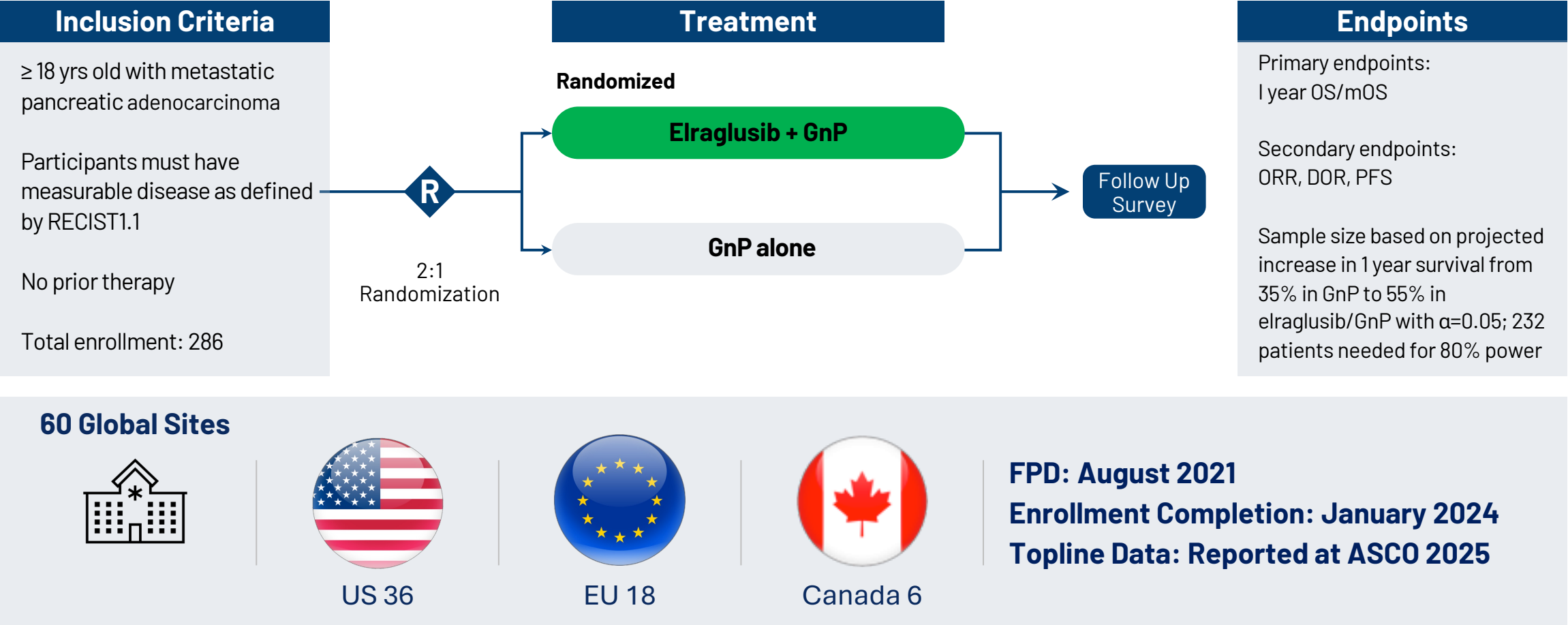
Subjects	29
Event	21 (72%)
Censored	8 (28%)
Median Survival	15.26
95% CL	(7.895, 18.13)



*13 subjects had no response data entered

The encouraging preliminary efficacy prompted a pivot to a randomized Phase 2 trial

1801-Part 3B: Phase 2 RCT in First-Line Metastatic PDAC



PDAC: A Disease with Urgent Unmet Needs

- Most patients with PDAC present with advanced or metastatic disease with poor survival
- Median survival remains < 1 year, with real world data for mOS ranging from 6-9 months
- Apart from PARP inhibitors as maintenance therapy in a subset of patients with gBRAC1/2 metastatic PDAC patients, there is an urgent need for more novel therapeutic targets for PDAC patients

Study	Comparison	mOS (months)	1 year OS (%)
MPACT (Von Hoff et al. 2013)	GnP vs Gem	8.5 vs 6.7 HR 0.72 ; p< 0.001	35.0 vs 22.0
NAPOLI-3 (Wainberg et al., 2024)	GnP vs NALIRIFOX	9.2 vs 11.1 HR 0.83 ; p< 0.036	39.5 vs 45.6
Klein-Brill et al. (2022)	GnP vs FFX retrospective, nonrandomized	6.87 vs 9.27; p< 0.001	N/A
Cockrum et al. (2025)	GnP and FFX Real-world review	GnP 6.9 (3.6-9.8) FFX 9.2 (4.7-11.4)	N/A

