Replimune®

Igniting a Systemic Immune Response to Cancer

June 2024

Safe Harbor

Any statements contained herein that are not statements of historical facts may be deemed to be forward-looking statements within the meaning of Section 27A of the Securities Act of 1933, as amended, and Section 21E of the Securities Exchange Act of 1934, as amended, including statements regarding the advancement, timing and sufficiency of our clinical trials, patient enrollments in our existing and planned clinical trials and the timing thereof, the results of our clinical trials, the timing and release of our clinical data, statements regarding our expectations about our cash runway, our goals to develop and commercialize our product candidates, our expectations regarding the size of the patient populations for our product candidates if approved for commercial use and other statements identified by words such as “could,” “expects,” “intends,” “may,” “plans,” “potential,” “should,” “will,” “would,” or similar expressions and the negatives of those terms. Forward-looking statements are not promises or guarantees of future performance, and are subject to a variety of risks and uncertainties, many of which are beyond our control, and which could cause actual results to differ materially from those contemplated in such forward-looking statements. These factors include risks related to our limited operating history, our ability to generate positive clinical trial results for our product candidates, the costs and timing of operating our in-house manufacturing facility, the timing and scope of regulatory approvals, changes in laws and regulations to which we are subject, competitive pressures, our ability to identify additional product candidates, political and global macro factors including the impact of global pandemics and related public health issues, the ongoing military conflicts between Russia-Ukraine and Israel-Hamas and the impact on the global economy and related governmental imposed sanctions, and other risks as may be detailed from time to time in our Annual Reports on Form 10-K, Quarterly Reports on Form 10-Q, and other reports we file with the Securities and Exchange Commission. Our actual results could differ materially from the results described in or implied by such forward-looking statements. Forward-looking statements speak only as of the date hereof, and, except as required by law, we undertake no obligation to update or revise these forward-looking statements.

Industry Leader in Oncolytic Immunotherapy

RP1 Establishing a Broad Skin Cancer Franchise

Clinical activity demonstrated across multiple skin cancers and settings

- ✓ IGNYTE primary analysis by independent central review reaffirms durable responses in difficult-to-treat population
- ✓ ARTACUS clinical trial of RP1 as monotherapy in solid organ transplant patients shows encouraging response rates
- ✓ IGNYTE-3 confirmatory phase 3 study design in anti-PD1 failed melanoma agreed on with FDA; first patient expected to enroll in Q3 2024
- ✓ BLA submission in anti-PD1 failed melanoma on track for RP1 in 2H 2024

RP2 Focused on Rare Cancers

Clinical activity both as monotherapy and in combination with nivolumab

- ✓ Compelling phase 1 data in uveal melanoma
- ✓ Clinical activity seen in other rare tumors, including:
  - Sarcomas (e.g., chordoma)
  - Rare head & neck (e.g., mucoepidermoid)
- ✓ Pivotal study in metastatic uveal melanoma being planned
- ✓ On path to build rare cancer franchise

Oncolytic Immunotherapy is Intended to Activate a Powerful and Durable Systemic Anti-Tumor Response

Replimune®

Injected tumor

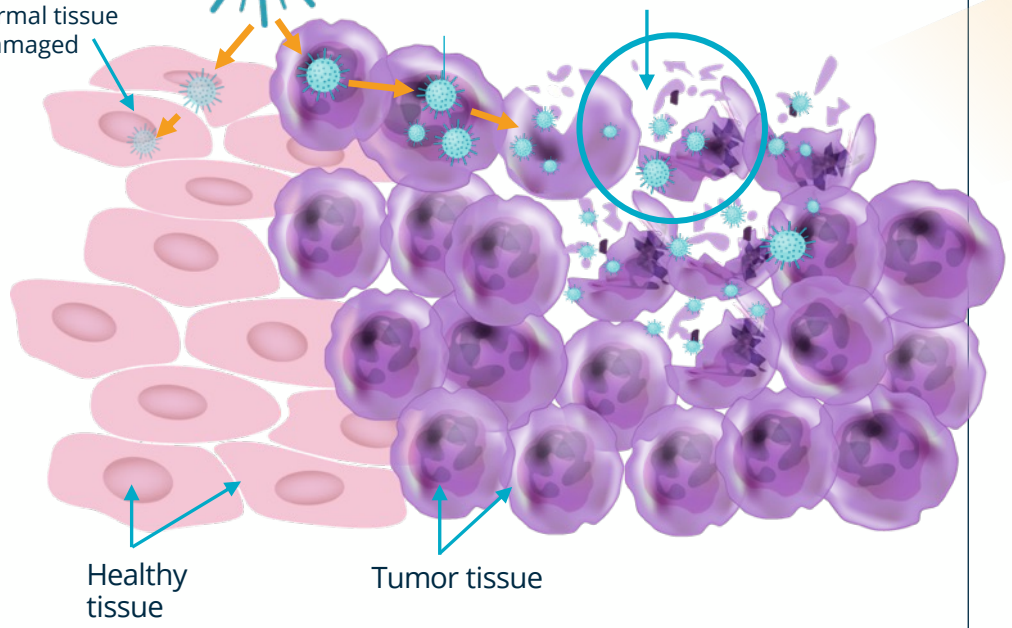
MECHANISM 1

Attenuated potent new clinical isolate of HSV-1 modified to express a fusogenic glycoprotein and immune stimulating proteins

Oncolytic immunotherapy

Dysregulated host antiviral response allows robust virus replication and tumor lysis

Intact host antiviral response: Normal tissue remains undamaged



Healthy tissue

Tumor tissue

Immune response

MECHANISM 2

Release of virus progeny

Infection of more tumor cells

Tumor cell death and release of tumor antigens

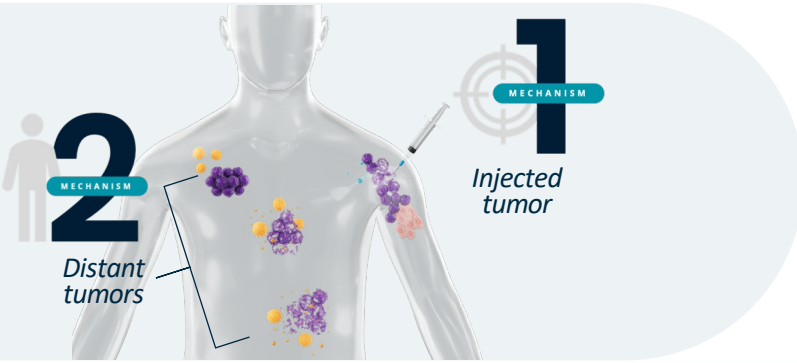
Local Inflammation

Altering of tumor microenvironment

Enhanced T cell priming and activation

T cell infiltration and killing of distant, uninjected tumors

Generating a strong and durable systemic anti-tumor immune response



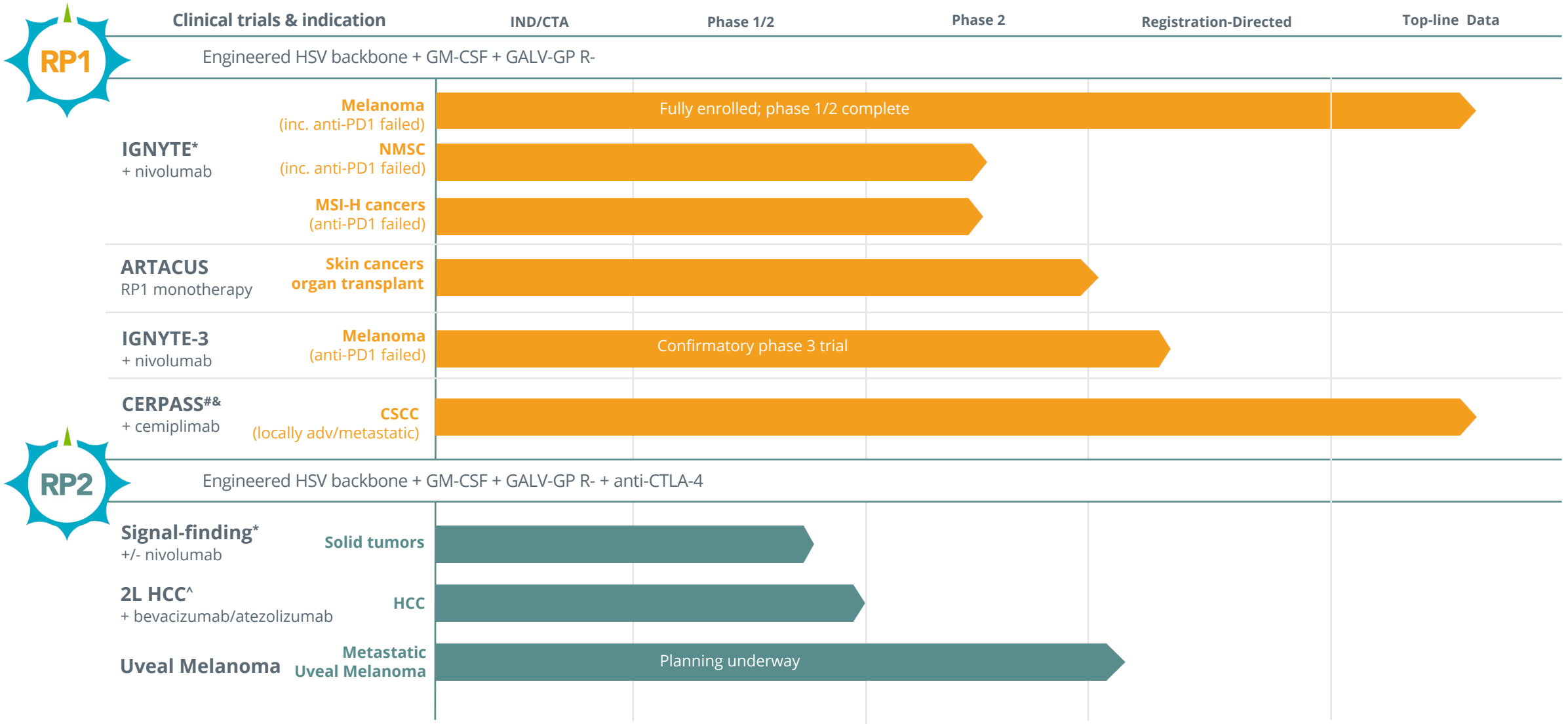
Bommareddy PK et al AJCD. 2016

RPx Platform Addresses a Range of Tumor Types Intending to Optimize Clinical Outcomes

