Cardiff Oncology™

Turning the Tide on Cancer

January 2021

Forward-Looking Statements

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Investment Highlights

3rd Generation, 1st-in-class, Oral PLK1 Inhibitor

Onvansertib overcomes the shortcomings of prior PLK inhibitors:

- Highly selective for PLK1
- Orally administered
- 24-hour half-life
- Flexible dose and schedule

Specifically targets a known mechanism of cell division that is required for tumor cell viability

Preliminary clinical data demonstrate the safety, tolerability and efficacy of onvansertib in combination with SOC across multiple indications

Strong Lead Program in KRAS-mutated mCRC

Supported by compelling preliminary clinical data from a Phase 1b/2 trial showing a ten-fold improvement in ORR compared to SOC

Preclinical data support:

- MOA of synthetic lethality between KRAS mutant mCRC and PLK1 inhibition
- Synergy with irinotecan and 5-FU

First Indication: 2nd line treatment in patients who have failed 1st line treatment with FOLFOX with/without bevacizumab

FDA Fast Track Designation

Integrated Biomarker Strategy

Circulating Tumor DNA: changes in KRAS mutational burden in blood are predictive of subsequent tumor shrinkage (mCRC)

Circulating Tumor Cells: changes are predictive of overcoming anti-androgen resistance (mCRPC)

Circulating Tumor DNA: changes are predictive of decreases in leukemic bone marrow cells (AML)

Diversified Pipeline Across Numerous Cancers

Clinical data from ongoing trials support the use of onvansertib in combination regimens across numerous aggressive cancers:

- mCRC Phase 1b/2 trial
- mCRPC Phase 2 trial
- AML Phase 2 trial

Potential expansion opportunities:

- Chronic myelomonocytic leukemia
- Pancreatic cancer
- Triple negative breast cancer
- Lung cancer
- Ovarian cancer

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PLK: Polo-like Kinase; SOC: Standard-of-care; ORR: Overall response rate; MOA: Mechanism of action; mCRC: metastatic colorectal cancer; mCRPC: metastatic castration resistant prostate cancer; AML: Acute myeloid leukemia

Experienced Management Team With Drug Development and Biomarker Technology Expertise

Mark Erlander, PhD
Chief Executive Officer

BIOMÉRIEUX

Johnson & Johnson PHARMACEUTICAL RESEARCH & DEVELOPMENT

Vicki Kelemen
Chief Operating Officer

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dura PHARMACEUTICALS

Brigitte Lindsay
Vice President of Finance

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PHILIPS RESPIRONICS

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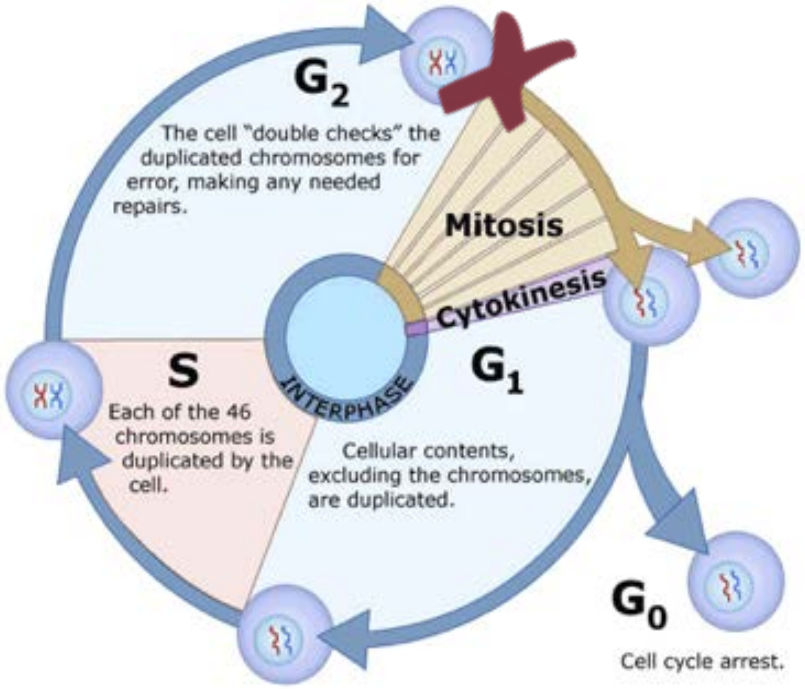
Onvansertib

3rd generation, 1st in class, oral and highly selective PLK1 inhibitor addressing unmet needs across a broad range of cancer indications

PLK1 is a Proven Therapeutic Target that is Overexpressed in Most Cancers

- PLK1 is a serine/threonine kinase and master regulator of cell-cycle progression
- PLK1 controls G2/mitosis (G2/M) checkpoint
- Inhibition of PLK1 causes mitotic arrest and subsequent cell death
- Emerging data demonstrate that PLK1 is also a key regulator of cellular functions beyond mitosis that are essential for tumor growth:
  - Biosynthesis of DNA
  - DNA Damage Response



Inhibition of PLK1 causes mitotic arrest and subsequent cell death[1]

[1]Zitouni et al., Nat Rev Mol Cell Biol. 2014 Jul;15(7):433-52; PLK1: Polo-like kinase 1

PLK1-Specific ATP Competitive Inhibitor[1]

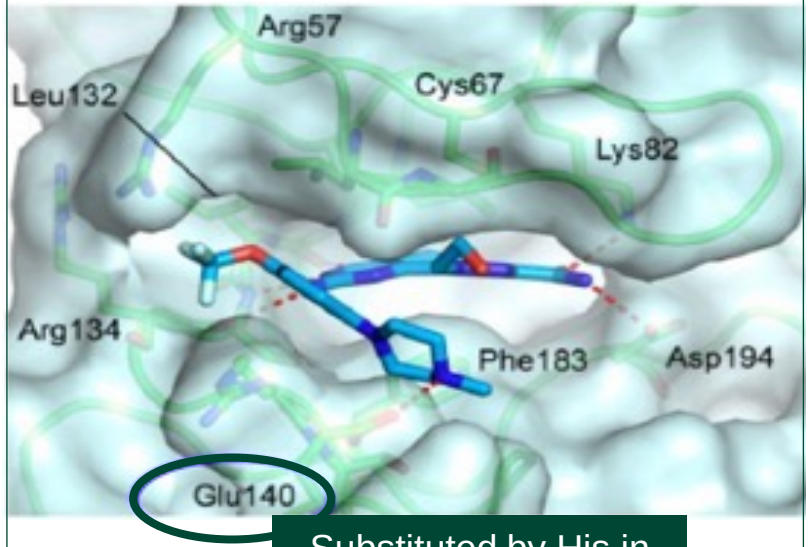
Biochemical Profile

Enzyme	IC_{50} (μM)
PLK1	**0.002**
PLK2	>10
PLK3	>10
CK2	0.4
FLT3	0.4
CDK1/CycB	3.8
42 additional kinases in house	>10
>190 additional kinases in the Millipore panel	>10

Profile Characteristics

Small Molecule	MW 648.60 Daltons
Formulation	5mg and 20mg oral gelcaps
Plasma Protein Binding	95% at 10μM and 91% at 50μM
Metabolic Overview	Moderate intrinsic clearance (9.3 mL/min/kg)[1] 2 metabolites identified in metabolic profiling in low quantities (parent drug accounted for 93% of total drug-related material)[1] No Cytochrome P450 inhibition at therapeutic concentrations[2]
Pharmacokinetics[3]	Systemic exposure of drug increased with dose, as shown by an increase in C_{max} and AUC_{0-24} T_{max} is approximatively 3h Half-life is approximately 24h

Co-crystal of Onvansertib with PLK1



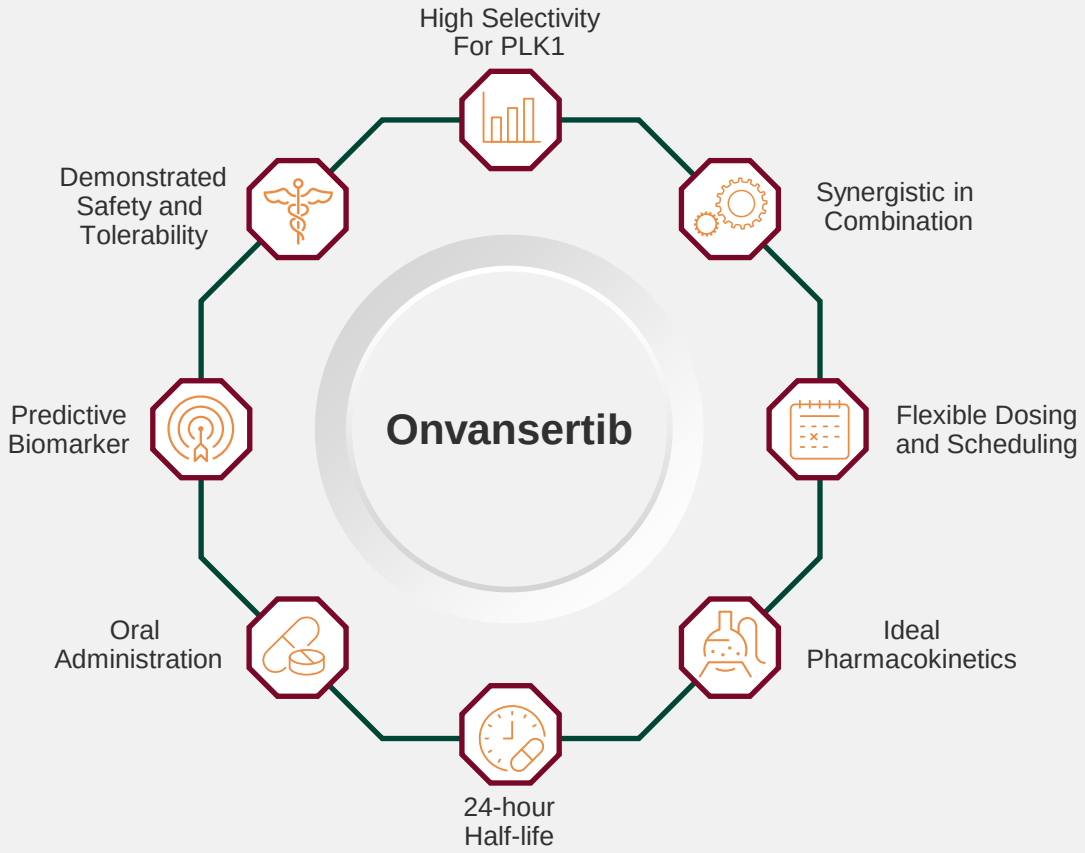
Onvansertib

- A selective, ATP competitive PLK1 inhibitor
- Selectivity is driven by polar interaction with the side chain of Glu140 of PLK1
- Interaction is hampered in both PLK2 and PLK3 where Glu140 is replaced by histidine