Phase 2 RCT Patient Demographics

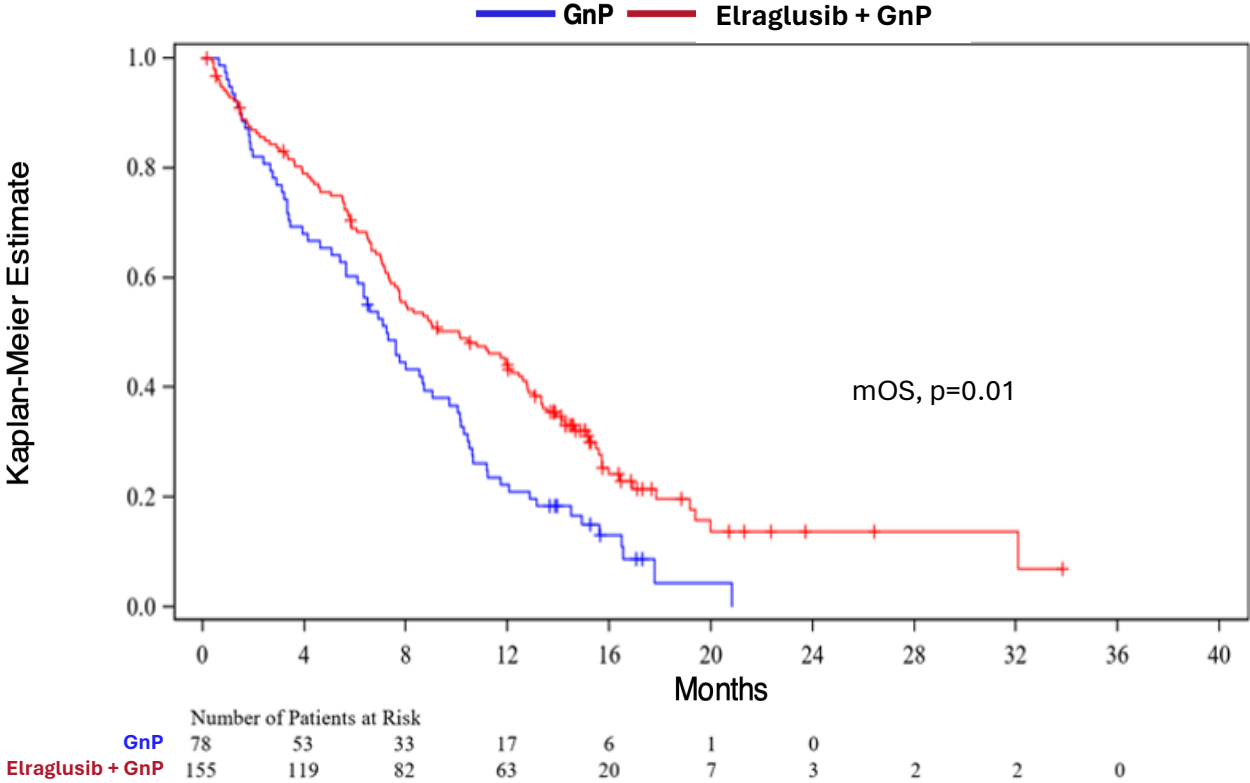
Demographics	GnP (n=78)	Elraglusib + GnP (n=155)
Sex		
Female	35 (44.9%)	75 (48.4%)
Male	43 (55.1%)	80 (51.6%)
Age (years)		
n (%)	78 (100%)	155 (100%)
Mean (S.D.)	66.2 (9.9)	65.1 (9.1)
Median	68.0	65.0
Min, Max	42.0, 85.0	42.0, 86.0
Race		
Asian	2 (2.6%)	5 (3.2%)
Black or African American	6 (7.7%)	7 (4.5%)
White	65 (83.3%)	128 (82.6%)
Multiracial	0	1 (0.6%)
Unknown/Not Reported	5 (6.4%)	14 (9.0%)
Ethnicity		
Hispanic or Latino	0	8 (5.2%)
Not Hispanic or Latino	77 (98.7%)	141 (91.0%)
Unknown/Not Reported	1 (1.3%)	6 (3.9%)
Body Surface Area (BSA) (m2)		
n (%)	78 (100%)	154 (99.4%)
Mean (S.D.)	1.83 (2.23)	1.82 (0.22)
Median	1.82	1.81
Min, Max	1.31, 2.77	1.30, 2.41

Demographics	GnP (n=78)	Elraglusib + GnP (n=155)
Eastern Cooperative Oncology Group Performance Status		
0	31 (39.7%)	64 (41.3%)
1	45 (57.7%)	89 (57.4%)
2	2 (2.6%)	2 (1.3%)
Disease Status		
Metastatic at Initial Diagnosis	59 (75.6%)	109 (70.3%)
Metastatic at Study Entry	77 (98.7%)	154 (99.4%)
Site of Metastases		
Pancreas	68 (87.2%)	123 (79.4%)
Liver	61 (78.2%)	112 (72.3%)
Lymph Node	27 (34.6%)	69 (44.5%)
Lung	26 (33.3%)	58 (37.4%)

Study 1801 Part 3B Meets Primary Endpoint of Improved Survival

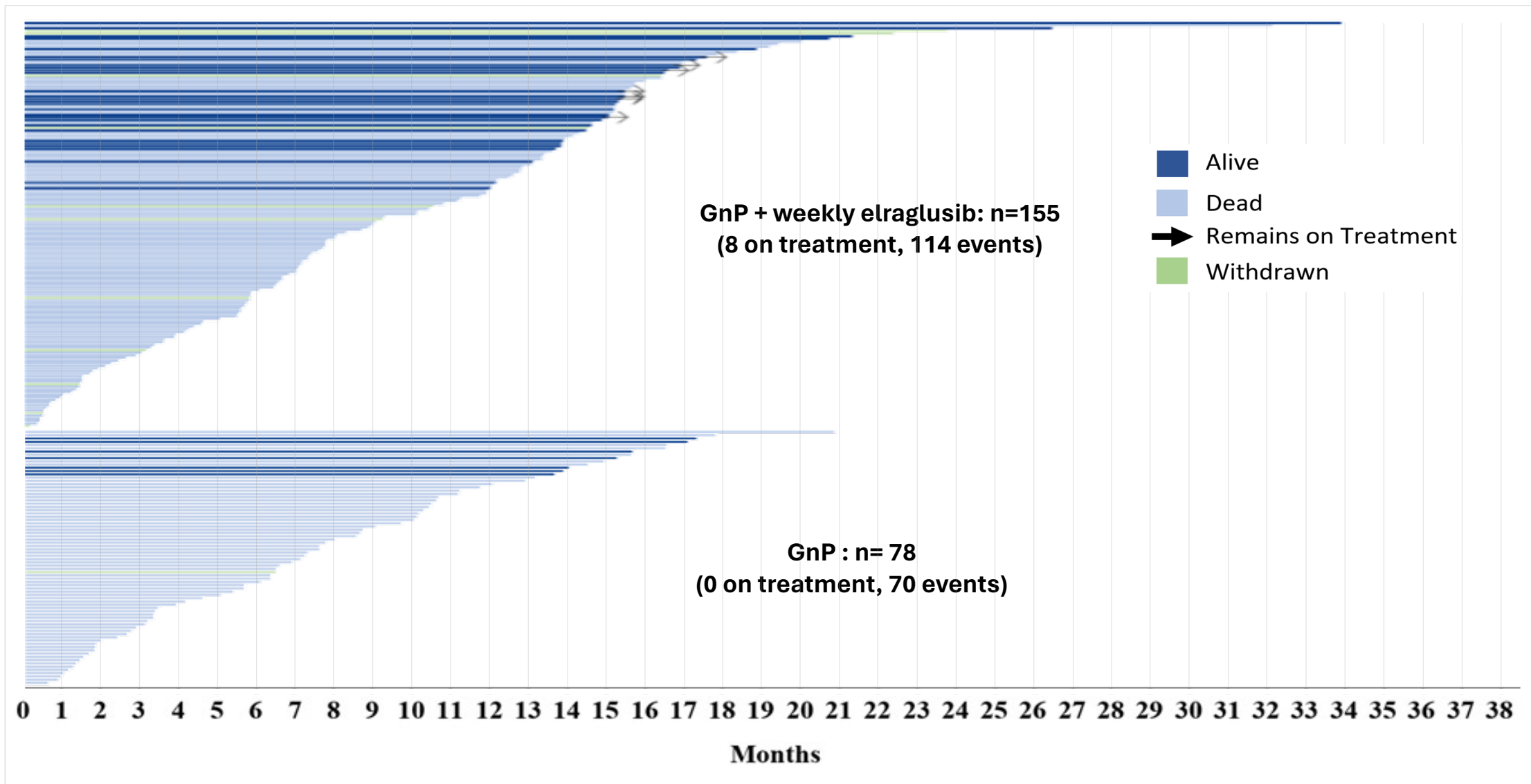
Doubling of 1 year OS and 37% Reduction in Risk of Death vs GnP