	RP1	RP2
Payloads	GALV-GP R-, GM-CSF	GALV-GP R-, anti-CTLA-4, GM-CSF
Target	Immunologically responsive tumor types, including anti-PD1 failed	Less immunologically responsive tumor types
Intended indication(s)	Skin cancers (CSCC inc. SOT*, anti-PD1 failed melanoma, anti-PD1 failed NMSC/other NMSCs, etc)	Rare cancers and neo adjuvant ; uveal melanoma registration study planned
Clinical activity in anti-PD1 failed patients demonstrated	✓	✓
Good tolerability and Safety profile demonstrated	✓	✓
Injection location	Superficial, nodal & visceral	Superficial, nodal & visceral
Systemic activity	***Clear systemic effects seen in responding patients (un-injected tumor responses, responses are generally highly durable)***	
Other design considerations	Designed for more I-O sensitive tumor types with excellent safety profile alone & in combination	Increased I-O systemic activity, also with excellent safety profile alone & in combination

*SOT=solid organ transplant

Pipeline



& CERPASS trial continuing to allow time-based endpoints to mature (DOR, PFS, OS), trial missed its primary endpoints (ORR, CRR)
* Under a clinical trial collaboration & supply agreement with BMS for the supply of nivolumab – full commercial rights retained by Replimune
# Under a clinical trial collaboration agreement with Regeneron, includes certain sharing of clinical trial costs – full commercial rights retained by Replimune
^ Under clinical trial collaboration & supply agreement with Roche for atezolizumab & bevacizumab supply – full commercial rights retained by Replimune

RP1: Establishing a Broad Skin Cancer Franchise

IGNYTE Clinical Trial:
RP1+Nivolumab in Anti-PD1 Failed Melanoma

For Melanoma Patients that Progress on Anti-PD1 Therapy, Options are Limited

- Further single agent anti-PD1 for patients having confirmed PD on prior anti-PD1 gives a response rate of 6-7%[1]
- Nivolumab + ipilimumab is a potential option[2,] but toxicity is high[3,4]
- Anti-LAG3 plus anti–PD1 has not demonstrated meaningful efficacy in the anti–PD1 failed setting[5]
- For BRAF mutant tumors, BRAF-targeted therapy responses are generally transient[6]
- TIL therapy for select patients gives response rates of ~30%, but comes with toxicity (nearly all patients have grade 4 toxicity)[7]
- T-VEC + pembrolizumab has limited activity outside of the adjuvant setting, with no responses seen in patients with visceral disease[8,9]

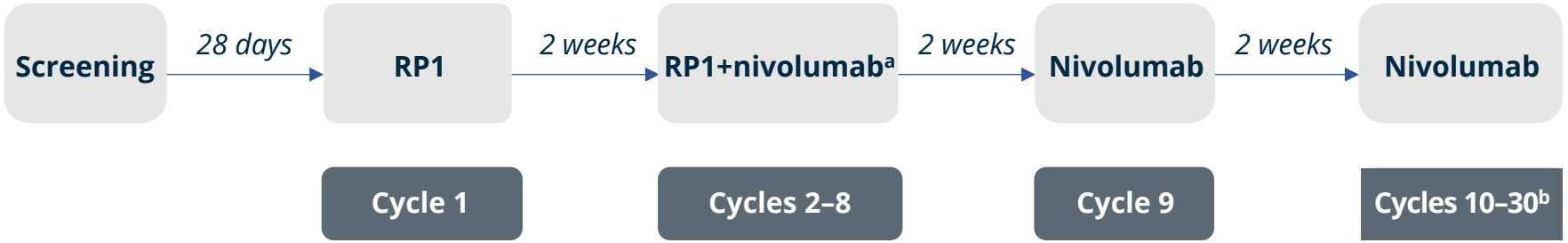
CTLA-4, cytotoxic T-lymphocyte antigen 4; LAG3, lymphocyte-activation gene 3; PD-1, programmed cell death protein 1; TIL, tumor infiltrating lymphocyte

1. Ribas A, Kirkwood JM, Flaherty KT. Lancet Oncology. 2018 May;10(5):e219. 2. National Comprehensive Cancer Network. NCCN Clinical Practice Guidelines in Oncology (NCCN Guidelines®). Melanoma: Cutaneous. Version 2.2024. 3. Pires da Silva I, et al. Lancet Oncol. 2021;22(6):836-47. 4. VanderWalde AM, et al. Presented at the American Association of Cancer Research Annual Meeting 2022. New Orleans. 5. Ascierto PA, et al. J Clin Oncol. 2023;41(15)2724-35. 6. Dixon-Douglas JR, et al. Curr Oncol Rep. 2022;24(8):1071-9. 7. US Food and Drug Administration. BLA clinical review and evaluation - AMTAGVI. BLA 125773. Updated February 6, 2024. Accessed May 31, 2024].https://www.fda.gov/media/176951/download. 8. Gastman B, et al. J Clin Oncol. 2022;40(16_suppl):9518. 9. Hu-Lieskovan S, et al. Cancer Res. 2023;83(7_suppl):3275.

IGNYTE Study Design
Anti-PD1 Failed Melanoma Cohort

Anti–PD1 failed melanoma cohort

(140 pts; 16 pts treated in prior cohorts: Total=156)



Primary objectives
- Safety and tolerability
- Efficacy as assessed by ORR using modified RECIST 1.1 criteria

Secondary objective
DOR, CR rate, DCR, PFS, by central & investigator review, ORR by investigator review, and 1-year and 2-year OS

Key eligibility criteria

Confirmed progression while on prior anti-PD1 therapy[c]

At least 8 weeks of prior anti–PD1, confirmed progression while on anti–PD1; anti–PD1 must be the last therapy before clinical trial. Patients on prior adjuvant therapy must have progressed while on prior adjuvant treatment.

Primary analysis conducted when all patients have ≥ 12 months follow up

[a]Dosing with nivolumab begins at dose 2 of RP1 (C2D15). [b]Option to reinitiate RP1 for 8 cycles if criteria are met. c. Non-neurological solid tumors CR, complete response; CT, computed tomography; DCR, disease control rate; DOR, duration of response; ECOG, Eastern Cooperative Oncology Group; LD, longest diameter; ORR, objective response rate; OS, overall survival; PD-1, programmed cell death protein 1; PFS, progression-free survival; pfu, plaque-forming unit; Q4W, every 4 weeks; RECIST, Response Evaluation Criteria in Solid Tumors.

ASCO 2024: Baseline Clinical Characteristics

A 'real world' anti-PD1 failed melanoma population was enrolled

- Good representation of each of the sub-groups of patients who progress on prior anti-PD1 therapy

Patients, n (%)	All patients (N = 156)
Age (median [range])	62 (21-91)
Sex	
Female	52 (33.3)
Male	104 (66.7)
Stage	
IIIb/IIIc/IVM1a	75 (48.1)
IVM1b/c/d	81 (51.9)
Prior therapy	
Anti–PD1 only as adjuvant therapy	39 (25.0)
Anti–PD1 not as adjuvant therapy	117 (75.0)
Anti–PD1 & anti–CTLA-4	74 (47.4)
Received BRAF-directed therapy	17 (10.9)

Patients, n (%)	All patients (N = 156)
Other disease characteristics	
Primary resistance to prior anti–PD1[a]	105 (67.3)
Secondary resistance to prior anti–PD1[b,c]	51 (32.7)
BRAF wt	103 (66.0)
BRAF mutant	53 (34.0)
LDH ≤ULN	105 (67.3)
LDH >ULN	50 (32.1)
LDH unknown	1 (0.6)

Median follow up
is 15.4 months (range 0.5-55.5)

Data cutoff: March 8th 2024. [a]Primary resistance: Progressed within 6 months of starting the immediate prior course of anti–PD-1 therapy; [b]Secondary resistance: Progressed after 6 months of treatment on the immediate prior course of anti-PD-1 therapy; [c]Includes 2 pt unknown resistance status. CTLA-4, cytotoxic T-lymphocyte antigen 4; LDH, lactate dehydrogenase; PD-1, programmed cell death protein 1; ULN, upper limit of normal; wt, wild-type.

ASCO 2024: Efficacy

Investigator assessed data with all patients having at least 12 months follow up

BOR n (%)	All patients enrolled in IGNYTE						
	All patients (n = 156)	Prior single-agent anti–PD1 (n = 82)	Prior anti–PD1/CTLA-4 (n = 74)[a]	Stage IIIb-IVM1a (n = 75)	Stage IVM1b-d (n = 81)	1º resistance to anti–PD1 (n = 105)	2º resistance to anti–PD1 (n = 51)[b]
CR	23 (14.7)	18 (22.0)	5 (6.8)	18 (24.0)	5 (6.2)	18 (17.1)	5 (9.8)
PR	28 (17.9)	13 (15.9)	15 (20.3)	13 (17.3)	15 (18.5)	18 (17.1)	10 (19.6)
SD	34 (21.8)	18 (22.0)	16 (21.6)	19 (25.3)	15 (18.5)	17 (16.2)	17 (33.3)
PD	63 (40.4)	31 (37.8)	32 (43.2)	24 (32.0)	39 (48.1)	47 (44.8)	16 (31.4)
ORR	**51 (32.7[c])**	**31 (37.8)**	**20 (27.0)**	**31 (41.3)**	**20 (24.7)**	**36 (34.3)**	**15 (29.4)**