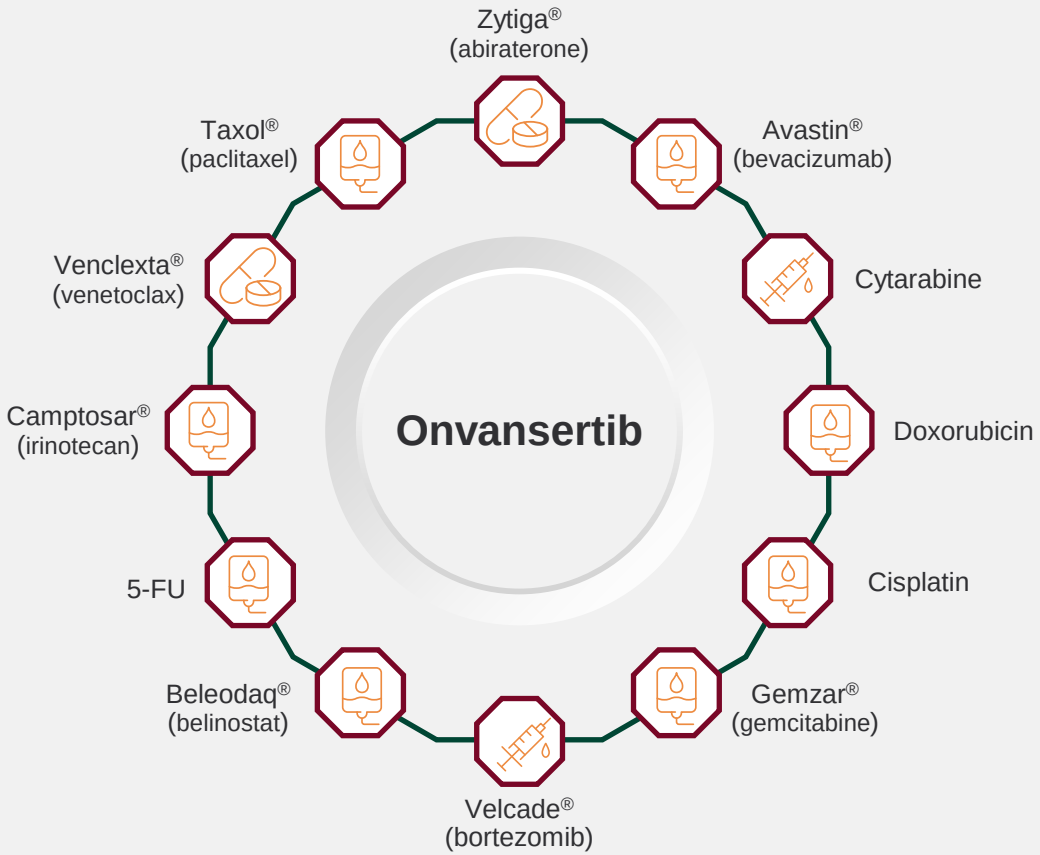
[1]Valsasina Mol Cancer Ther 2012

Onvansertib has Optimal Drug Properties and Synergistically Combines with Standard-of-Care Therapies

Optimal Drug Properties



Synergistic in Combination with Standard-of-Care Chemo and Targeted Therapies



Second-Line Treatment of KRAS-Mutated mCRC

Phase 1b/2 open-label trial of onvansertib + FOLFIRI/bevacizumab

Trial Sites: USC Norris Comprehensive Cancer Center; Mayo Clinics (Arizona, Rochester, Jacksonville), Kansas University Medical Center, CARTI Cancer Center

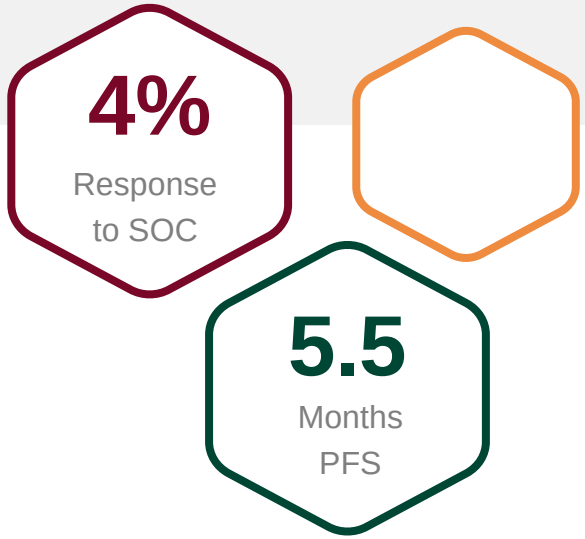
Principal Investigator: Dr. Heinz-Josef Lenz

New Second-Line Therapies are Needed to Improve Response and Increase Progression-Free Survival

50% of patients with mCRC have a KRAS mutation

Prognosis is poor with a five-year survival rate of **10%**

Other drugs currently in development do not address the most prevalent **KRAS mutations in mCRC**



Significant limitations to standard-of-care (SOC)

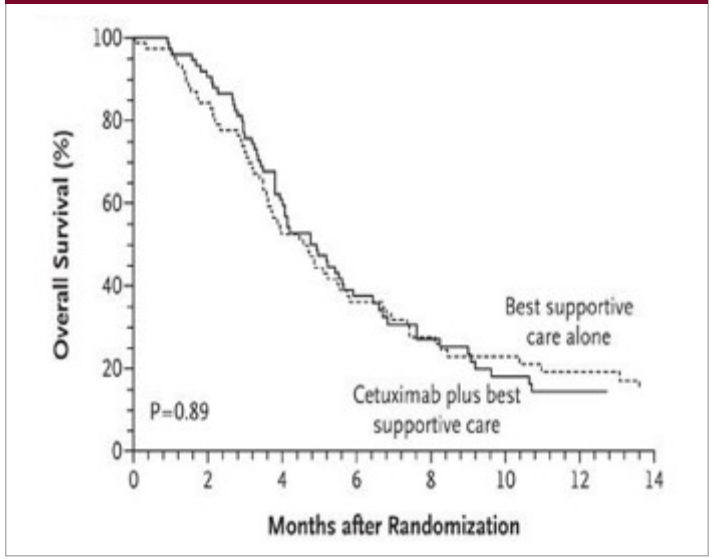
Historically, second-line standard-of-care treatment in KRAS-mutated mCRC has had an overall response rate of 4% and progression-free survival (PFS) of 5.5 months[1]

[1]Kubicka et al, Annals of Oncology 2013; 2342–2349; mCRC: Metastatic colorectal cancer

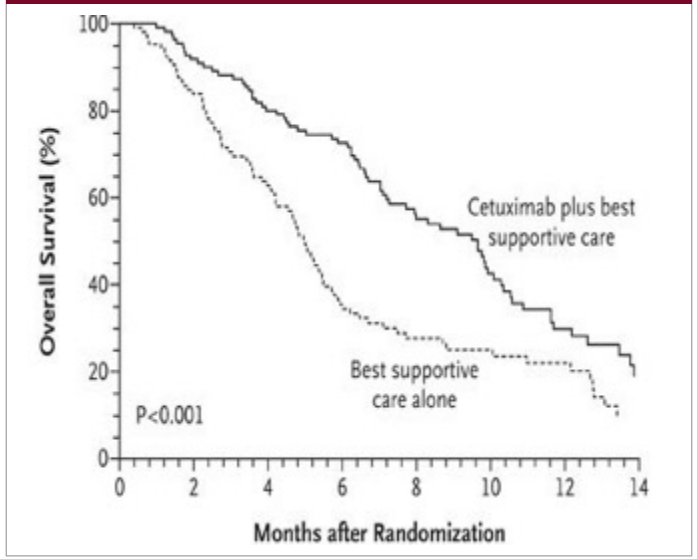
KRAS is a Pivotal Diagnostic Biomarker in the CRC Treatment Paradigm

- KRAS-mutated patients do not benefit from anti-EGFR agents:
  - No increase in OS, PFS and ORR was observed in KRAS mutant patients treated with EGFR inhibitors vs control arm[1,2]
  - The use of anti-EGFRs is therefore limited to KRAS wild-type patients
- Mutations in KRAS represent also the most frequent mechanism of resistance to anti-EGFRs (i.e. cetuximab)

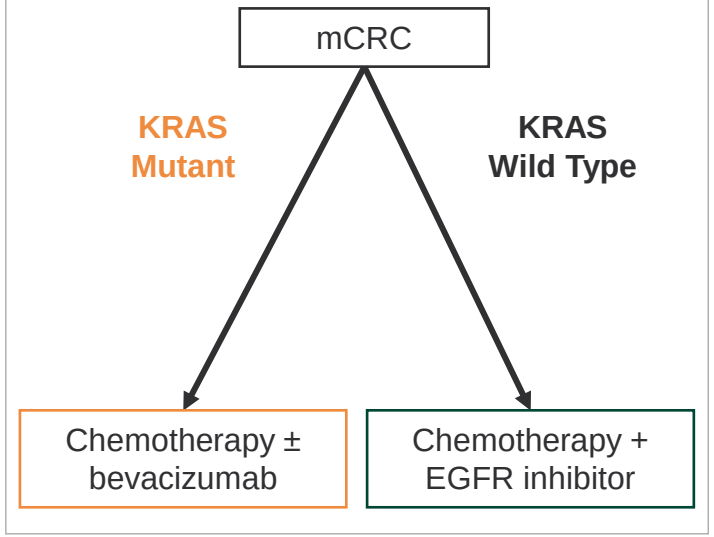
KRAS Mutant



KRAS Wild-type



Treatment Paradigm



[1]Karapetis et al., NEJM 2008;359:1757-1765; [2]Amado et al., JCO 2008, 26:1626-1634

Second-line Treatment: Real World Utilization in the US

Flatiron Health Data

255
Cancer clinics representing
1.7 million active cancer patients

14,315
Colorectal cancer patients

7,034
Colorectal cancer patients who receive second line therapy

	Number	Percent
Second-line regimens after first-line FOLFOX + bevacizumab ($N = 2470$)		
FOLFIRI + bevacizumab	1176	47.6
FOLFIRI	262	10.6
FOLFIRI + cetuximab	159	6.4
FOLFIRI + Ziv-aflibercept	114	4.6
FOLFIRI + panitumumab	91	3.7
Irinotecan + cetuximab	85	3.4
FOLFIRI + ramucirumab	74	3.0
Irinotecan + bevacizumab	53	2.1
Regorafenib	33	1.3
Irinotecan	30	1.2
Panitumumab	27	1.1
Second-line regimens after first-line FOLFOX ($N = 1249$)		
FOLFOX + bevacizumab	373	29.9
FOLFIRI	235	18.8
FOLFIRI + bevacizumab	210	16.8
Fluoropyrimidine + bevacizumab	85	6.8
FOLFIRI + cetuximab	43	3.4
FOLFOX + panitumumab	37	3.0
Irinotecan + cetuximab	24	1.9
FOLFIRI + panitumumab	23	1.8
FOLFOX + cetuximab	22	1.8
Bevacizumab	17	1.4
Irinotecan	15	1.2
Panitumumab	15	1.2
FOLFOXIRI + bevacizumab	14	1.1