	GnP (78)	Elraglusib/GnP (155)
Primary Endpoint: mOS (months) HR=0.63; log-rank p=0.01	7.2	10.1
12 month OS (%) p=0.0005	22.3	44.1
Events (% events)	70 (89.7%)	114 (73.5%)
18-month OS (%)	4.4	19.7
24-month OS (%)	0	13.8
mPFS (months) HR=0.90; P=NS	5.1	5.6
Events (% events)	75 (96.2%)	136 (87.7%)
DCR	56.4%	61.3%
ORR n(%)	17 (21.8%)	45 (29.0%)



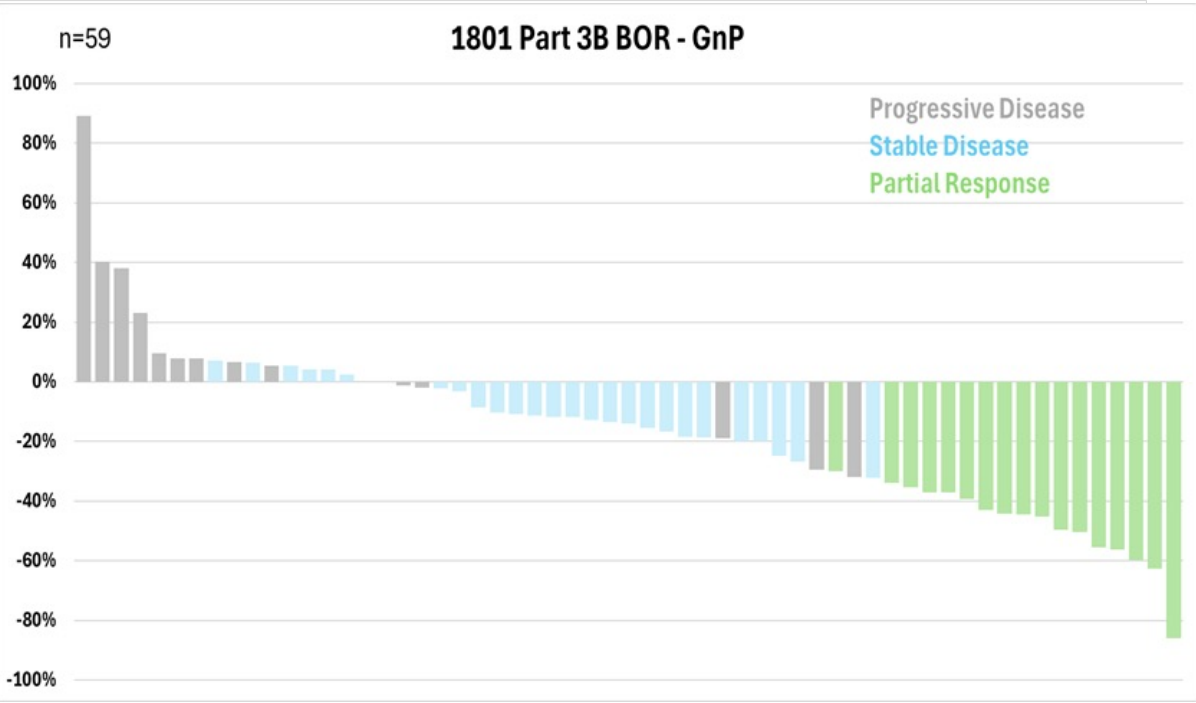
The final data and results may change as the study continues through completion