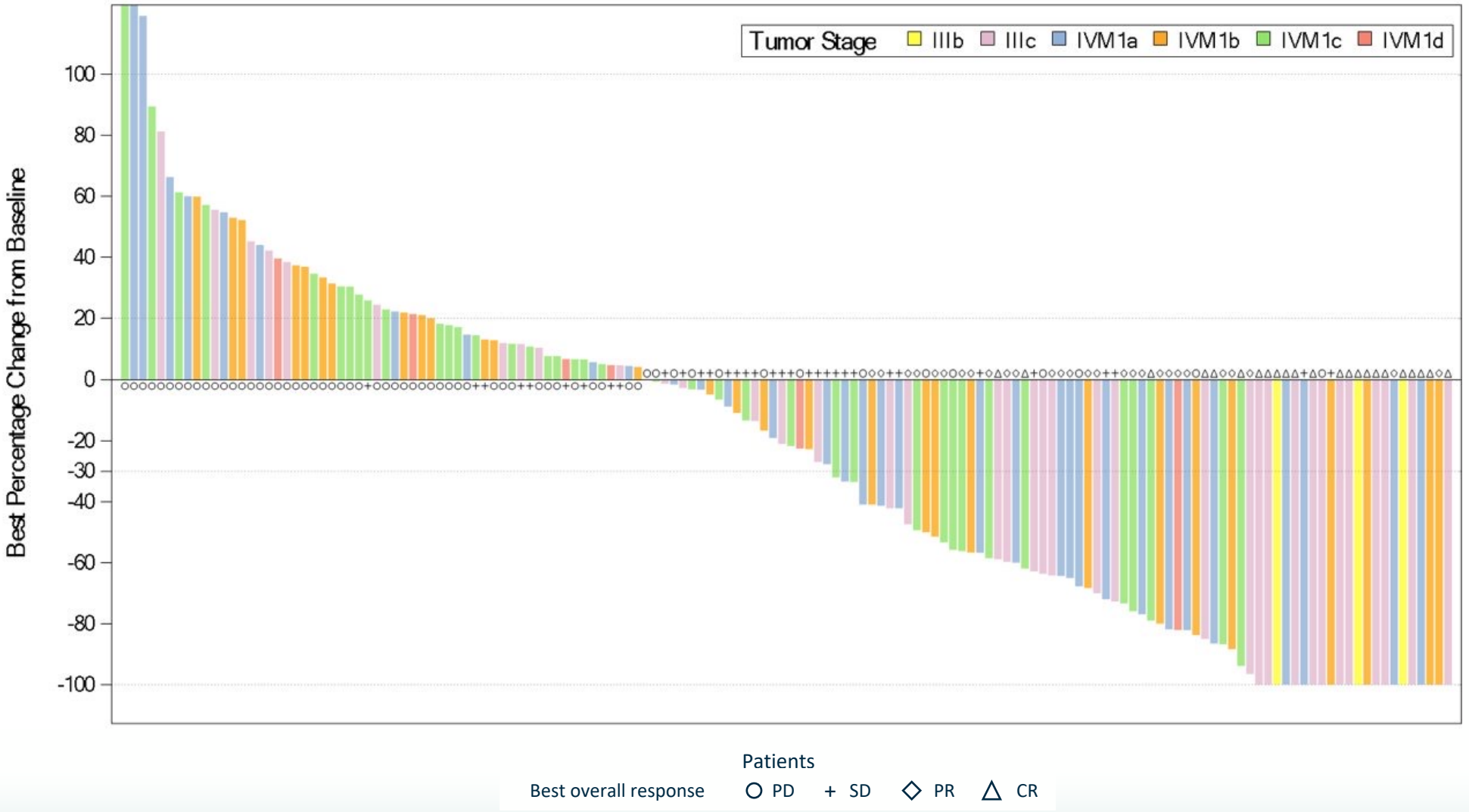
[a]Eight patients were treated with sequential anti-CTLA-4 and anti-PD1 (ORR for prior combined anti-CTLA-4/anti-PD1 was 25.8%). [b]Includes one patient with unknown resistance status. [c]ORR for the 140-patient registration intended cohort was 32.1%

- 1 in 3 patients achieved an objective response (32.7%)
- Consistent ORR across subgroups, including:
  - 27% ORR in patients who had prior anti–PD1 & anti–CTLA-4
  - 34% ORR in patients who are primary resistant to their prior anti-PD1 therapy

Data cutoff: March 8th 2024. BOR, best overall response; CR, complete response; CTLA-4, cytotoxic T-lymphocyte antigen 4; PD-1, programmed cell death protein 1; PD, progressive disease; PR, partial response; ORR, objective response rate; SD, stable disease.

ASCO 2024: Depth of Response

Target tumor reduction seen in greater than 50 percent of patients (n=156)



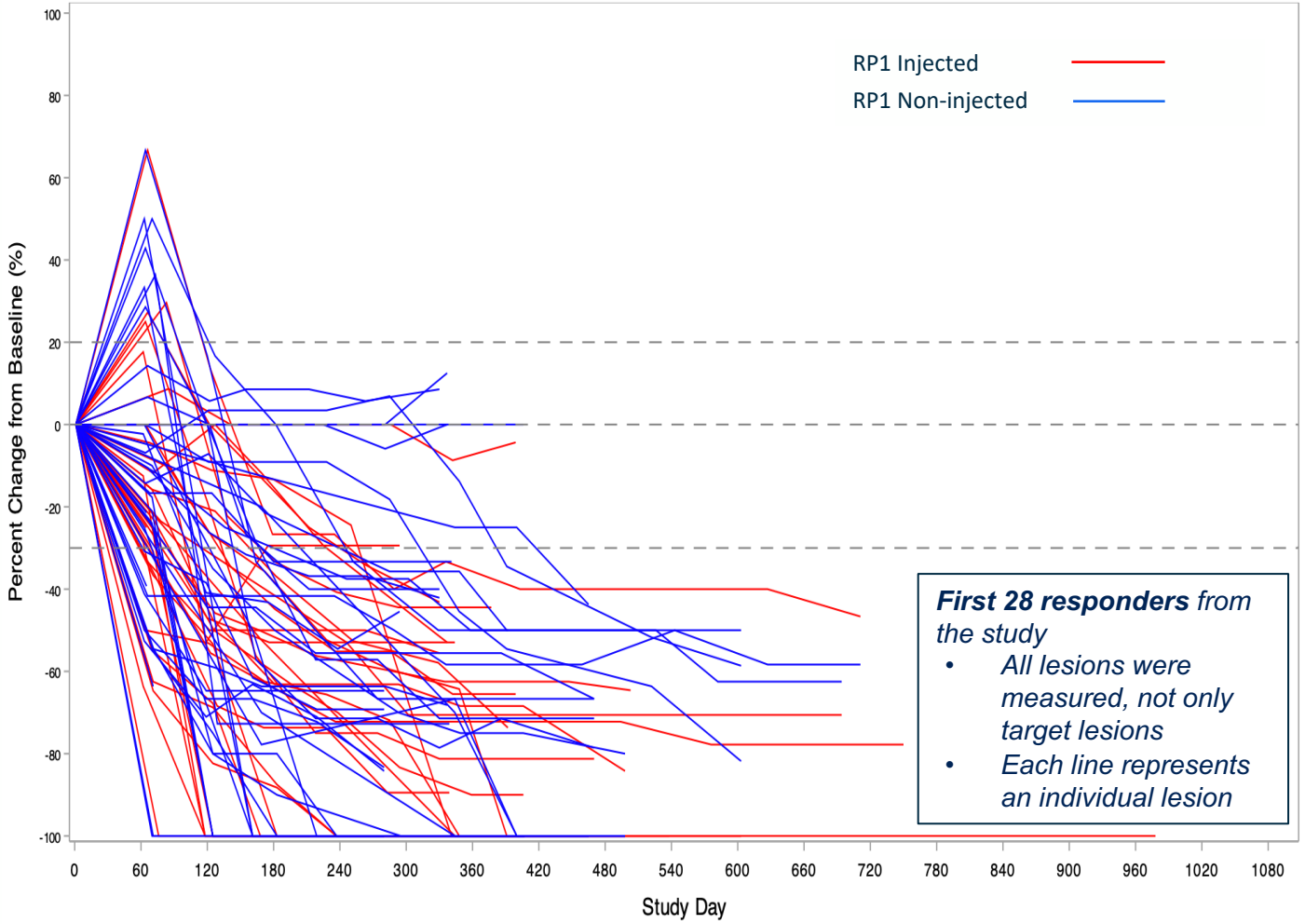
Key Takeaways

- Target tumor reduction is seen in >50% of patients
- Responses were seen across disease stages, including complete responses in patients with stage IVM1b/c disease

Data cutoff: March 8th 2024. The target lesion response is shown for patients with at least one post-baseline assessment. CR, complete response; PD, progressive disease; PR, partial response; SD, stable disease.