Denotes combination with bevacizumab

Denotes combination with other antiangiogenics

Source: Hess, L. International Journal of Colorectal Disease; 2019. Data is limited to limited to second-line regimens used in >1% of the cohort. FOLFOX: fluoropyrimidine, leucovorin, oxaliplatin. FOLFIRI: fluoropyrimidine, leucovorin, irinotecan, FOLFOXIRI: fluoropyrimidine, leucovorin, irinotecan, oxaliplatin

New Second-line mCRC Treatment is an Unmet Need

Outcomes for patients in the 2nd line setting is poor

- Efficacy of FOLFIRI: 4% ORR and 2.5 months PFS[1]
- Addition of bevacizumab to FOLFIRI improves outcomes[2]
- However, while KRAS WT patients benefit from the addition of bevacizumab, there was no statistically significant improvement in OS for KRAS-mutant patients[3]

KRAS	Treatment	ORR	PFS (months)	HR and significance of PFS	OS (months)	HR and significance of OS
KRAS WT	FOLFIRI	5%	4.5	HR=0.61 (95 % CI 0.49-077) P <0.0001	11.1	HR=0.61 (95 % CI 0.53-0.90) P=0.0052
	FOLFIRI + Bev	7%	6.4		15.4	
KRAS MUTANT	FOLFIRI	3%	4.1	HR=0.70 (95 % CI 0.56-0.89) P = 0.0027	**10**	**HR=0.92 (95 % CI 0.71-1.18) P=0.4969**
	FOLFIRI + Bev	4%	5.5		**10.4**	

[1]Tournigand et al., JCO 2004;22(2):229-3; 2Bennouna et al., Lancet Oncol. 2013; 14(1):29-37; 3Kubicka, S, Annals of Oncology 2013, 24:2342-2349; CI: confidence interval, HR: hazard ration, ORR: objective response rate, PFS: progression-free survival, OS: overall survival, WT: wild-type, MUT: mutant

Magnitude of Response with Other Antiangiogenic Therapy

The anti-angiogenic agents aflibercept and ramucirumab have been approved in combination with chemotherapy in 2nd line treatment, although they are used to a much lesser extent than bevacizumab

Trial	Agent/ARM	Patients	ORR	95% CI of ORR (%)
VELOUR Sub-group[1] (received first line therapy and bevacizumab)	FOLFIRI + aflibercept	643 (325 FOLFIRI +aflibercept)	11.8%	6.7 - **16.9**
RAISE[2]	FOLFIRI + ramucirumab	1361	13.4%*	10.7 - **16.6**

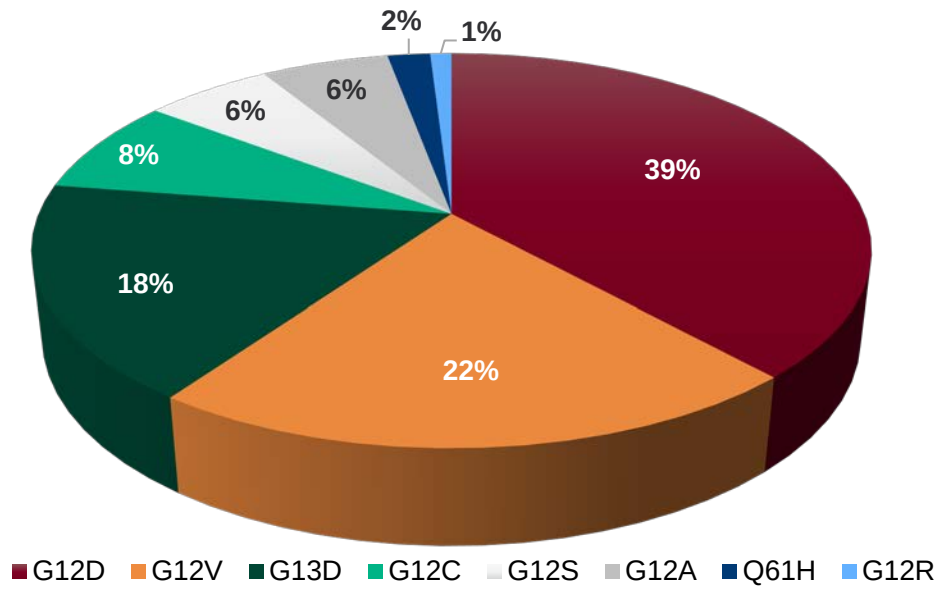
* 20% of patients were Asian, which has higher response rate

[1]Van Cutsem et al., Target Oncology 2016, 11:383-400 [2]Tabernero et al., Lancet Oncology 2015;16:499-508

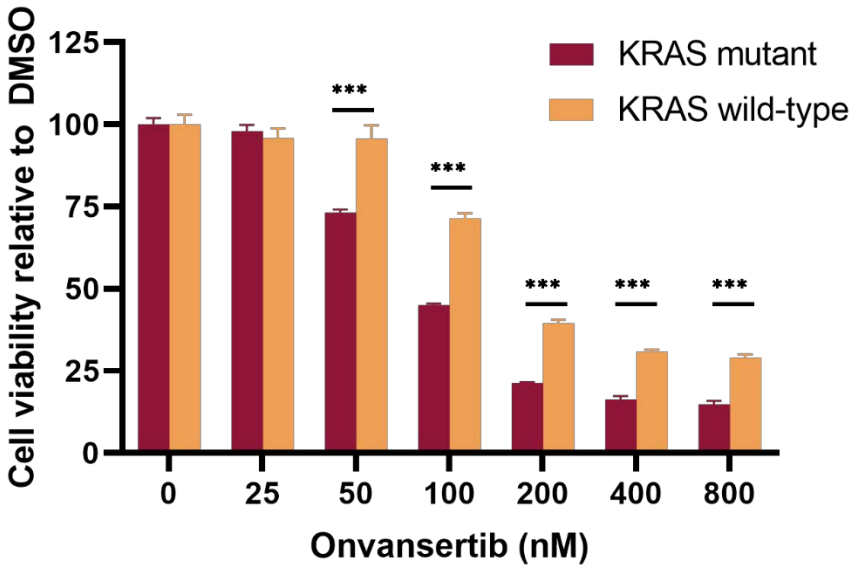
Synthetic Lethality: Cells with KRAS Mutations are Hypersensitive to Inhibition of PLK1

The output of the RAS-mutated pathway activates PLK1, which is inhibited by onvansertib

Onvansertib Addresses KRAS Mutation Subtypes in mCRC



Cell Viability in Onvansertib-Treated KRAS Mutant and Wild Type Isogenic CRC Cells



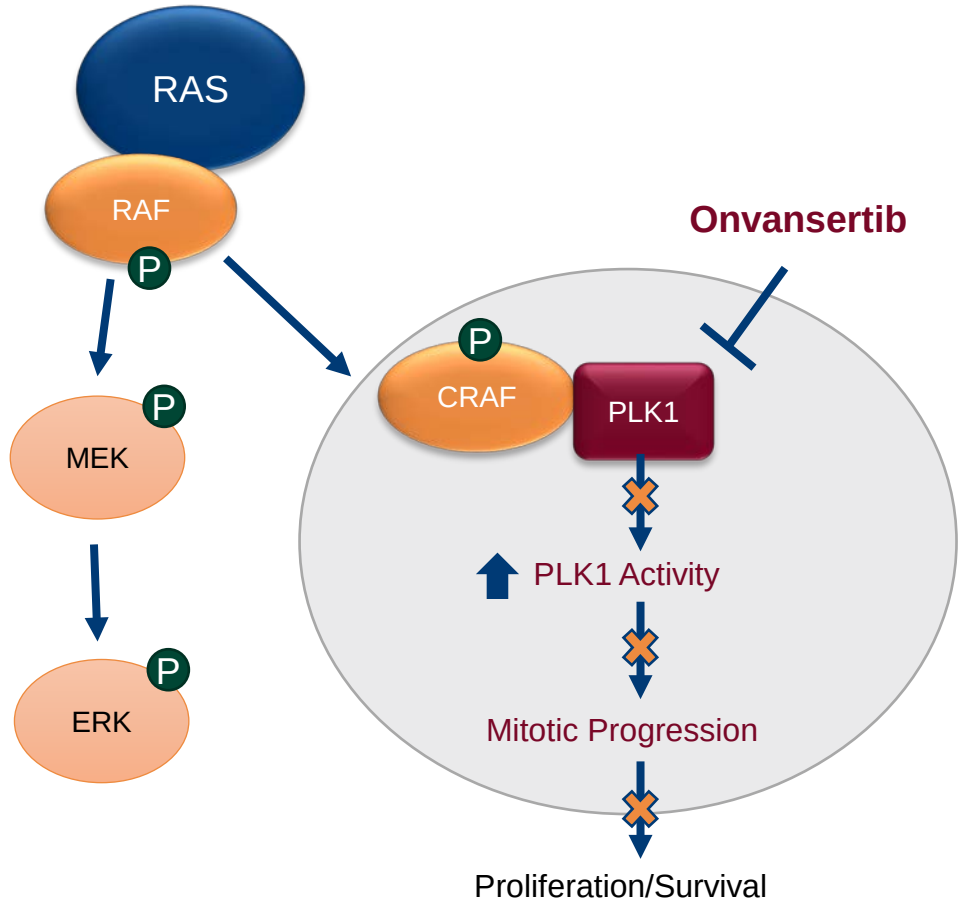
PLK1: Polo-like Kinase 1; mCRC: Metastatic colorectal cancer

PLK1 and RAS Cooperative Relationship

RAS activates PLK1 through a MEK/ERK-independent mechanism

The downstream target of KRAS, pCRAF, localizes to the mitotic spindle poles at mitosis where it interacts with PLK1 and promotes PLK1 activation, leading to mitosis and tumor progression[1]

Data suggest that KRAS-activated cells are dependent on PLK1 for their proliferation and survival and inhibition of PLK1 by onvansertib could inhibit tumor growth