Administrative Analysis of 1801 Part 3B OS Swim Plot

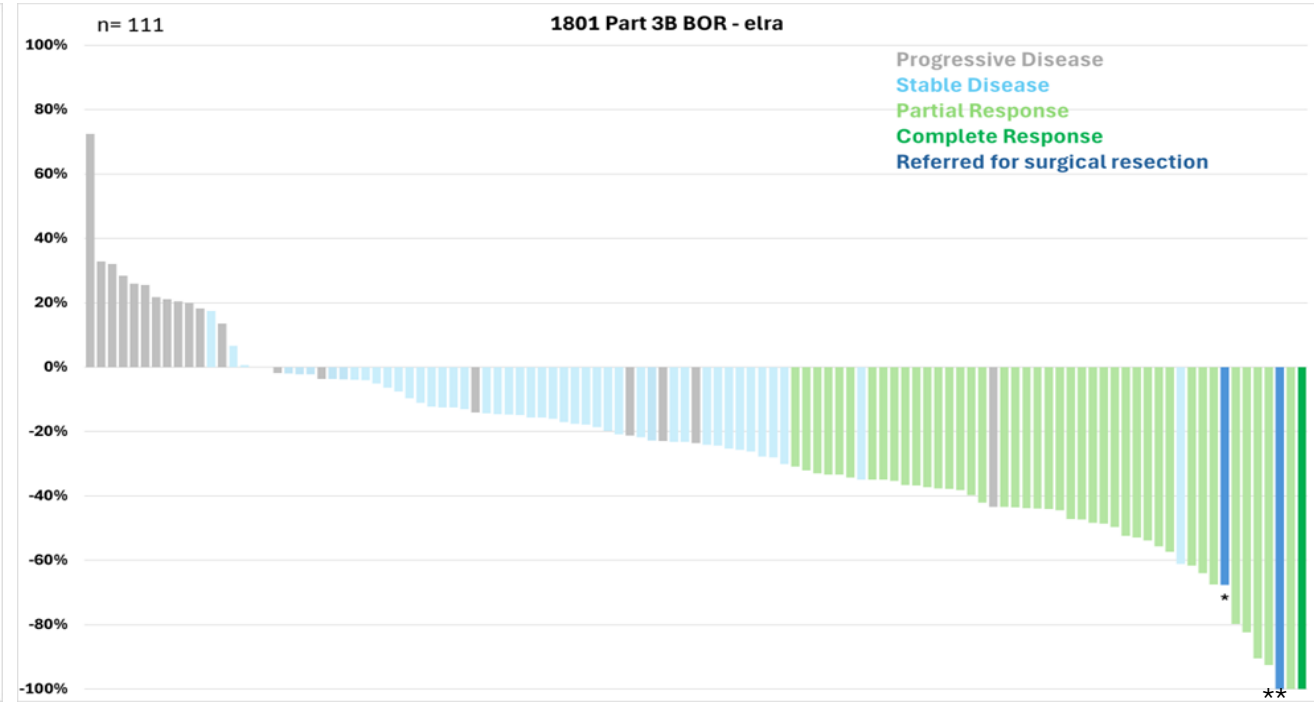


Phase 2 RCT in First-Line Metastatic PDAC - Best Overall Response

1801 Part 3B: GnP Best Overall Response



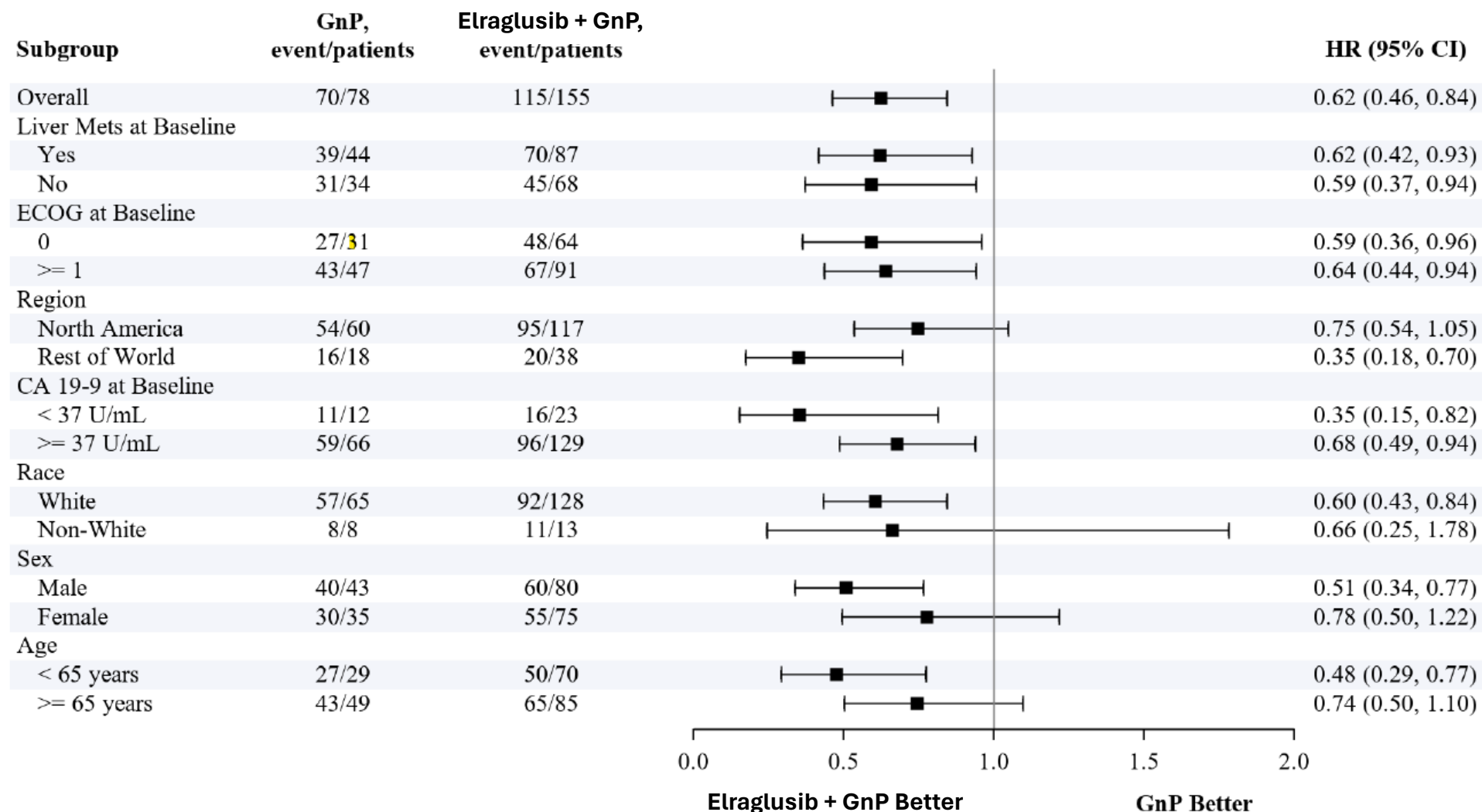
1801 Part 3B: GnP + Weekly Elra Best Overall Response



*Patient had a partial response on treatment, then was referred for a Whipple procedure and subsequently came off treatment

**Patient had a partial response on treatment, then was referred for a Whipple procedure and then reported a complete response with 100% of the primary tumor removed