ASCO 2024: Responses are Systemic

Change in size of individual injected and non-injected lesions



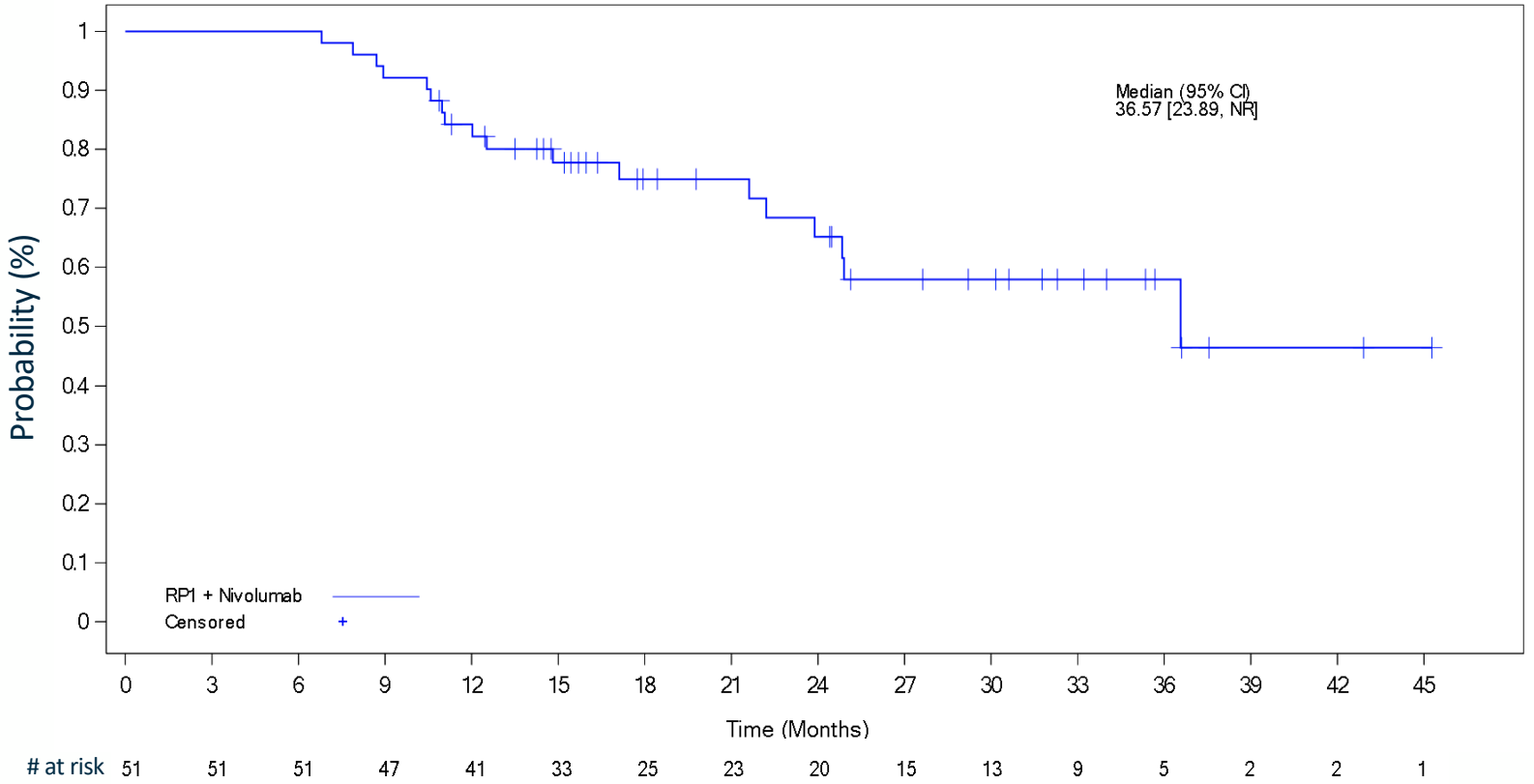
Key Takeaways

- 70.4% of responding patients had non-injected lesions
- Injected and non-injected lesions responded with similar duration and kinetics
- Depth of response independent of injection status

Responses in non-injected lesions demonstrate systemic benefit

Includes both target and non-target lesions for RECIST assessment, measured from CT/MRI scans for radiologically assessable lesions (responders from the first 75 patients enrolled into the registration intended cohort). 58/75 patients had at ≥ 1 non-injected lesion, of whom 15 achieved a response based on those lesions only (excludes possible response in injected lesions); ORR of 25.9% on the basis of non-injected lesions only. First presented at ASCO 2023.

ASCO 2024: Duration of Response
From baseline



>6 months	>12 months	>18 months	>24 months
100%	84.2%	74.9%	65.2%

The median follow up for responders is 27.9 months (range 10.5-55.5)

Key Takeaway

- Responses are durable, with a **median DOR** of **36.6 months**

Data cutoff: March 8th 2024. Duration of response defined as time from baseline to end of response for responders. DOR, duration of response.

ASCO 2024 Safety: Treatment-related AEs (N = 156)

Preferred term, n (%)	TRAEs occurring in >5% of patients				
	Grade 1–2	Grade 3	Grade 4	Grade 5	Total (N = 156)
Chills	53 (34.0)	1 (0.7)	0	0	53 (34.0)
Fatigue	51 (32.7)	2 (1.3)	0	0	52 (33.3)
Pyrexia	49 (31.4)	0	0	0	49 (31.4)
Nausea	35 (22.4)	0	0	0	35 (22.4)
Influenza-like illness	30 (19.2)	0	0	0	30 (19.2)
Injection-site pain	23 (14.7)	0	0	0	23 (14.7)
Diarrhea	21 (13.5)	1 (0.6)	0	0	21 (13.5)
Vomiting	21 (13.5)	0	0	0	21 (13.5)
Headache	20 (12.8)	0	0	0	20 (12.8)
Pruritus	20 (12.8)	0	0	0	20 (12.8)
Asthenia	13 (8.3)	1 (0.6)	0	0	14 (9.0)
Arthralgia	11 (7.1)	1 (0.7)	0	0	11 (7.1)
Myalgia	11 (7.1)	0	0	0	11 (7.1)
Decreased appetite	9 (5.8)	1 (0.6)	0	0	10 (6.4)
Rash	9 (5.8)	1 (0.6)	0	0	10 (6.4)

Key Takeaway

RP1 combined with nivolumab continues to be a generally well tolerated regimen

- Predominantly grade 1 and 2 constitutional-type side effects
- Low incidence of grade 3 and 4 events
- No grade 5 events

Additional grade 3 and 4 events <5%
Grade 3: Two each of rash maculo-papular and hypophysitis; 1 each of tumor pain, infusion-related reaction, muscular weakness, abdominal pain, amylase increased, dermatitis bullous, eczema, immune-mediated enterocolitis, immune-mediated hepatitis, paresthesia, acute left ventricular failure, arthritis, cancer pain, enterocolitis, extranodal marginal zone B-cell lymphoma (MALT type), hyponatremia, injection site necrosis, left ventricular dysfunction, memory impairment, meningitis aseptic, edema, palmar-plantar erythrodysesthesia syndrome, peripheral sensory neuropathy, radiculitis brachial, sinus arrhythmia, tricuspid valve incompetence, and type 1 diabetes mellitus

Grade 4: One each of lipase increased, alanine aminotransferase increased, blood bilirubin increased, cytokine release syndrome, myocarditis, and hepatic cytolysis, splenic rupture

Data cutoff: March 8th 2024. MALT, mucosa-associated lymphoid tissue; TRAE, treatment-related adverse event.

Topline Data for the IGNYTE Registrational Cohort Assessed by Independent Central Review:

RP1+Nivolumab in Anti-PD1 Failed Melanoma

Strong IGNYTE Primary Analysis Data by Independent Central Review

Overall Response Rate (registration-intended cohort: n=140) (%)		
Investigator Assessment	**Independent Central Review[1]**	
Modified* RECIST 1.1 **32.1%**	**Primary Endpoint** **Modified* RECIST 1.1** **33.6%**	**RECIST 1.1**** **32.9%**

* Confirmation of PD requires further tumor increase from the first observation of PD; responses can be captured at any time up until next anti-cancer therapy[2]
** Requested by FDA, with confirmation of PD required; responses not included in ORR after the first confirmed PD
All patients with at least 12 months follow up

Data cutoff: March 8th 2024. Median follow up for the 140 patients in the registration intended cohort is 15.8 months (range 0.5-47.6); [1]Each central reviewer selects their own target lesions without knowledge of RP1 injection status. [2]This was to allow for the potential for prolonged pseudo-progression (>1 scan interval) before response; however, in practice the pseudo-progression seen was transient (generally <1 scan interval)

Patient Example

Prior atezolizumab+cobimetinib, ipilimumab, SX682 (CXCR-inhibitor)+ atezolizumab, ipilimumab+nivolumab

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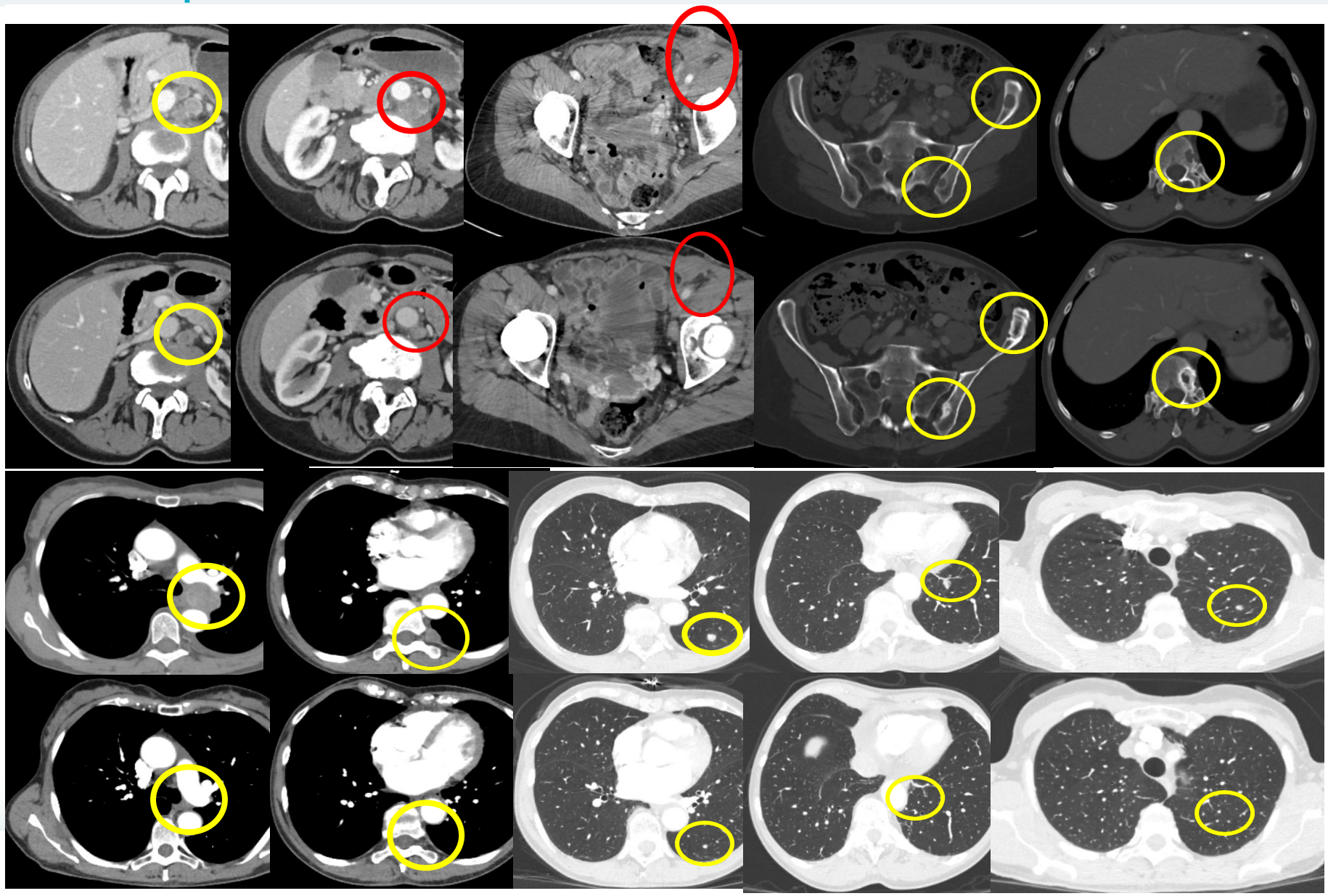