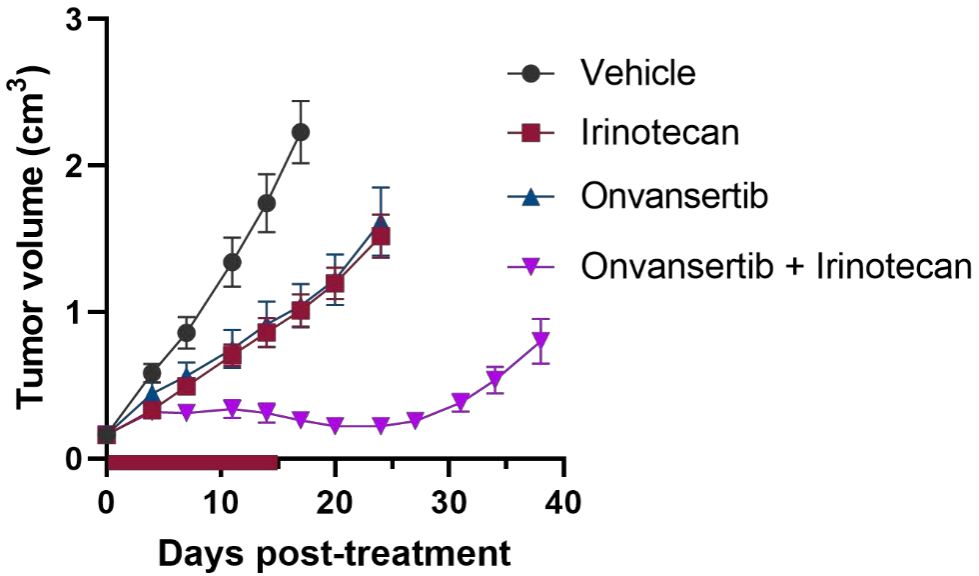


[1]Mielgo et al., Nat. Med. 2011; 17(12):1641-5

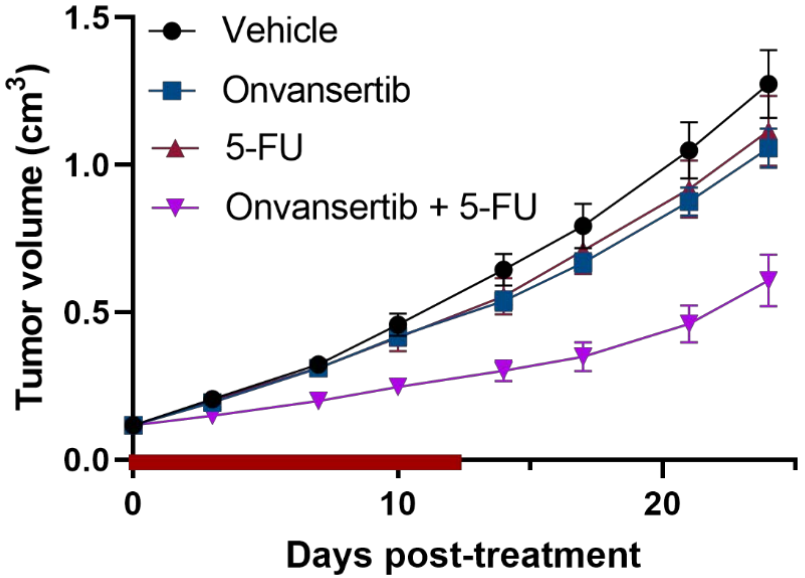
Synergy: Onvansertib in Combination with SOC Irinotecan and 5-FU

Onvansertib works synergistically in combination with standard-of-care FOLFIRI (irinotecan and 5-FU)
HCT-116 (with G13D KRAS mutation)

Synergy in Combination with Irinotecan

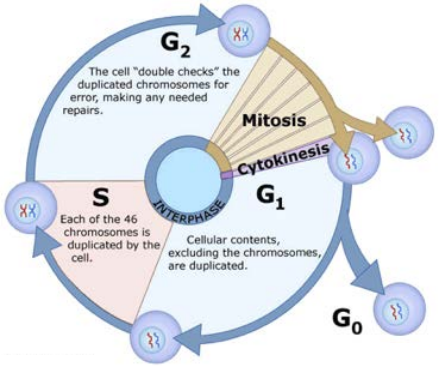


Synergy in Combination with 5-FU



PLK1 Regulates DNA Damage Response[1,2]

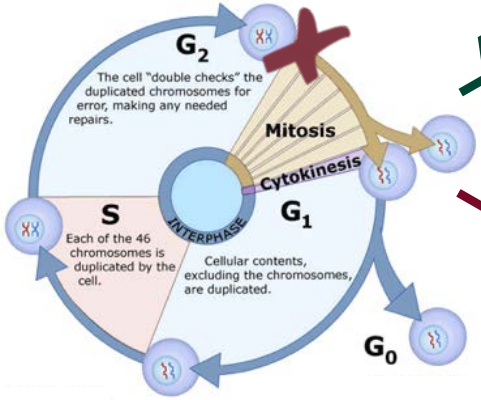
DNA Damaging Agents



- Irinotecan
- 5-FU

DNA Damage Response (DDR) arrests cells at G2/M checkpoint

G2/M Arrest



Active PLK1

PLK1 Inhibited

Mitosis

1. Checkpoint adaptation
2. PLK1 inhibits DDR, induces mitotic entry for tumor cells & cell division

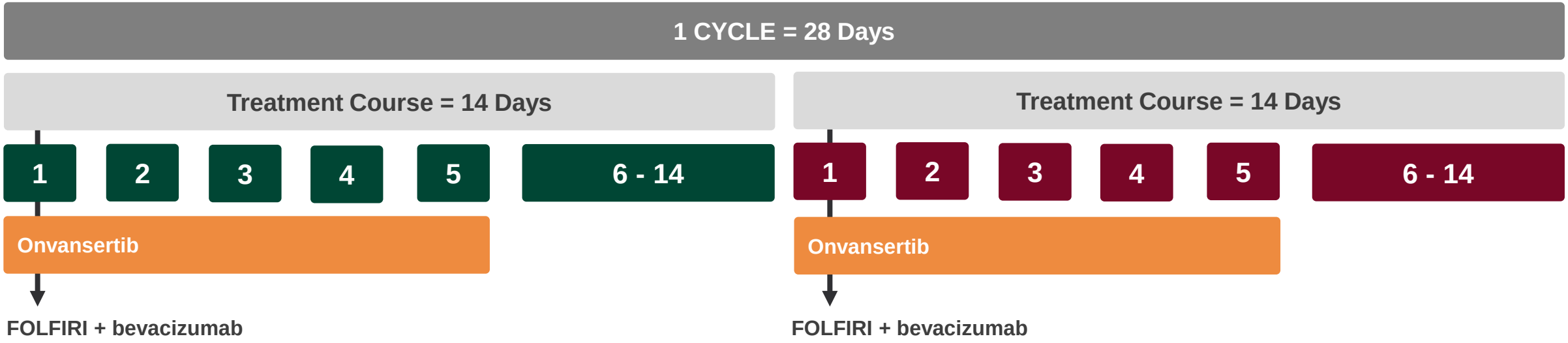
Cell Death

1. Keeps tumor cells in G2/M arrest leading to apoptosis
2. For cells that escape, mitosis is blocked, also leading to apoptosis

[1]van Vugt & Yaffe, Cell Cycle 2010 9:2097-2101; [2]van Vugt et al., 2010, PLoS 8:1-19

Phase 1b/2 Open Label Trial of Onvansertib + FOLFIRI/bevacizumab

Trial Design



Efficacy Endpoints

- Overall response in patients who receive ≥1 cycle (2 courses) of treatment
- Progression-free survival (PFS)
- Decreases in KRAS mutation burden and response to treatment

What is Clinical Trial Success

- ≥5 of 26 (~20%) patients achieve clinical response confirmed by radiographic scan
- Achieve median progression-free survival of ≥ 6 months

Phase 1b Enrollment and Patient Baseline Characteristics

Dose Escalation Patient Cohorts (as of 06-Jan-2021)

Number of patients (N)	Dose Level 0 Onvansertib 12 mg/m^2	Dose Level +1 Onvansertib 15 mg/m^2	Dose level +2 Onvansertib 18 mg/m^2
Completed Cycle 1	5	6	5
Currently on Treatment	0	3	2

- Phase 1b: 3+3 dose escalation design to assess the safety of the combination and identify the maximum tolerated dose (MTD) and recommended Phase 2 dose (RP2D) of onvansertib

Total patients N=18	Median [range] or n (%)
Age (years)	59 [37-83]
Sex	
Male	8 (44%)
Female	10 (56%)
ECOG	
0	8 (44%)
1	10 (56%)
Primary tumor site	
Colon	9 (50%)
Rectum	7 (39%)
Unknown	2 (11%)
Liver metastasis	
None	7 (39%)
Liver and other	8 (44%)
Liver only	2 (17%)
Number of metastatic organs	
1	7 (39%)
≥2	11 (61%)
Prior Bevacizumab treatment	
Yes	13 (72%)
No	5 (28%)

Phase 1b Safety Assessment

Most Common Treatment-Emergent AEs

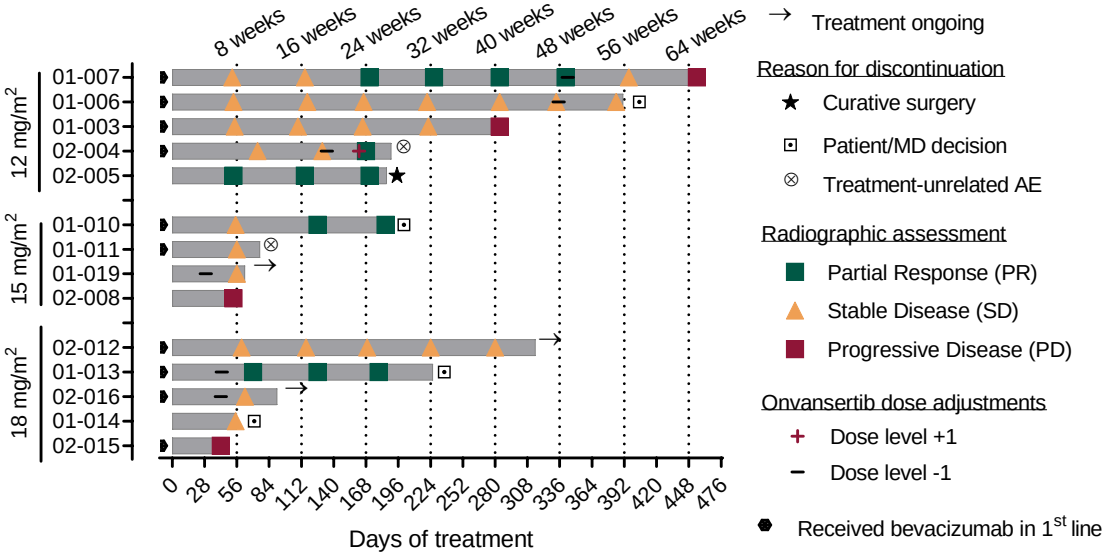
Adverse Events (AEs)	Grade 1	Grade 2	Grade 3	Grade 4	All Grades
Fatigue	4	7	1	0	12
Nausea	8	3	1	0	12
Neutropenia	1	2	4	4	11
Diarrhoea	7	2	0	0	9
Alopecia	6	1	0	0	7
Abdominal pain	1	4	1	0	6
Anaemia	4	1	0	0	5
WBC decrease	2	3	0	0	5
Vomiting	3	1	1	0	5
Stomatitis	4	1	0	0	5
Thrombocytopenia	2	2	0	0	4
Mucosal inflammation	1	2	0	0	3
Dyspepsia	3	0	0	0	3
ALT increased	2	1	0	0	3
Abdominal distension	3	0	0	0	3
Back pain	3	0	0	0	3
Epistaxis	3	0	0	0	3

n=number of patients (total N=18); WBC=white blood cells; ALT= alanine aminotransferase