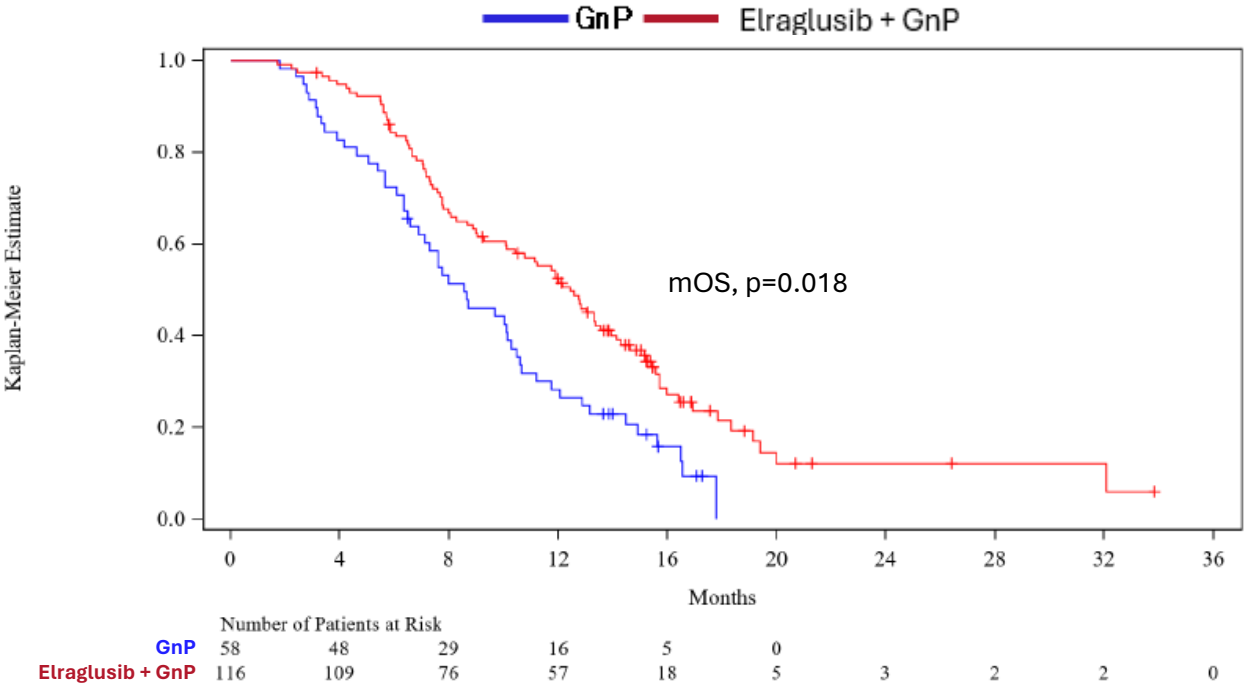
Elraglusib + GnP Data Show OS Benefit Across Key Subgroups



Subgroup of Patients Treated for One Cycle (4 weeks) – Significant Benefit in OS

Near Doubling of 1 year OS and 43% Reduction in Risk of Death vs GnP

	GnP (58)	Elraglusib/GnP (116)
Primary Endpoint: mOS (months) HR=0.57; log-rank p=0.018	8.5	12.5
12-month OS (%)	28.3	52.5
Events (% events)	50 (86.2%)	85 (73.3%)
18-month OS (%)	0	21.5
24-month OS (%)	0	12.1
mPFS (months) HR=0.78; P=NS	5.6	6.9
Events (% events)	55 (94.8%)	105 (90.5%)
DCR	44.8%	53.4%
ORR n(%)	17 (29.3%)	44 (37.9%)