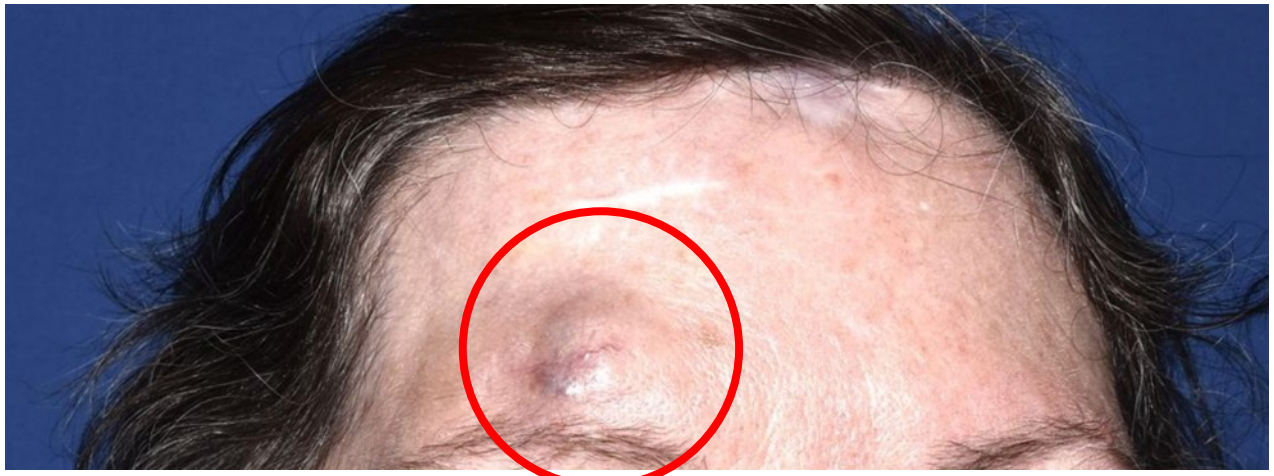
Responses in uninjected distant and visceral tumors including healing of lytic bone lesions (increasing sclerosis & new internal bone formation seen)

Injected Un-injected

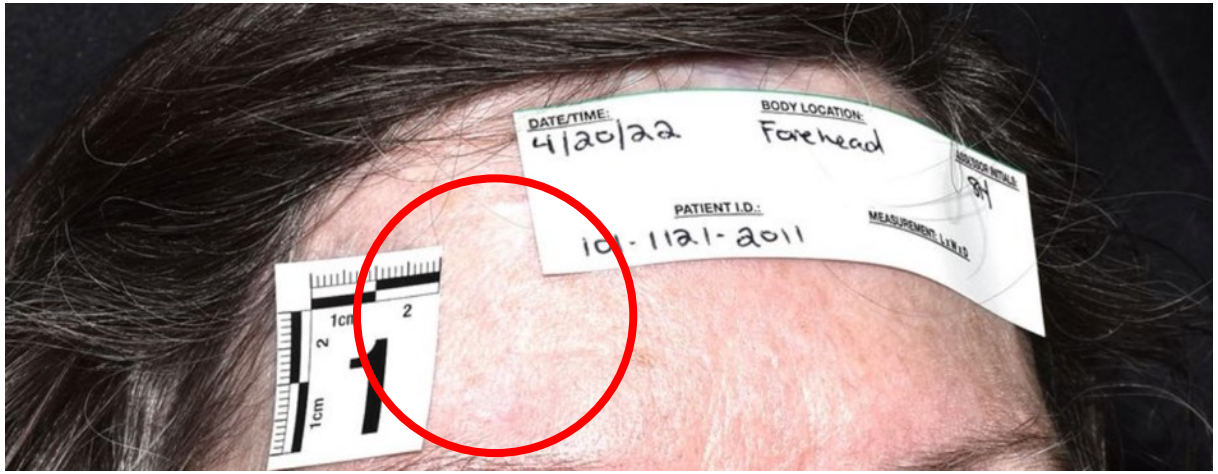
Patient 1121-2011:

Prior Opdivo (adjuvant) and Keytruda (first line for metastatic disease), Stage IVM1c

29 JUL 2021 / Screening



20 APRIL 2022



Injected *Un-injected*

Patient 1121-2011 Cont'd:

Prior Opdivo (adjuvant) and Keytruda (first line for metastatic disease), Stage IVM1c

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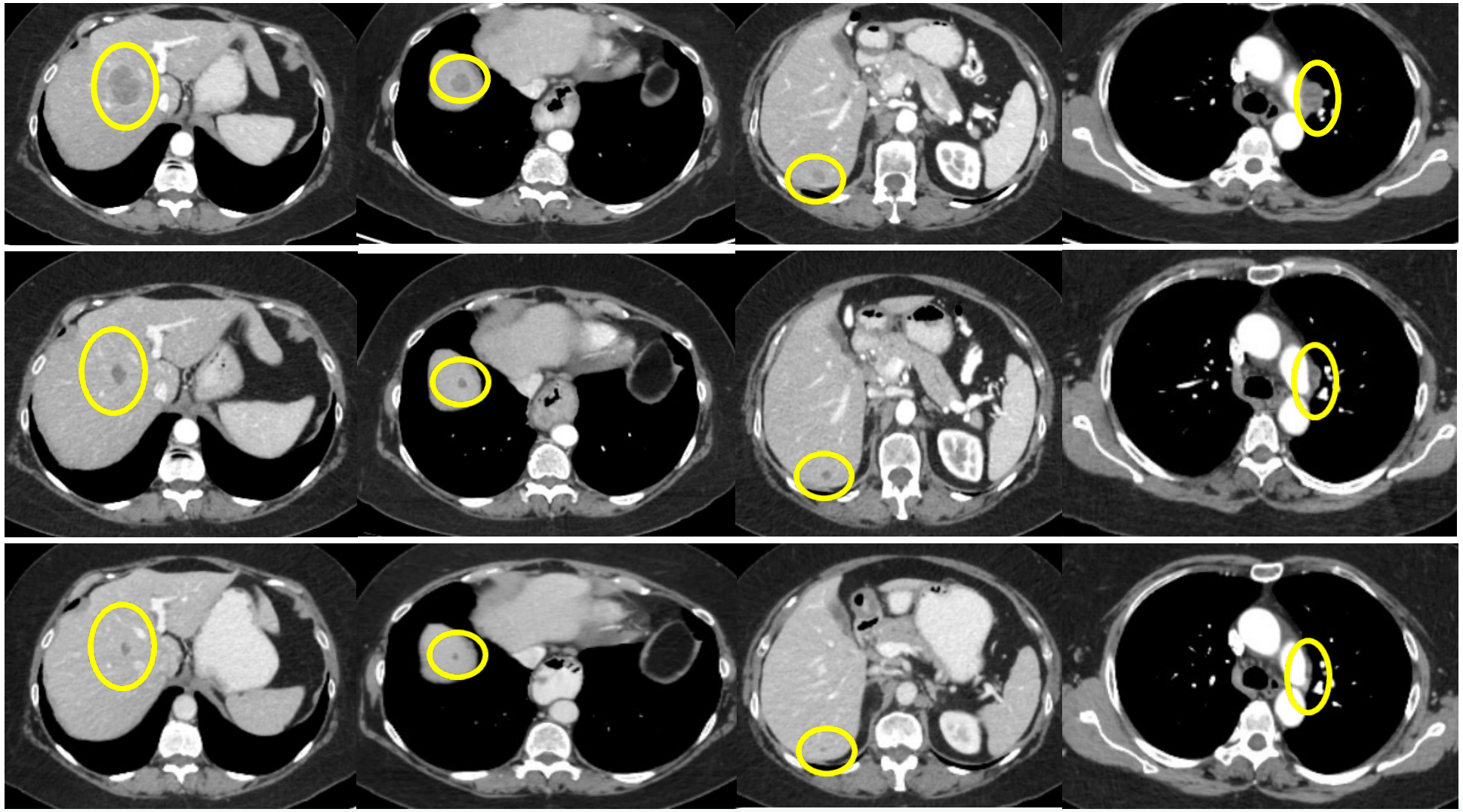
22 Jul 2021/
Baseline

22 Sep 2021/
Day 57

29 Dec 2021/
Day 155



Injected Un-injected

IGNYTE Data Shows Clinically Meaningful Benefit

- One third of patients respond by independent central review (ORR: 33.6%*)
- Responses are durable
  - 100% last >6 months, median DOR >35 months (from baseline)
- RP1 combined with nivolumab continues to be a generally well tolerated regimen
  - Predominantly grade 1/2 constitutional-type side effects
  - Low incidence of grade 3 and 4 events; no grade 5 events
- Full data to be submitted for presentation at an upcoming medical congress

*By modified RECIST 1.1 (protocol defined endpoint)

IGNYTE Data and Phase 3 Confirmatory Trial Incorporates FDA Feedback

Type B meeting in 2021

A real-world population, representative of the IO progressed landscape should be enrolled

Patients should have confirmed progression while **on** anti-PD1 therapy, with minimum 8 weeks exposure

Responses should be durable

Clinically meaningful activity should be seen across all melanoma sub-groups enrolled

Responses should be demonstrably systemic, i.e. of both injected and uninjected lesions