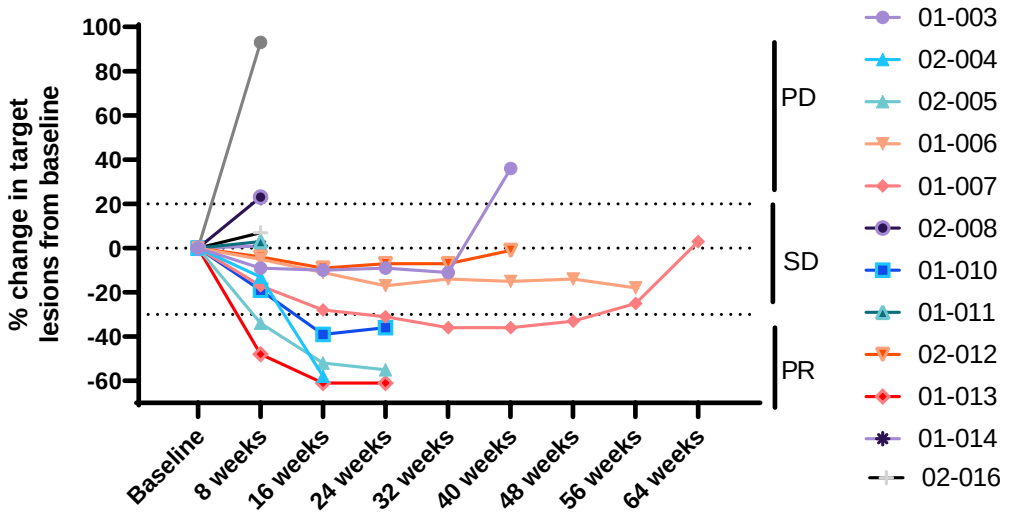
- 5 patients had G4 adverse events:
  - 1 patient had a G4 neutropenic fever at dose level 12 mg/m^2
  - 1 patient had a G4 neutropenia at dose level 15 mg/m^2
  - 3 patients had a G4 neutropenia dose level 18 mg/m^2
- The onvansertib RP2D was confirmed at 15 mg/m^2
- The combination regimen was well tolerated:
  - Of all AEs only 8% (17/202) were G3/G4
  - The only G3/G4 AE reported in ≥2 patients were neutropenia (n=8); which was managed by dose delay, growth factor and/or discontinuation of the 5-FU bolus; no patients went off trial due to neutropenia
- No major or unexpected toxicities were attributed to onvansertib

Phase 1b Preliminary Efficacy

Treatment Response and Duration (as of 06-Jan-2021)



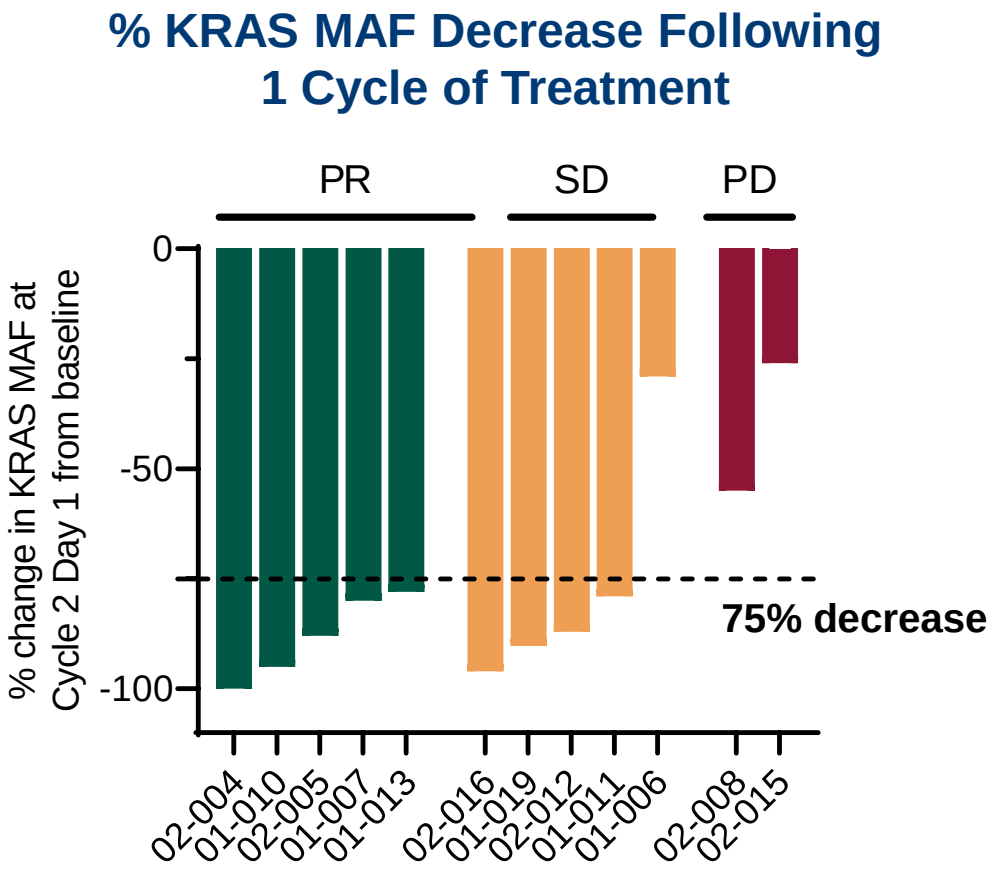
Changes in Tumor Size From Baseline



- 18 patients were treated in Phase 1b (6 patients at each dose level); 2 patients did not complete cycle 1 (1 at 12 mg/m^2 and 1 at 18 mg/m^2); 2 patients at 15 mg/m^2 completed cycle 1 of treatment, but have not reached their first 8-week scan
- 14 patients are currently evaluable for efficacy*:
  - 12 of 14 (86%) patients achieved a clinical benefit (SD + PR)
  - 5 (36%) patients have achieved a partial response (PR); 4 patients had a confirmed PR; 1 patient went on to have curative surgery; 1 patient with non-confirmed PR went off study following PR due to treatment-unrelated AE
  - Time to achieving a PR ranges from 2 to 6 months in patients on treatment

*completed at least 1 cycle of treatment and had radiographic scan or progressed within 8 weeks while on treatment

KRAS Mutant Allelic Frequency (MAF) Biomarker Analyses



- KRAS MAF was measured by digital droplet PCR (ddPCR) at baseline (Cycle 1 Day 1, pre-dose) and on-treatment (Day 1 of Cycles 2 to 9)
- 12 of 14 patients had a KRAS mutation detected by ddPCR at baseline (all had a KRAS mutation detected by NGS)
- Clinical responses were observed across different KRAS mutations, including the 3 most common in CRC (G12D, G12V, G13D)
- The greatest decreases in KRAS MAF after 1 cycle of treatment were observed in patients achieving a PR
  - All 5 patients with a PR had >75% decrease
  - 4 of the 5 patients with SD had reductions >75%
  - the 2 patients who progressed showed a more modest decrease in KRAS MAF (-55% and -26%)

PR: partial response, SD: stable disease, PD: progressive disease; CXD1: Cycle X Day 1

Conclusions

- **Safety Assessment:**
  - The combination of onvansertib and FOLFIRI/Bev is well-tolerated
  - Onvansertib RP2D was established at 15 mg/m^2
- **Preliminary Efficacy:**
  - 12 of 14 (86%) patients evaluable for efficacy achieved a clinical benefit (SD + PR)
  - 5 (36%) patients achieved a partial response (PR), including 4 confirmed PRs; 1 patient proceeded to curative surgery
- **KRAS Mutant Allelic Frequency (MAF) Biomarker:**
  - Clinical responses were observed across different KRAS variants, including the 3 most common in CRC
  - Patients achieving a PR or SD showed the greatest decreases in plasma mutant KRAS after one cycle of therapy
- **Phase 2:**
  - Further assess the safety and efficacy of onvansertib at the RP2D in combination with FOLFIRI + bevacizumab
  - Evaluate the value of KRAS liquid biopsy to predict treatment response

KRAS-Mutated mCRC Expanded Access Program (EAP)

- Program initiated in June 2020 and first patients were enrolled in July / August
  - Treatment regimen: onvansertib 15 mg/m^2 + FOLFIRI/bevacizumab
- Eligibility criteria includes:
  - Patients not eligible for clinical trial (including patients who have received multiple lines of treatment)
  - Patients who have previously been treated with FOLFIRI (with or without bevacizumab)
- Findings from first 9 patients enrolled in July / August 2020:
  - 6 of 9 (66%) patients have shown tumor shrinkage and remain on treatment to-date with durable response lasting ~6 months (all 9 patients received prior FOLFIRI-based regimen)
  - Of the 6 patients showing tumor shrinkage, 5 different KRAS mutations were represented (G12A, G12C, G12V, G13D, A146T)
  - Changes in KRAS mutant allelic frequency (MAF) in patients after the first cycle of treatment are predictive of subsequent tumor shrinkage (as seen in the clinical trial)
  - No serious adverse effects (SAEs) have been reported to-date

Catalysts and Milestones: KRAS-Mutated mCRC

Positive Phase 1b/2 results may provide an opportunity for a Phase 2b registrational trial

May 2020: Fast Track Designation

September 2020: ESMO presentation

January 2021: ASCO-GI presentation

Q1 2021: FDA meeting to discuss regulatory path (anticipated)

Metastatic Castration-Resistant Prostate Cancer

Phase 2 open-label trial of onvansertib + abiraterone

Trial Sites: Beth Israel Deaconess, Dana Farber, Mass General Hospital

Principal Investigator: Dr. David Einstein

New Therapeutic Options are Needed to Overcome Resistance to SOC Androgen Receptor Signaling Inhibitors (ARSi)

Resistance develops to treatment with standard of care ARSi's within 9-15 months[1]

ARSi's offer a median overall survival (mOS) benefit of **only ~4 months[1]**

No effective treatment options are available for the up to 40% of mCRPC patients with an AR-V7 mutation[2]