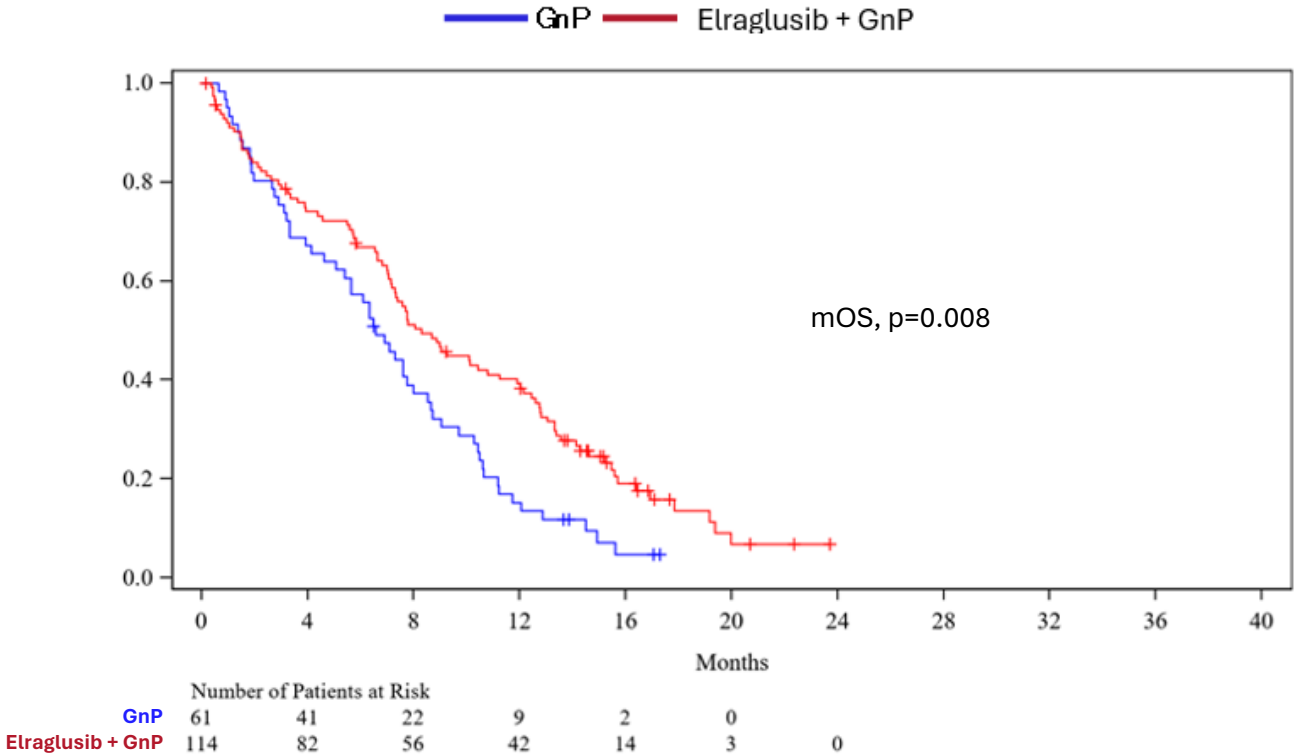


The final data and results may change as the study continues through completion

Patients with Liver Metastases – Significant Benefit in mOS and mPFS

2.5X Increase in 1 Year Survival and a 38% Reduction in Risk of Death

	GnP (61)	Eraglusib/GnP (114)
Primary Endpoint: mOS (months) HR=0.62; log-rank p=0.008	6.6	8.3
12 month OS (%) p=0.0003	15.2	39.2
Events (% events)	56 (91.8%)	92 (80.7%)
18-month OS (%)	0	13.6
24-month OS (%)	0	0
mPFS (months) HR=0.72; P=0.039	3.9	4.9
Events (% events)	59 (96.7%)	104 (91.2%)
DCR	27.9%	36.8%
ORR n (%)	12 (19.7%)	34 (29.8%)



The final data and results may change as the study continues through completion

*z-test
PDAC: pancreatic ductal adenocarcinoma; OS: overall survival;
ORR: overall response rate; DCR: disease control rate; PFS: progression-free survival

Subsequent Anti-Cancer Therapy Is Balanced Between Both Arms

	GnP (78)	Eraglusib/ GnP (155)
Subsequent anti-cancer therapy (%)	37 (47.4%)	78 (50%)
Systemic anti-neoplastic therapy	36 (46%)	78 (50%)
FOLFIRINOX	13 (35%)	23 (28%)
FOLFOX	1(3%)	0 (0%)
FOLFIRI	3 (8%)	7 (9%)
GnP	3 (8%)	10 (13%)
5-FU/liposomal irinotecan/LV	3 (8%)	7 (9%)
Other**	13 (36%)	31(40%)
Radiotherapy	1(3%)*	0 (0%)

LV- leucovorin

* this patient also received anti-neoplastic therapy with radiation

** Other primarily represents various other chemotherapy regimens

The final data and results may change as the study continues through completion

Safety Profile of Elraglusib in Combination with GnP

Actuate 1801 Part 3B (ongoing)

TEAEs of Any Grade Reported in ≥20% of Patients Treated with elraglusib

Adverse Event	Elraglusib + GnP (N=155)		GnP (N=78)	
	Patients, n (%)			
	Any Grade	Grade ≥3	Any Grade	Grade ≥3
Any TEAE	155 (100)	139 (89.7)	77 (98.7)	62 (79.5)
Serious TEAE	86 (55.5)	81 (52.3)	44 (56.4)	43 (55.1)
Leading to Stoppage of Any Study Drug	42 (27.1)	26 (16.8)	20 (25.6)	16 (20.5)
Resulting in death	19 (12.3)	19 (12.3)	13 (16.7)	13 (16.7)
TEAEs of any Grade in ≥20% of Patients				
Visual Impairment	105 (67.7)	1 (0.6)	7 (9.0)	0
Fatigue	97 (62.6)	26 (16.8)	39 (50.0)	4 (5.1)
Neutropenia*	95 (61.3)	81 (52.2)	32 (41.0)	24 (30.8)
Diarrhea	91 (58.7)	15 (9.7)	38 (48.7)	6 (7.7)
Nausea	90 (58.1)	11 (7.1)	38 (48.7)	4 (5.1)
Alopecia	71 (45.8)	0	27 (34.6)	0
Anemia**	71 (45.8)	39 (25.2)	35 (44.9)	23 (29.5)
Decreased appetite	64 (40.6)	9 (5.8)	19 (24.4)	6 (7.7)
Thrombocytopenia***	58 (37.4)	17 (11.0)	25 (32.1)	6 (7.7)
Vomiting	59 (38.1)	5 (3.2)	30 (38.5)	1 (1.3)
Edema peripheral	56 (36.1)	3 (1.9)	25 (32.1)	0
Constipation	50 (32.3)	3 (1.9)	24 (30.8)	1 (1.3)
Pyrexia	44 (28.4)	2 (1.3)	20 (25.6)	1 (1.3)
Abdominal pain	45 (29.0)	14 (9.0)	16 (20.5)	2 (2.6)
Weight decreased	42 (27.1)	5 (3.2)	16 (20.5)	4 (5.1)
Peripheral sensory neuropathy	39 (25.2)	4 (2.6)	18 (23.1)	0
Hypokalemia	35 (22.6)	8 (5.2)	24 (30.8)	4 (5.1)
Asthenia	32 (20.6)	9 (5.8)	19 (24.4)	5 (6.4)
Dysgeusia	32 (20.6)	0	16 (20.5)	0
Infusion related reaction	31 (20.0)	4 (2.6)	1 (1.3)	0
Neuropathy peripheral	21 (13.5)	1 (0.6)	18 (23.1)	0

TEAE: Treatment-Emergent Adverse Event
The final data and results may change as the study continues through completion

Key Takeaways

- Overall rate of a TEAE and/or an SAE observed were similar in the elraglusib + GnP-treated patients as compared to GnP-treated patients
- Treatment discontinuation due to TEAEs were similar across the treatment groups
- Visual impairment and fatigue were major TEAEs attributed to elraglusib as a single agent in 1801 Part 1 and were mild to moderate in the 1801 3B ¹
 - Transient visual impairment described as transient alterations in color and skin tones under fluorescent light
 - No permanent changes to eye structure or vision

¹ Carneiro et al. Clin Cancer Res 2024 Feb 1;30(3):522-531
*Includes Preferred Terms (PT) neutropenia and neutrophil count decreased
** Includes PT anemia and hemoglobin decreased
***Includes PT thrombocytopenia and platelet count decreased