Type C meeting in Sept 2023

FDA acknowledged that the IGNYTE population represents one of unmet need

Contribution of components demonstrated by reference to the literature*

Centrally reviewed data by RECIST 1.1 and mRECIST 1.1

All patients followed for at least 12 months (protocol primary analysis timepoint)

All responding patients followed for at least 6 months from response initiation

Phase 3 confirmatory study will be underway by BLA submission

*The response rate for further single agent anti-PD1 for patients having confirmed PD on prior anti-PD1 is expected to be 6-7%; Ribas et al Lancet Oncology 2018 (19), Hodi et al JCO 2016 (34)

IGNYTE-3: Confirmatory Phase 3 Trial Design*

RP1 and Nivolumab in Ipi-Nivo Pretreated Patients

Advanced cutaneous melanoma

Progressed on anti-PD1 AND anti-CTLA-4 OR not candidates for anti-CTLA-4

Up to 2 prior lines of systemic therapy for advanced disease

BRAF mutant patients must have been treated with BRAF/MEK-directed therapy[1]

N=~400

Randomized 1:1

RP1 + Nivolumab

Treatment of Physician's Choice (TPC)

- *Nivolumab-Relatlimab (Opdualag)*
- *Chemotherapy (DTIC, TMZ, paclitaxel/nab-paclitaxel)*
- *Rechallenge with anti-PD1 monotherapy (nivolumab or pembrolizumab)*

Primary Endpoint
Overall Survival

Key Secondary Endpoints
Progression Free Survival and Objective Response Rate

[1] For BRAF mutant patients prior BRAF/MEK-directed therapy is required unless deemed not clinically indicated at investigator's discretion due to documented concurrent medical condition or prior toxicity; *ClinicalTrials.gov ID: NCT6264180

ARTACUS Clinical Trial:

RP1 Monotherapy in Solid Organ Transplant Non-Melanoma Skin Cancers (NMSC)

ARTACUS: Baseline Demographics, Characteristics, Activity

RP1 as monotherapy shows clear clinical activity with promising ORR/CRR

Characteristic	All patients (N = 27)
Age, years, median (range)	68.0 (48–86)
Male, n (%)	21 (77.8)
Race, n (%)	
White	26 (96.3)
Native Hawaiian/Pacific Islander	1 (3.7)
Allograft type, n (%)	
Kidney	22 (81.5)
Liver	4 (14.8)
Lung	1 (3.7)
Heart	0
Cutaneous malignancies, n (%)	
CSCC	24 (88.9)
MCC	3 (11.1)
Stage at study baseline, n (%)	
Locally advanced	15 (55.6)
Metastatic[a]	12 (44.4)
Primary tumor location, n (%)	
Skin	26 (96.3)
Lymph node	1 (3.7)

	Evaluable patients[a] (N = 23)
Best overall response (modified RECIST 1.1)	n (%)
CR	5 (21.7)[b]
PR	3 (13.0)[c]
SD	1 (4.3)
PD	14 (60.9)
ORR (CR + PR)	8 (34.8)
DCR (CR + PR + SD)	9 (39.1)

	Responders (n = 8)
Characteristics of responders	n
Tumor type	
CSCC	6
MCC	2
Stage at study baseline	
Locally advanced	6
Metastatic	2

[a]Per protocol, metastatic to skin, soft tissue, or lymph nodes.
CSCC, cutaneous squamous cell carcinoma; MCC, Merkel cell carcinoma
Migden et al, AACR 2024, Presentation CT003.

ARTACUS: Examples of Patients With Confirmed Response

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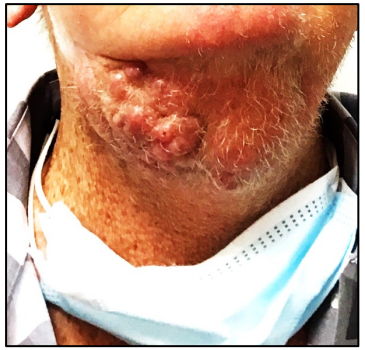
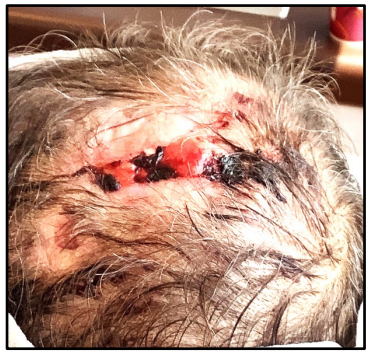
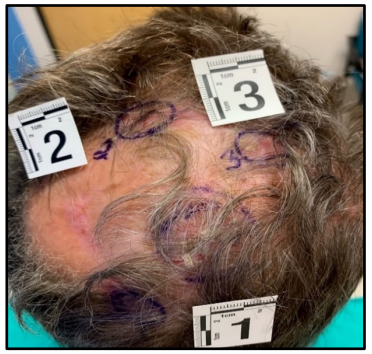
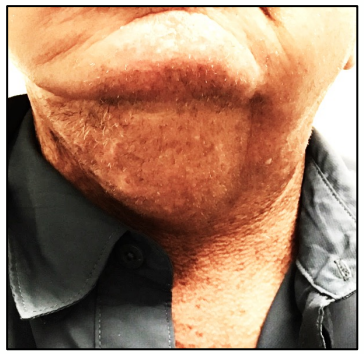
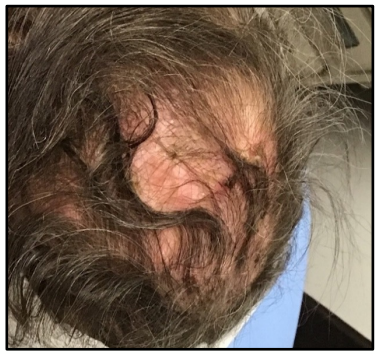
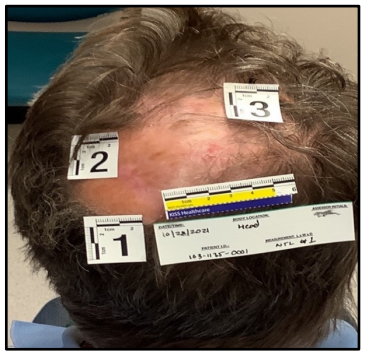
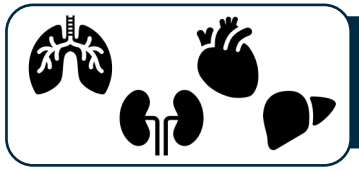
	1143-0002	1143-0001	1135-0001
	May 2022	June 2021	July 2021
Baseline			
	August 2022 (3 months)	December 2021 (6 months)	October 2021 (3 months)
Best response			
	Complete response	Complete response	Complete response

Migden et al, AACR 2024, Presentation CT003

High Risk of Skin Cancer in Organ Transplant Patients Drives the RP1 ARTACUS Opportunity



~1.5K Addressable* Solid Organ Transplant Patients with skin cancer[6]

50%↑ Growth in transplants over the last 8 years[1]

Significant Unmet Need

UP TO 53x **Increased Risk of Cancer**
Increased risk of SoT patients developing skin cancer, with a high rate of metastasis[2]

35% **High Rate of Multiple Primary Lesions**
Percentage of patients developing multiple primary lessions[4,5]

30% **Treatment Options Risk Loss of Organ**
Rate of organ rejection, due to treatment with ICIs for skin cancer[3]

ARTACUS Data

RP1 showed an **35% ORR and a 22% CRR[7]** with safety similar to the profile seen in non-immunocompromised patients

RP1 has been **dosed up to 26 times to treat patients, with the potential for retreatment**

RP1 monotherapy has shown the ability to treat skin cancer with **no cases of allograft rejection[7]**

*Addressable defined as locally advanced or metastatic SoT (solid organ transplant) skin cancer patients
[a]Standardized incidence ratios were calculated by dividing the observed number of NMSC cases by the expected number of cases based on the general population.
CSCC, cutaneous squamous cell carcinoma; NMSC, non-melanoma skin cancer; SOT, solid organ transplantation.
1. OPTN, 2. Friman T, et al. *Int J Cancer*. 2022;150(11):1779-91, 3. Ji et al. Front Transplant 2023 4. Eggermont, et al JAAD 2023 5. Gilbert et al. Cureus. 2022 6. Replimune Analysis 7) Midgen et al AACR 2024 Pres CT-003

CERPASS Clinical Trial:

1L CSCC (RP1+Cemiplimab vs. Cemiplimab)

CERPASS: Confirmed ORR & CRR (ITT population)

Number of patients achieving CR substantially increased with RP1; CR rate more than doubled for RP1 in locally advanced CSCC

BOR (confirmed response)	All N=211	
n/%	Cemiplimab n=72	RP1+ cemiplimab n=139
PR	19 (26.4)	20 (14.4)
SD	14 (19.4)	18* (12.9)
PD	12 (16.7)	27 (19.4)
OR	**37 (51.4%)**	**73 (52.5%)**
	P=0.692[1]	
CR	**18 (25.0%)**	**53 (38.1%)**
	P=0.040[1]	

BOR (confirmed response)	Locally advanced CSCC n=83		Metastatic CSCC n=128	
n/%	Cemiplimab n=31	RP1+ cemiplimab n=52	Cemiplimab n=41	RP1+ cemiplimab n=87
OR	18 (**58.1%**)	33 (**63.3%**)	19 (46.3%)	40 (46.0%)
CR	7 (**22.6%**)	25 (**48.1%**)	11 (26.6%)	28 (32.2%)

Key Takeaways / Next Steps

- Study missed its primary endpoints (ORR/CRR)
- Study continuing to allow time-based endpoints to mature (DOR, PFS and OS)
- In locally advanced CSCC, CR rate more than doubled for RP1+cemiplimab vs cemiplimab alone (48.1% vs 22.6%)

*One patient shown as SD was a CR due to the confirmatory assessment happening 21 days rather than later 28 days as required per protocol (CRR if included = 38.8%; p=0.031); **&Nominal p value 0.013