9-15
Months until ARSi resistance

~4
Month mOS benefit

Limited options for patients once resistant to abiraterone

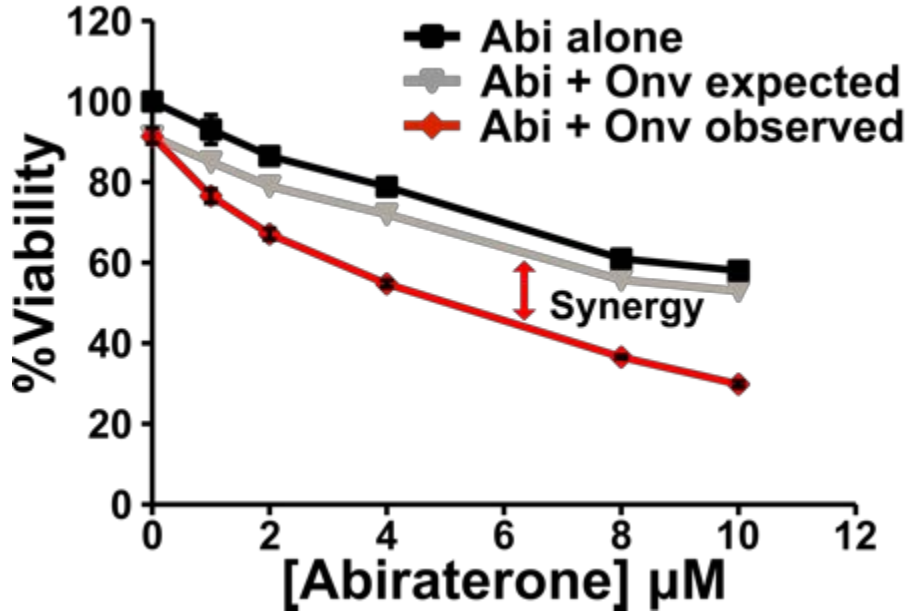
New treatment options are needed to extend the duration of response to ARSi's and increase overall survival

[1]Antonarakis, Emmannel – Current Understanding of Resistance to Abiraterone and Enzalutamide in Advanced Prostate Cancer; Clinical Advances in Hematology & Oncology – May 2016 – Volume 14, Issue 5; [2]Armstrong et al., 2019, JCO 37: 1120-1129; SOC: Standard-of-care; mCRPC: Metastatic castration resistant prostate cancer

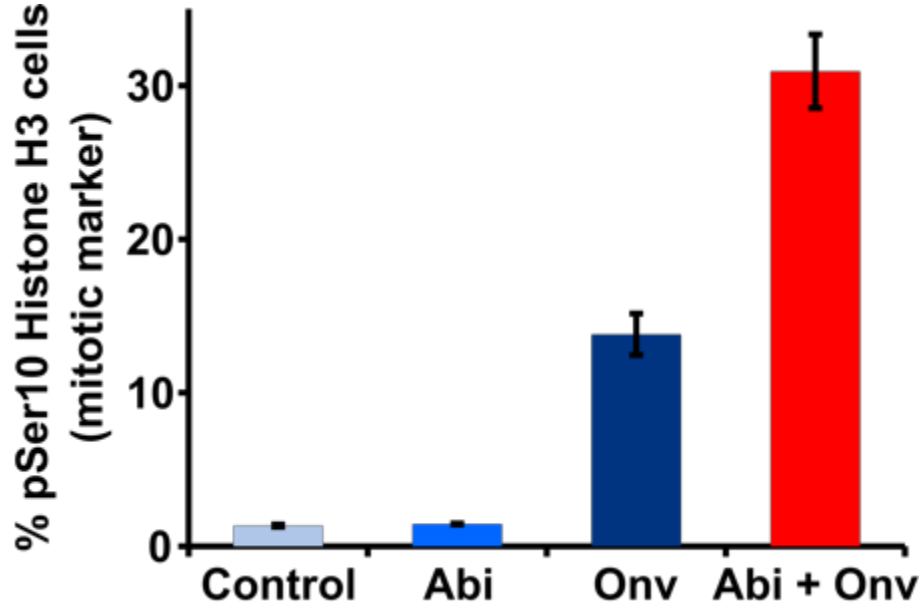
Onvansertib Extends the Response to Androgen Receptor Signaling Inhibitors

Onvansertib works synergistically in combination with abiraterone (Zytiga®) and significantly increases mitotic arrest

Onvansertib + Abiraterone (Zytiga®) Demonstrate Synergy in mCRPC model (C4-2)[1]



Onvansertib + Abiraterone (Zytiga®) Significantly Increase Mitotic Arrest[1]



[1]Patterson & Yaffe, 2019, MIT; mCRPC: Metastatic castration resistant prostate cancer

Phase 2 Open Label Trial in of Onvansertib + Abiraterone

Disease Control Assessed by PSA Stabilization

Trial Design:

	Dosing Schedule	Duration	Efficacy Endpoint
Cohort A (n = 24) Cohort Closed	Onvansertib 24mg/m^2 Days 1-5 (21-day cycle) + Zytiga® (Abiraterone)	4 Cycles = 12 Weeks	Disease Control (PSA Stabilization or Decline)
Cohort B (n = 32)	Onvansertib 18mg/m^2 Days 1-5 (14-day cycle) + Zytiga® (Abiraterone)	6 Cycles = 12 Weeks	Disease Control (PSA Stabilization or Decline)
Cohort C (n = 32)	Onvansertib 12mg/m^2 Days 1-14 (21-day cycle) + Zytiga® (Abiraterone)	4 Cycles = 12 Weeks	Disease Control (PSA Stabilization or Decline)

Eligibility Criteria

Initial resistance to Zytiga; 2 consecutive rises in PSA levels

Efficacy Endpoint:

Internationally Recognized Prostate Cancer Working Group

- **Primary:** disease control evaluated as PSA decline or stabilization (PSA rise <25% over baseline)

What is Clinical Trial Success

- ~30% patients achieve primary efficacy endpoint of disease control at 12 weeks (PSA stabilization or decrease); confirmed by radiographic scan
- Achieve median radiographic PFS of ≥6 months

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Note: radiographic assessment by RECIST v1.1 [CR = disappearance of all target lesions, PR = ≥30% decrease, PD = ≥20% increase, SD = does not meet criteria for PR nor PD]; mCRPC: Metastatic castration resistant prostate cancer; PSA: Prostate specific antigen; PFS: Progression-free survival

Patient Baseline Characteristics and Enrollment Status

Patient Baseline Characteristics

Total patients N=39	Median [range] or n (%)
Age in Years	72 [54-87]
Nonwhite Ethnicity	5 (13%)
ECOG 0 1	 34 (87%) 5 (13%)
Years Since Diagnosis	5 [1-18]
Grade Groups 4 and 5	24 (62%)
De Novo Metastatic Disease	13 (33%)
Presence of Bone Metastasis	33 (85%)
Presence of Visceral Metastasis	13 (33%)
Baseline PSA, ng/mL	12.5 [0.6-224]
AR-V7^{+} at Baseline*	9 (23%)
Baseline CTC Count per mL of blood**	2.2 [0-87]

ECOG: Eastern Cooperative Oncology Group, AR-V7: androgen receptor variant 7, CTC: circulating tumor cells

*AR-V7 status was evaluated using the EPIC and Johns Hopkins University testing platforms **CTC count was performed by EPIC

Enrollment as of October 16th, 2020

Number of patients (N)	Arm A	Arm B	Arm C
Treated	24	11	4
Currently on Treatment	1	1	4
Completing 12-weeks	14	8	3
Discontinued before 12 weeks	10	2	0
Progressive Disease (PD) Adverse Event Withdrew Consent	3 5 2	1 1 0	0 0 0
Patients evaluable for efficacy (completed 12 weeks + PD)	17	9	3

Phase 2 Data Demonstrate the Safety and Efficacy of Onvansertib in mCRPC

Safety Assessment

Adverse events Total Patients N=39	Grade 1	Grade 2	Grade 3	Grade 4	All grades
Anemia	10	5	1		16
Thrombocytopenia	11	1		1	13
Fatigue	10	2			12
Neutropenia	1	1	7	3	12
Hypophosphatemia	3	3	4		10
WBC decrease	2	2	3	2	9
Back pain	2	3			5
Hypokalemia	3	1	1		5
Constipation	4	0			4
Nausea	3	1			4

- Most frequent Grade 3 and 4 adverse events (AEs) were expected, on-target, hematological associated with onvansertib mechanism of action
- Hematological AEs were reversible and effectively managed by dose delay, dose reduction and/or growth factor support

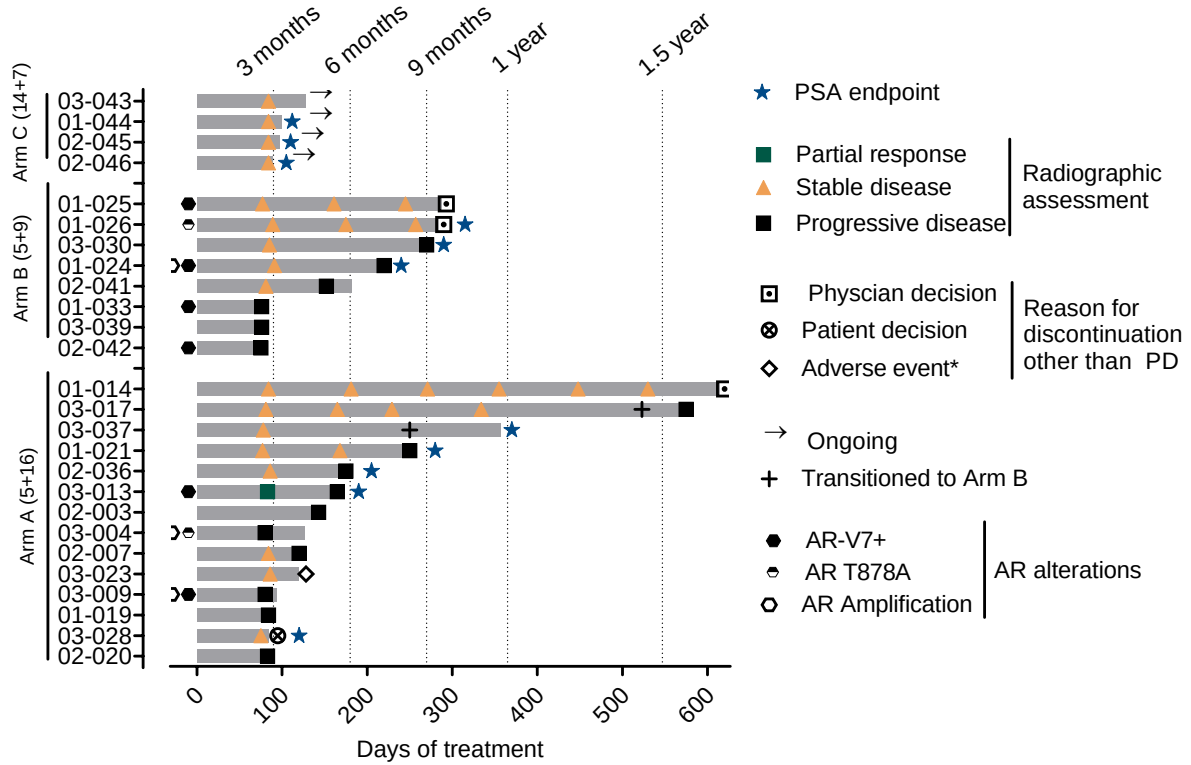
Phase 2 Data Demonstrate the Efficacy of Onvansertib and and Durability of Response Including Patients with AR Alterations