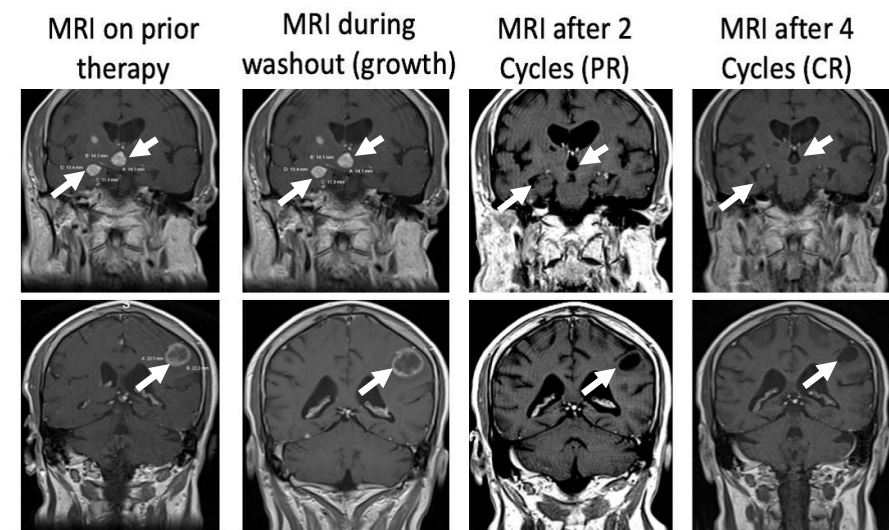
Clinical Activity in Areas of High Unmet Need in 1801 Part 1 and 2

Actuate 1801 Part 1 evaluated elraglusib as a single agent

- First objective response reported in patient treated with 5 mg/kg elraglusib monotherapy
- Metastatic melanoma diagnosed in 2018; widely metastasized to the brain, lungs, bones, muscles, stomach, lymph nodes, pancreas and adrenal glands
- Refractory to all FDA-approved standard therapies, including several checkpoint inhibitors and BRAF / MEK inhibitor
- **After 12 Weeks on elraglusib:** Brain MRI showed complete response (CR) by RANO criteria, PET scan showed complete metabolic response ("CMR")
- **Durable CMR ongoing (OS >5.5 years as of November 15, 2024)**

Refractory, metastatic melanoma identified as a clinical indication for elraglusib development

- A second patient receiving single-agent elraglusib has ongoing stable disease (SD)(3.1 years as of last documented alive date)
- Also failed all FDA-approved standard therapies including immune checkpoint inhibitors and several experimental treatments
- Patients receiving chemotherapy salvage after anti-PD-1 treatment have a mOS of 6.9 months across all chemotherapy tested
- **Potential for genomic biomarker enrichment to improve the probability of success based on ML models of CPI response**



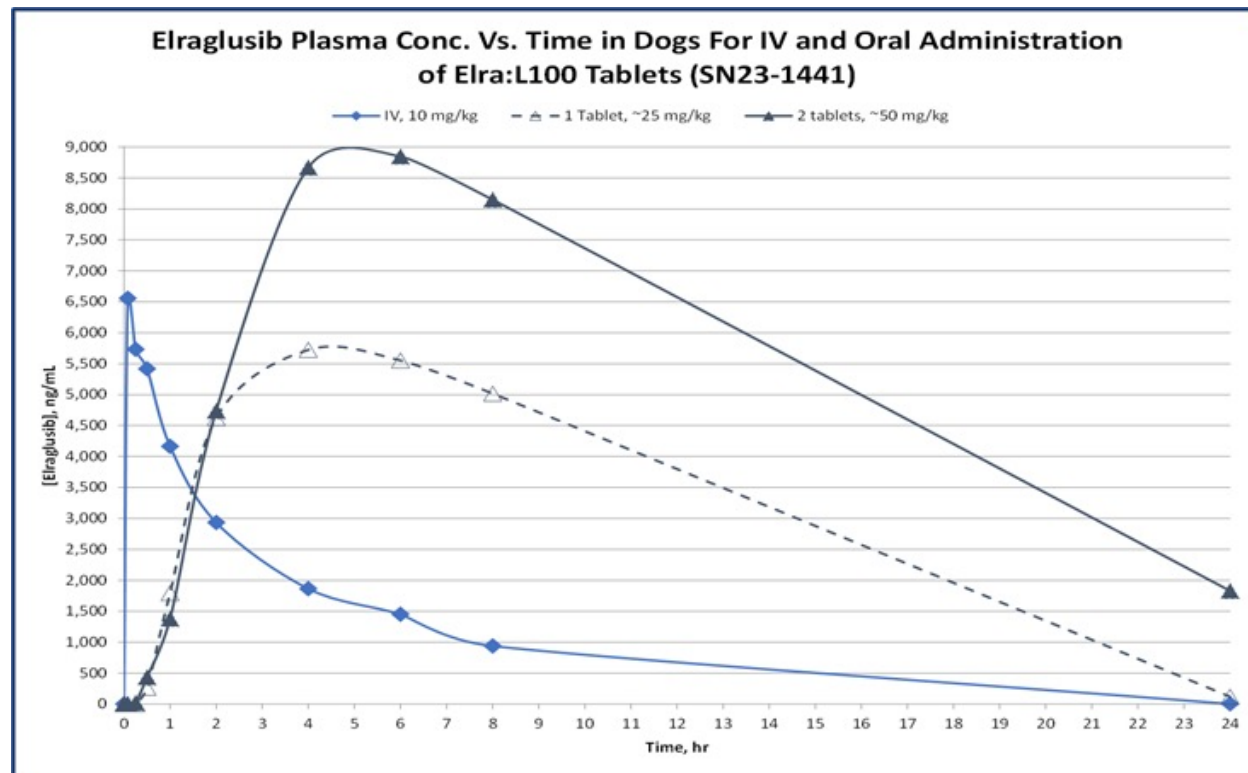
12 weeks on elraglusib leads to Complete Response by PET-MRI. Cystic lesions observed in place of prior tumor.