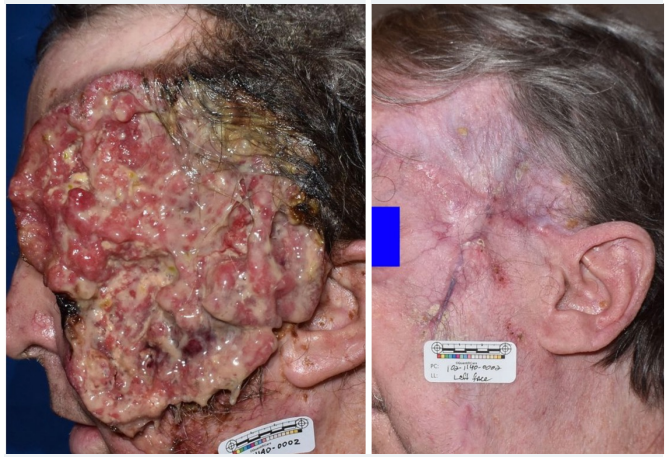
[1]Per the protocol p≤0.025 is required for formal statistical success in CERPASS for CRR or ORR alone and p≤0.05 if both endpoints were met

BOR=best overall response

Five of the Most Visually Impactful CRs with RP1+cemiplimab

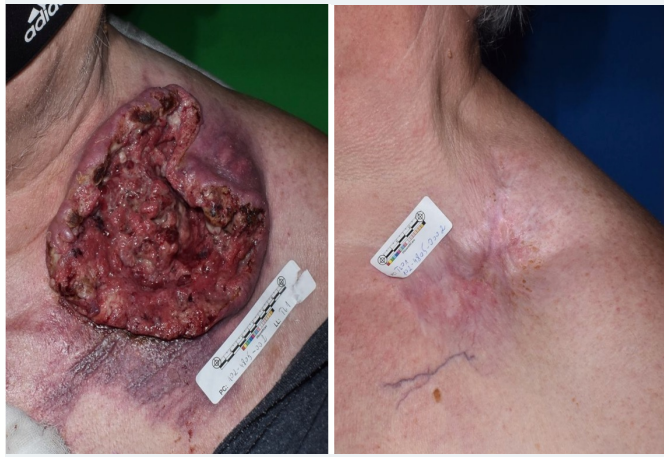
Replimune®

Baseline | 81 weeks



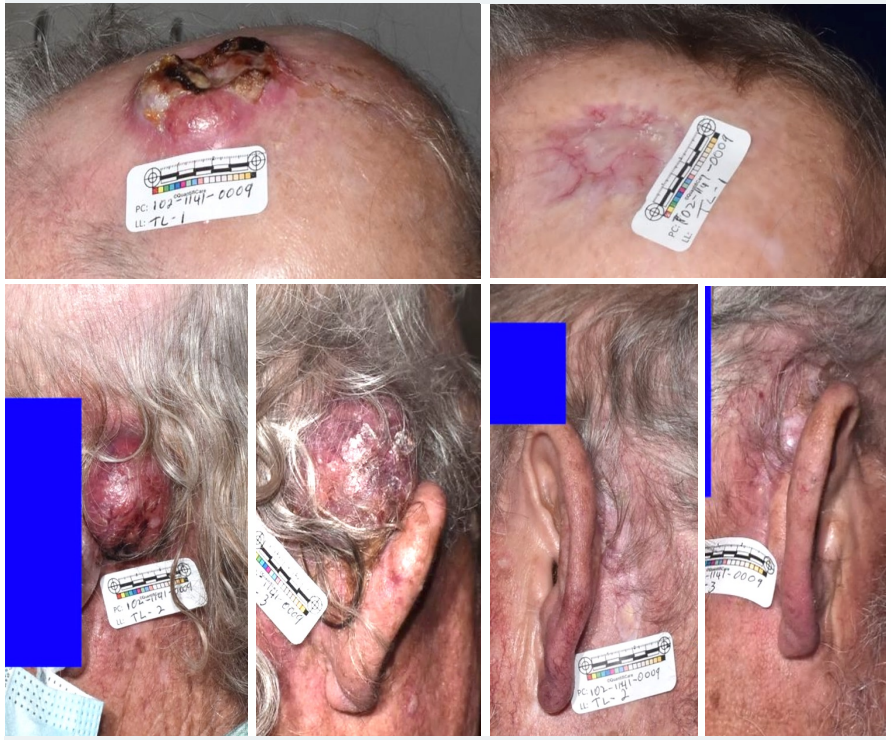
1140-0002

Baseline | 81 weeks



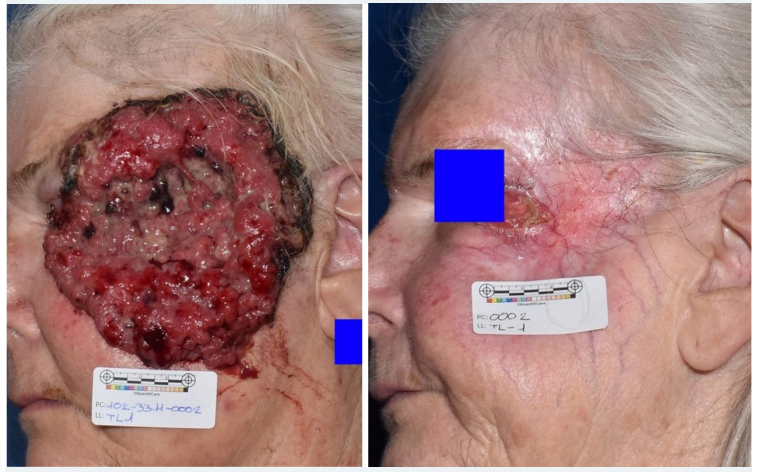
4805-0002

Baseline | 54 weeks



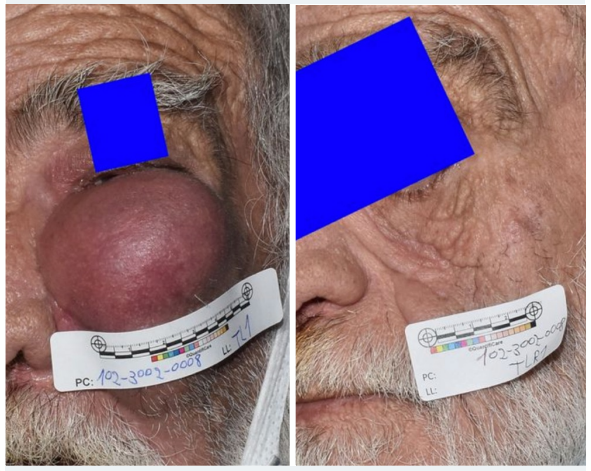
1141-0009

Baseline | 63 weeks



3311-0002

Baseline | 63 weeks



3002-0008

RP1 Commercial Opportunity

Significant Opportunity to Establish a Broad Skin Cancer Franchise Built Upon Strong Foundation in Melanoma

Replimune®

RP1 near-term opportunity

Anti-PD1-failed melanoma

~13K patients[1]

1L prior adjuvant
2L+ BRAF WT
2L+ BRAF MT

GOAL
Address high unmet need in anti-PD-1 failed settings

Potential NMSC* access via compendia+

~11K patients[2]

1L CSCC
SOT NMSC
Anti-PD1 failed
Immuno-compromised (other)

GOAL
Improve upon the SOC either as combo or as monotherapy

Future growth driver

Neoadjuvant skin cancers**

~45K patients

Neoadjuvant CSCC
Neoadjuvant melanoma

GOAL
Improve cure rates in early-stage patients

~70,000 treatable patients in the US

"Opportunity to change the treatment paradigm and ensure all appropriate patients can benefit from RP1"

+Spontaneous use will not be promoted

Source: [1]Melanoma US treated patient population for 2030 based on CancerMPact® Patient Metrics, Cerner Enviza (available from www.cancermpact.com Accessed 15 Oct 2023), with adjustments to future 2L+ treatment rates based on primary market research. [2]CSCC US treated patient population for 2030 based IQVIA claims, primary market research, and company data.
*NMSC (non-melanoma skin cancers); RP1+cemiplimab or RP1+nivolumab or RP1 mono **Neoadjuvant CSCC (est. 30K patients) and melanoma (est. 15K patients). SOT=solid organ transplant

RP1 Positioned to Enable Widespread Commercial Adoption

Potential to treat a range of skin cancers across treatment settings

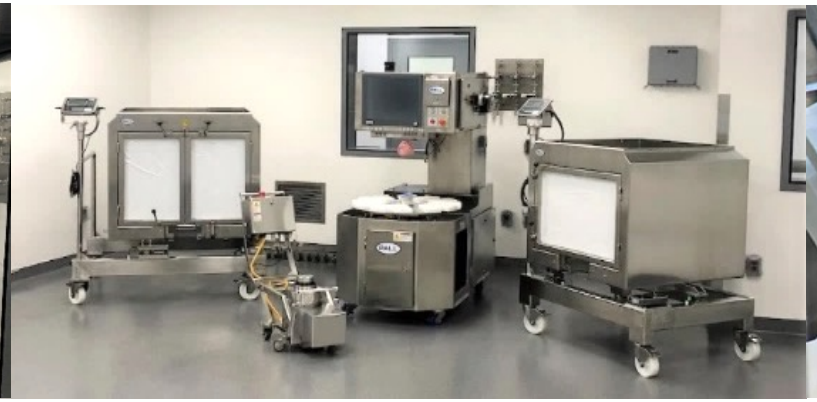
- RP1+nivolumab is well positioned to be the first option for melanoma patients who progress on a PD1-based regimen (in adjuvant or 1L setting), given:
  - Deep & durable responses
  - Safety profile
  - Ease of administration
- RP1+nivolumab provides a potentially compelling option for a broad range of anti-PD1 failed melanoma patients
  - Approx. 80%* of all melanoma patients can be treated via either superficial and/or image guided deeper lesion injections requiring interventional radiology
  - Adoption feasible in most US healthcare settings including the community allowing practices to keep and treat patients locally
- RP1 has shown encouraging monotherapy activity in hard-to-treat solid organ transplant failed NMSC where patients have very limited options that don't risk graft rejection