Efficacy Evaluation at 12-Weeks

Total Patients Evaluable N=29	Arm A	Arm B	Arm C
Evaluable for efficacy*	17	10	4
Completed 12-week treatment	14	8	4
Progressed within 12 weeks	3	2	0
Disease control**	5 (29%)	3 (30%)	3 (75%)
Radiographic stable disease	9 (53%)	5 (50%)	4 (100%)
Durable response (>7 months)	4 (23%)	4 (40%)	NA

* Completed 12 weeks of treatment or progressed within 12 weeks
** Defined as PSA stabilization or decline (PSA rise <25% over baseline)

Treatment Response and Duration for Patients Completing 12 Weeks of Treatment



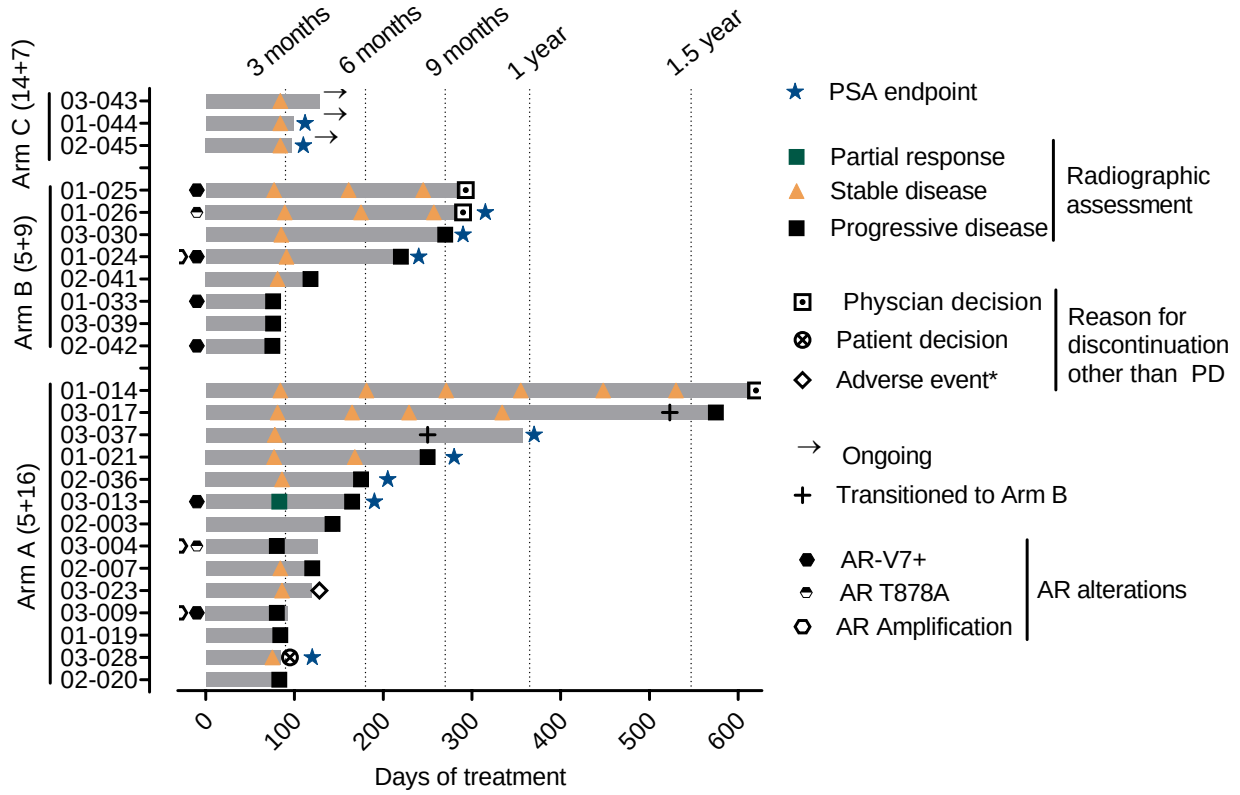
Phase 2 Data Demonstrate the Efficacy of Onvansertib and Durability of Response Including Patients with AR Alterations

Efficacy in patients with AR alterations:

- 8 of the patients evaluable for efficacy had at least 1 AR alterations: AR-V7+ (n=6), AR T878A mutation (n=2) and/or AR amplification (n=3)
- 3 (37%) patients achieved disease control
- 4 (50%) patients had radiographic stable disease
- 3 patients had durable responses (range 7-9 months)

*AR-V7 status was evaluated using the EPIC and Johns Hopkins University testing platforms. Genomic profiling of circulating tumor DNA was performed using Gardant360® test

Treatment Response and Duration for Patients Completing 12 Weeks of Treatment



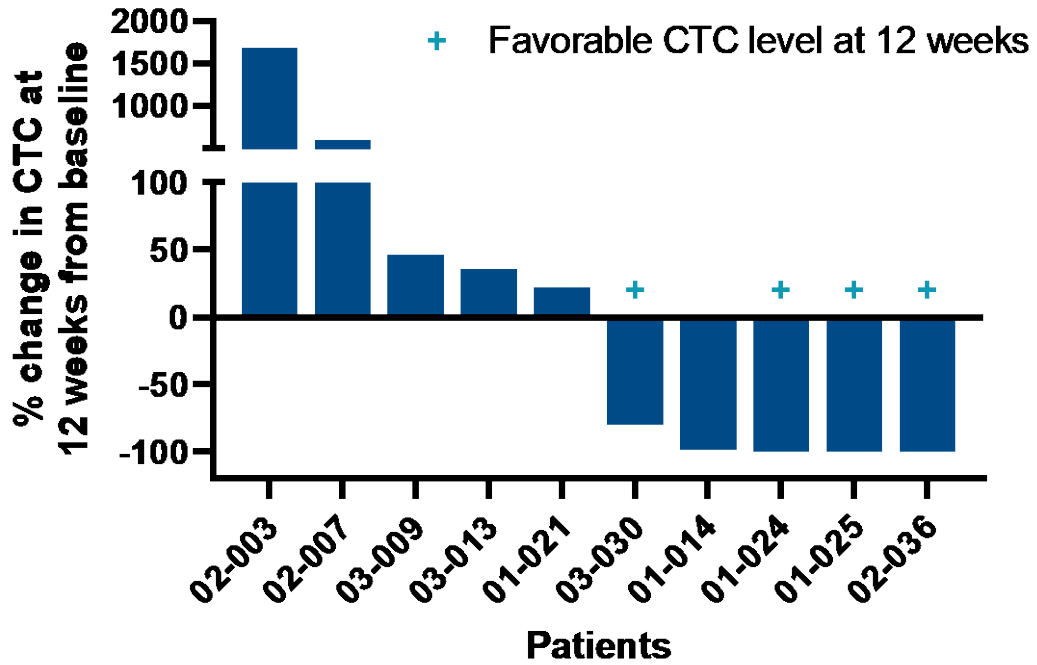
Onvansertib-Induced Circulating Tumor Cell Decrease is Associated with Progression-Free Survival

Circulating tumor cell (CTC) count, reported as favorable or unfavorable (<5 versus ≥5 CTC/7.5mL of blood, respectively) is a prognostic factor for survival in CRPC – conversion from unfavorable to favorable is associated with improved survival

At baseline, 27 (73%) of 37 patients had unfavorable CTC count; 10 were analyzed following 12 weeks of treatment:

- 5 (50%) patients had an ≥80% CTC decrease, including 2 AR-V7+ patients (01-024 and 01-025)
- 4 (40%) patients converted from unfavorable to favorable CTC level, including 3 patients with no detectable CTC
- Median time on treatment was 9.2 months for patients with CTC decrease (n=5) vs 4.9 months for patients with CTC increase (n=5)

Percent Change in CTC: 12-Weeks vs Baseline in Patients with Unfavorable CTC Level at Baseline



Identifying an Onvansertib-Abiraterone Response Gene Signature

Onvansertib/Abiraterone

- Synergy study
- RNA-sequencing

Abiraterone induces expression of mitotic genes in prostate cancer cells synergistic for Onv+Abi

Identification of an Abi/Onv synergy gene signature

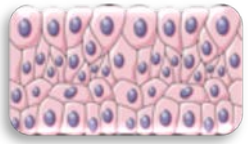
DECIPHER BIOSCIENCES

Transcriptome analysis of 32,000 prostate cancer specimens

Identified 4 molecular subtypes:
- Luminal A
- Luminal Proliferating
- Basal
- Basal Immune

Abi/Onv synergy gene signature is enriched in the Basal subtype, a subtype representing ~30% of CRPC patients and associated with lower response to androgen deprivation therapy (ADT)

Currently analyzing archived tissue from patients enrolled in the trial



Transcriptome analysis with Decipher Biosciences

Correlate clinical response with Basal molecular subtype

Catalysts and Milestones: mCRPC

Positive Phase 2 results may provide an opportunity for a Phase 2b registrational trial

October 2020: Prostate Cancer Foundation (PCF)

February 2021: ASCO-GU presentation (planned)

April 2021: AACR presentation (planned)

Q3 2021: FDA meeting to discuss regulatory pathway (anticipated)

New Clinical Programs Planned

Chronic Myelomonocytic Leukemia (CMML)

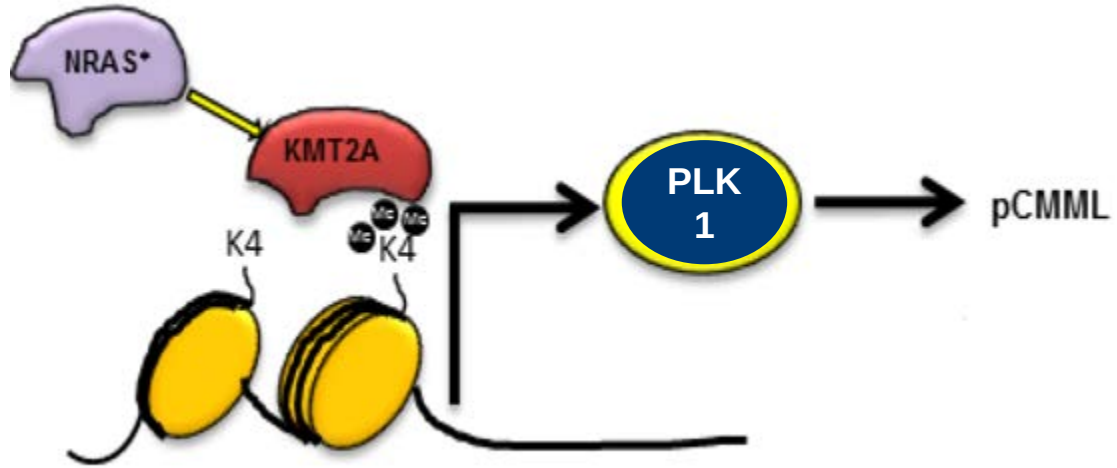
Pancreatic Ductal Adenocarcinoma (PDAC)