Combination	Key Histologies	mOS (1801)
Elraglusib Monotherapy	CPI Refractory, Metastatic Melanoma	9.1 months
Elraglusib/Irinotecan	Refractory, metastatic Colorectal	6.9 months
Elraglusib/Carboplatin	CPI/Platinum refractory, metastatic NSCLC	ND

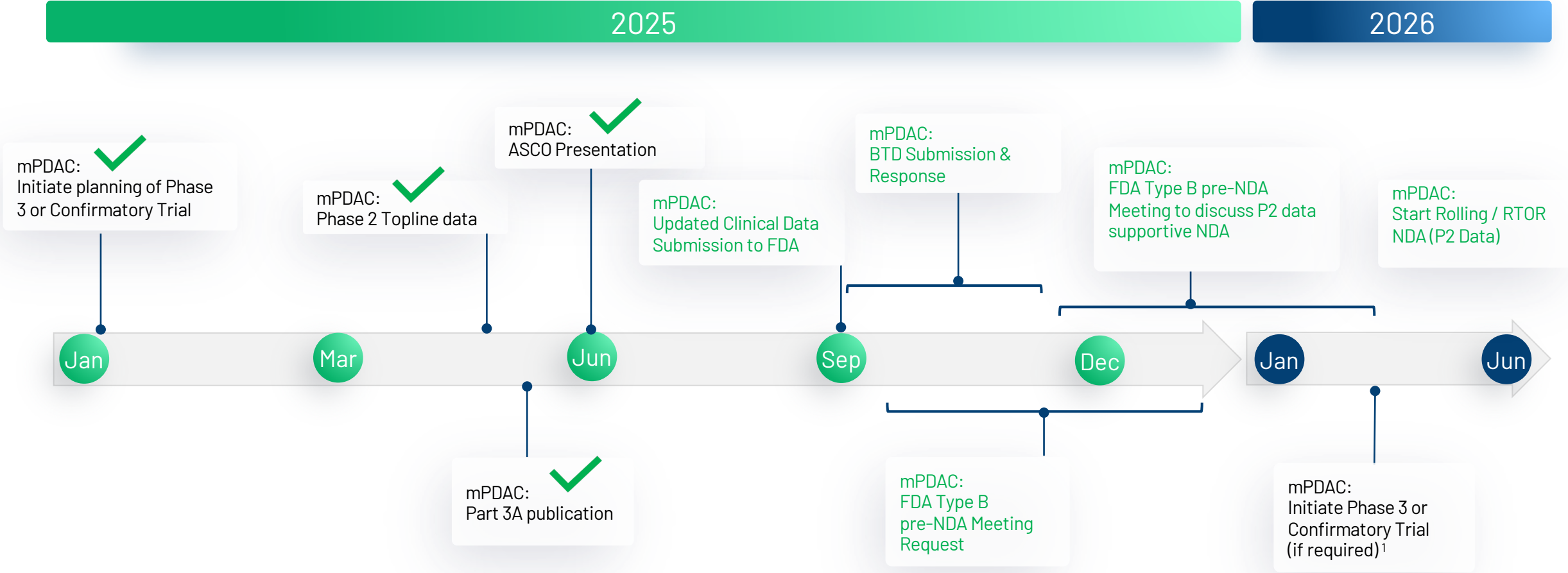
Elraglusib Oral Formulations Provide Similar Drug Exposures to IV

- Decreased cost of manufacturing at commercial scale compared to IV formulations
- Phase 1 Study of Oral Solution in Normal Healthy Volunteers (NHV) showed >50% bioavailability vs IV after a single dose
 - Exposure and pharmacodynamic effects exhibited in fed/fasted patients
- Oral Solid >95% bioavailability vs IV when dosed with food
- Phase 1 dose escalation study using Elraglusib Oral Tablet in advanced cancer patients (not healthy volunteers) in planning stage

Elraglusib Arithmetic Mean Concentration-Time Profiles



Key Near Term Anticipated Development Plans and Milestones For Accelerating Registration in mPDAC



1: Contingent on future discussions with the FDA and future funding

Seasoned and Successful Leadership

Experienced leadership team with demonstrated ability to develop and commercialize cancer drugs



Daniel M. Schmitt – Chief Executive Officer and Founder

- 30+ years of biotechnology and pharmaceutical experience across senior executive roles
- Led and contributed to the successful development and launch of multiple pharmaceutical products
- Exosurf, Zovirax, Valtrex, Adenoscan, Ambisome, Duraclon, Campath, Abraxane, enTrust
- Executed ~1B+ in milestone value through licensing, acquisition, and development deals



Andrew Mazar, PhD – Chief Operating Officer and Scientific Co-Founder

- Co-founder, Chief Scientific Officer and Director, Monopar Therapeutics, Inc. (Nasdaq: MNPR)
- Entrepreneur-in-Residence; Professor of Pharmacology; Founding Director, Center for Developmental Therapeutics, Northwestern University
- Chief Scientific Officer, Attenuon, LLC
- Internationally recognized expert in cancer metastasis and translational oncology
- Eleven drugs from discovery through Phase 2
- >250 peer-reviewed publications and book chapters and inventor on > 70 patents
- Serial entrepreneur with seven start-ups founded



Paul Lytle – Chief Financial Officer

- 30+ years of finance and accounting experience
- 25+ years of public company experience for Nasdaq listed companies
- Served as co-founder, CFO, and director for multiple biotech companies
- Raised in excess of \$500 million in net proceeds from various equity and debt offerings

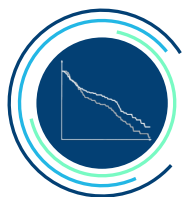


Steven D. Reich, MD – Sr VP, Clinical Development and Acting Chief Medical Officer

- Oncology drug development executive leader for commercial clinical development and strategy
- Directed multi-national medical research groups within pharmaceutical/biotechnology companies and CRO
- Lead investigator for Phase I-III trials and designed and managed Phase I-IV trials for industrial sponsors
- Headed the clinical research programs leading to multiple US, Canadian, and European drug approvals
- Epopen, Targretin, Panretin, Fludara, Inlyta



Investment Highlights



Compelling Survival Data in mPDAC



Potential For Accelerated Registration in Major Markets



Broad Therapeutic Potential in Multiple Oncology Indications



Extended IP Protection



Seasoned Leadership Team



Ticker: ACTU