Phase 2 Study to Evaluate the Safety and Efficacy of Onvansertib in RAS-Pathway Mutant CMML

Study Rationale

- Proliferative CMML is enriched for activating RAS pathway mutations such as NRAS, KRAS, CBL, PTPN11 and NF1, all of which have been associated with adverse outcomes
- RAS pathway mutations drive proliferative CMML via a novel RAS-KMT2A-PLK1 axis, which can be therapeutically targeted with PLK1 inhibitors
- In-vitro and in-vivo experiments with onvansertib as a single agent have shown a dose-dependent inhibition of CMML cell growth, with improved cell differentiation

Activating RAS Pathway Can Be Therapeutically Targeted with PLK1 Inhibitors



Phase 2 Two-Arm Randomized Trial of Onvansertib +/- Decitabine in RAS-Pathway Mutated CMML

Determine the safety and efficacy of onvansertib, a novel oral PLK1 inhibitor in RAS-pathway mutant chronic myelomonocytic leukemia

Trial Design:

	Dosing Schedule	Duration	Efficacy Endpoint
Two Arms: **Arm A (n=32) Treatment Naïve** **Arm B (n=32) Relapsed/Refractory**	Onvansertib 15 mg/m^2 Days 1-14 (21-day cycle)	3 cycles monotherapy (option to add decitabine at cycle 4 if lack of efficacy with single agent)	Interim analysis of first 18 patients after 3 cycles to evaluate objective response

Eligibility Criteria:

- Newly diagnosed or relapsed/refractory to prior therapy
- RAS pathway mutant: NRAS, KRAS, PTPN11, CBL and NF1 with frequency allele of ≥5%

Efficacy Endpoint:

- Rate of complete remission (CR)

What is Clinical Trial Success

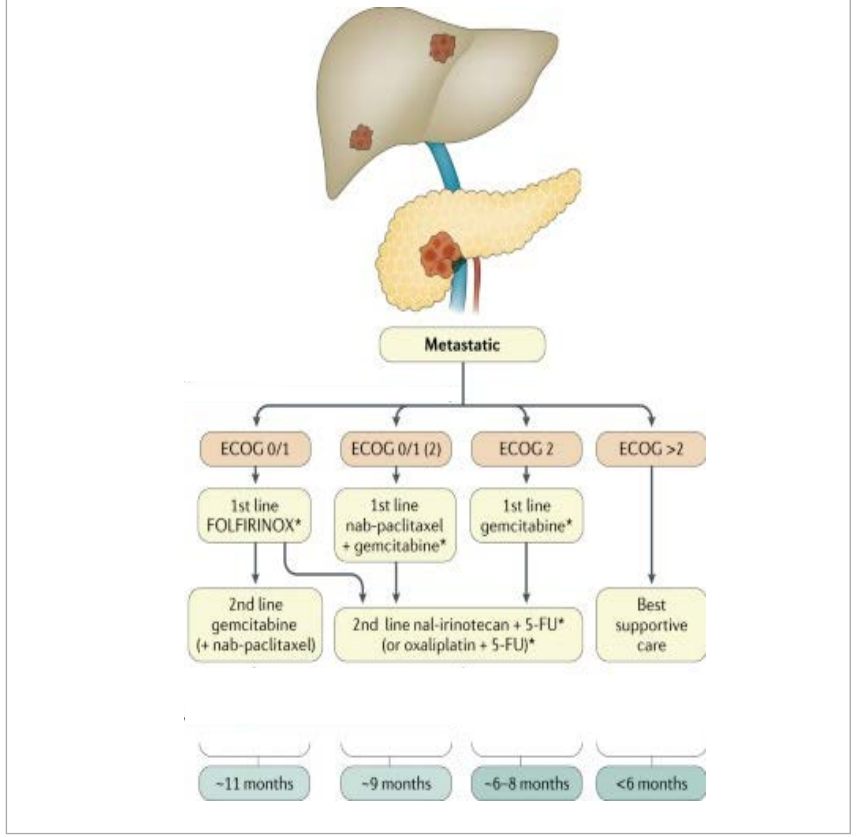
- Achieve ≥25% CR rate in treatment naïve cohort
- Achieve ≥12.5% CR rate in the relapsed and refractory cohort

Phase 2 Study of Onvansertib in Combination with 5-FU and Nal-IRI for Second Line Treatment of KRAS-Mutated Metastatic Pancreatic Ductal Adenocarcinoma (PDAC)

Study Rationale

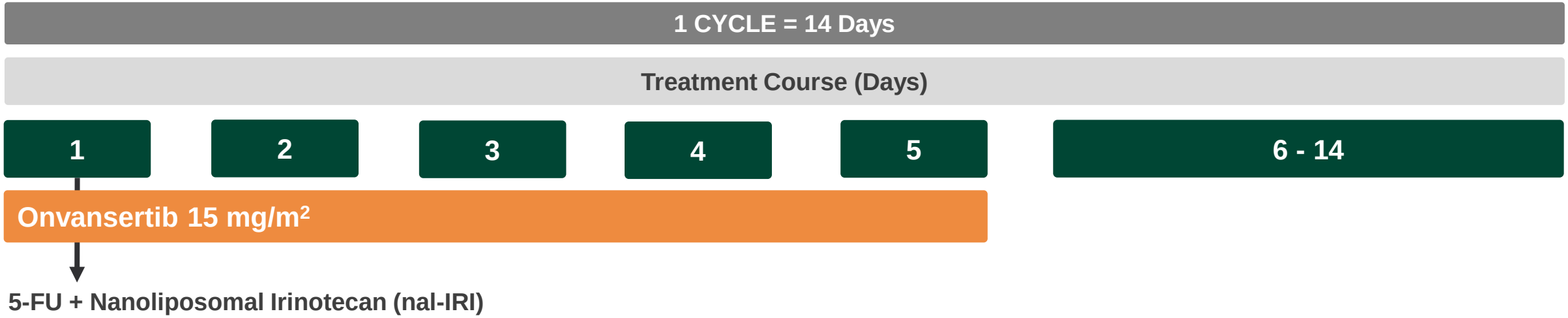
- KRAS is the most common oncogene mutated in pancreatic adenocarcinoma, which is present in ~95% of tumors
- Mutant KRAS is essential for PDAC growth, where the constitutive activated RAS proteins contribute to tumorigenesis, treatment resistance and metastases
- No effective RAS inhibitors have been approved for the treatment of KRAS-mutated pancreatic cancer
- Significant need for new effective second line treatment option

Metastatic Pancreatic Cancer Patients Have Poor Outcomes



Phase 2 Open Label Trial of Onvansertib + 5-FU and Nanoliposomal Irinotecan in KRAS-Mutated PDAC

Trial Design (~40 patients):



Eligibility Criteria

- Prior abraxane/gemcitabine and no prior irinotecan or Nal-IRI

Efficacy Endpoints

- Best overall response (complete response [CR] or partial response [PR]) and disease control rate (CR, PR or stable disease [SD])
- Progression-free survival (PFS) rate at 6 months
- Overall survival (OS)
- Reduction in KRAS allelic burden in liquid biopsies

What is Clinical Trial Success

- Achieve ≥26% overall response rate (ORR) – 9 out of 35 patients
- Achieve ≥36% progression free survival rate at 6 months – 13 out of 36 patients

Corporate

Strong Patent Portfolio

Core Technology: 3 Issued Patents to 2030 in US, Europe and Asia, with anticipated extension to 2035

Compound (onvansertib): US 8614220

Salt forms of onvansertib: US 8648078

Combinations with anti-neoplastic compounds: US 8927530

Evergreening: Combination Therapy

Exclusive license from MIT for 2 US issued patents with broad method claims for combination of PLK inhibitor + anti-androgen compounds to treat any cancer

US 9566280; US 10155006; Expiration 2035

Evergreening: Biomarkers

Method for assessing PLK1 target phosphorylation status for identifying patients to be treated with PLK1 inhibitors

PCT US1948044, Expiration 2039

Method for treating patient with a PLK inhibitor when there is a PSA rise

Provisional, Expiration 2040

Cardiff Oncology At-A-Glance

Clinical-stage biotech company, developing **onvansertib,** an oral, highly-selective Polo-like Kinase 1 (PLK1) inhibitor, to treat cancers with the greatest medical need for new effective therapies

Exchange	Nasdaq: CRDF
Cash & Cash Equivalents (as of 10/31/20)	$131.8M
Q1 – Q3, 2020 Average Quarterly Cash Burn	$3.8M
Headquarters	San Diego, CA

Investment Highlights

3rd Generation, 1st-in-class, Oral PLK1 Inhibitor

Onvansertib overcomes the shortcomings of prior PLK inhibitors:

- Highly selective for PLK1
- Orally administered
- 24-hour half-life
- Flexible dose and schedule

Specifically targets a known mechanism of cell division that is required for tumor cell viability

Preliminary clinical data demonstrate the safety, tolerability and efficacy of onvansertib in combination with SOC across multiple indications

Strong Lead Program in KRAS-mutated mCRC

Supported by compelling preliminary clinical data from a Phase 1b/2 trial showing a ten-fold improvement in ORR compared to SOC

Preclinical data support:

- MOA of synthetic lethality between KRAS mutant mCRC and PLK1 inhibition
- Synergy with irinotecan and 5-FU

First Indication: 2nd line treatment in patients who have failed 1st line treatment with FOLFOX with/without bevacizumab

FDA Fast Track Designation

Integrated Biomarker Strategy

Circulating Tumor DNA: changes in KRAS mutational burden in blood are predictive of subsequent tumor shrinkage (mCRC)

Circulating Tumor Cells: changes are predictive of overcoming anti-androgen resistance (mCRPC)

Circulating Tumor DNA: changes are predictive of decreases in leukemic bone marrow cells (AML)

Diversified Pipeline Across Numerous Cancers

Clinical data from ongoing trials support the use of onvansertib in combination regimens across numerous aggressive cancers:

- mCRC Phase 1b/2 trial
- mCRPC Phase 2 trial
- AML Phase 2 trial

Potential expansion opportunities:

- Chronic myelomonocytic leukemia
- Pancreatic cancer
- Triple negative breast cancer
- Lung cancer
- Ovarian cancer

Cardiff Oncology™

PLK: Polo-like Kinase; SOC: Standard-of-care; ORR: Overall response rate; MOA: Mechanism of action; mCRC: metastatic colorectal cancer; mCRPC: metastatic castration resistant prostate cancer; AML: Acute myeloid leukemia

Thank You

for more information contact:

ir@cardiffoncology.com