*Source: IPSOS Oncology Monitor (chart audit, 2023) and Replimune primary market research

Manufacturing on Track to Support RP1 BLA and Commercialization

Commercial scale in-house manufacturing established

- Type C meeting with FDA confirmed alignment on Chemistry, Manufacturing and Controls (CMC) plans to support RP1 BLA submission
- 63,000 square foot state-of-the-art facility for GMP manufacturing in Framingham, MA
  - RP1 BLA consistency lot runs complete
  - Commercial inventory build underway
- Scale expected to be sufficient to cover global commercialization of RP1 and RP2
- Commercially attractive cost of goods & 'off the shelf' product practicality

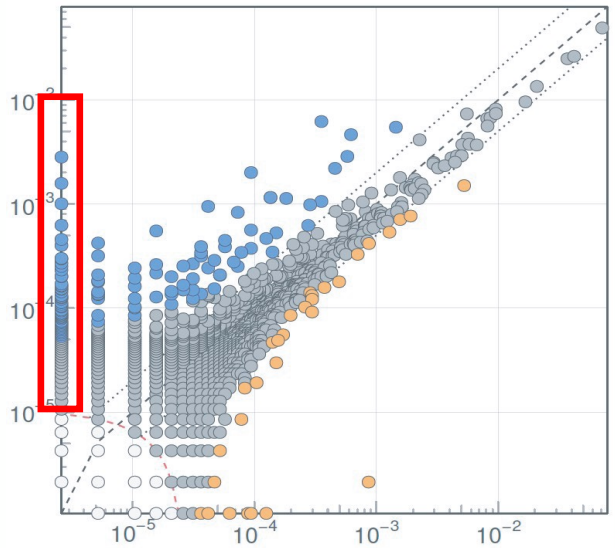


RP2: Focused on Rare Cancers

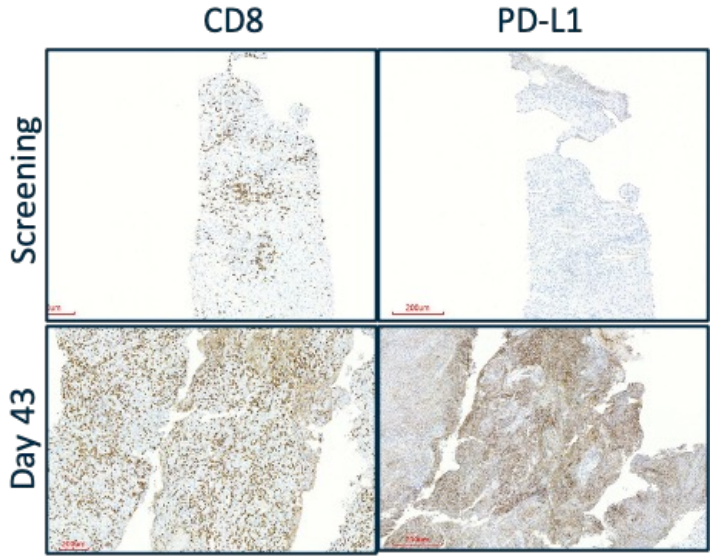
RP2: Fusion Enhanced Oncolytic HSV Expressing Anti-CTLA-4

Durable monotherapy and combination responses demonstrated in multiple immune insensitive tumor types

- Designed to focus on the delivery of molecules which function at the time and place of immune activation, i.e. in tumors & draining lymph nodes
- Anti-CTLA-4 antibody prevents immune blockade at the APC / T cell interface
  - Anti-CTLA-4 is clinically validated; Ipilimumab, tremelimumab[#]
  - RP2 intends to deliver anti-CTLA-4 where it is needed (at the tumor) without systemic toxicity of other therapies



TCR sequencing of PBMCs demonstrated expansion of pre-existing and generation of new T cell clones following treatment with RP2 with nivolumab (Example: pt 3412-0001, uveal melanoma, PR)*



Substantial increases in CD8+ T cell infiltration and PD-L1 expression are seen (Example: pt 4403-0015, uveal melanoma SD)*

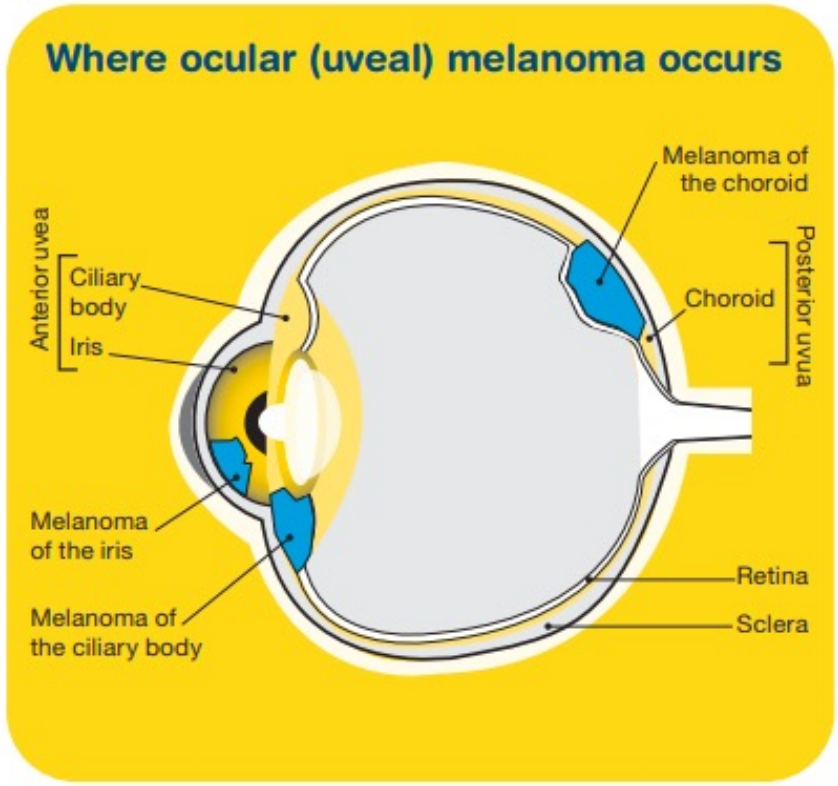
*Bommareddy P et al AACR 2024, [#] https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4400238/

Uveal Melanoma and Unmet Need

- Ocular or “uveal” melanoma is a rare cancer with approx. 1,000 cases in the US per year[1]
  - The historic median OS is approx. 12 months[1]

- Uveal melanoma behaves quite differently from skin melanoma
  - Mostly metastasizes to the liver (approx. 70-90% of cases) and once this occurs only about 10% of these patients survive beyond a year
  - Difficult to treat tumor where CPIs have demonstrated limited activity[2,3,4]
  - Kimmtrak (tebentafusp) is the 1st approved agent in uveal melanoma in HLA-A-02:01-positive adult patients (approx. 50% of the total population)*

- Unmet need remains high, including improved efficacy and tolerability, effective options for HLA negative patients, and those who have progressed on Kimmtrak (HLA positive) and/or I-O combinations regardless of HLA status



[1]Carvajal RD et al. Br J Ophthalmol 2017; [2]Nathan P et al. N Engl J Med. 2021;385(13):1196-1206; [3]PelsterMS et al. J Clin Oncol. 2021;39(6):599-607; [4]Lukzky J et al SMR 2022; [5]Sacco et al, 20th International Congress of the Society for Melanoma Research, November 2023
* Versus investigator’s choice, pembrolizumab, ipilimumab, or dacarbazine

ASCO 2024 Results: Clinical Activity in Uveal Melanoma

- The ORR was 29.4% (all PRs) and DCR was 58.8%
  - At data cutoff, median (range) DOR was 11.5 (2.8–21.2)[a] months

	RP2 monotherapy (n = 3)	RP2 + nivolumab (n = 14)	Total (N = 17)
Best overall response, n (%)			
CR	0	0	0
PR	1 (33.3)	4 (28.6)	5 (29.4)
SD	0	5 (35.7)	5 (29.4)
PD	1 (33.3)	4 (28.6)	5 (29.4)
NE[b]	1 (33.3)	1 (33.3)	2 (11.8)
ORR (CR + PR)	**1 (33.3)**	**4 (28.6)**	**5 (29.4)**
DCR (CR + PR + SD)	**1 (33.3)**	**9 (64.3)**	**10 (58.8)**

HLA-A*02:01 status	Positive (n = 6)	Negative (n = 11)	Total (N = 17)
Best overall response, n (%)			
PR	1 (16.7)	4 (36.4)	5 (29.4)
SD	2 (33.3)	3 (27.3)	5 (29.4)
PD/NE	3 (50.0)	4 (36.4)	7 (41.2)

- Responses were observed in both HLA-A2*02:01–positive and –negative patients
- The majority of patients (70.6% [12/17]) received both prior anti–PD-1 and anti–CTLA-4 therapy

[a]From first dose to disease progression; response is ongoing. [b]Two patients died before any assessment.
CR, complete response; DCR, disease control rate; DOR, duration of response; HLA, human leukocyte antigen; NE, not evaluable; ORR, objective response rate; PD, progressive disease; PR, partial response; SD, stable disease.

ASCO 2024 Results: Safety Profile in Uveal Melanoma

Patients with TRAEs	Grade 1–2[a]	Grade 3	Grade 4–5
RP2 monotherapy (n = 3)	2 (66.7)	0	0
Hypotension	2 (66.7)	0	0
Chills	1 (33.3)	0	0
Hyperhidrosis	1 (33.3)	0	0
Pyrexia	1 (33.3)	0	0
Rash	1 (33.3)	0	0
Vomiting	1 (33.3)	0	0
RP2 + nivolumab (n = 14)	13 (92.9)	6 (42.9)[b]	0
Pyrexia	10 (71.4)	0	0
Chills	7 (50.0)	0	0
Fatigue	4 (28.6)	0	0
Pruritus	4 (28.6)	0	0
Hypotension	2 (14.3)	2 (14.3)	0
Infusion-related reaction	2 (14.3)	1 (7.1)	0
Headache	2 (14.3)	0	0
Influenza-like illness	2 (14.3)	0	0
Nausea	2 (14.3)	0	0

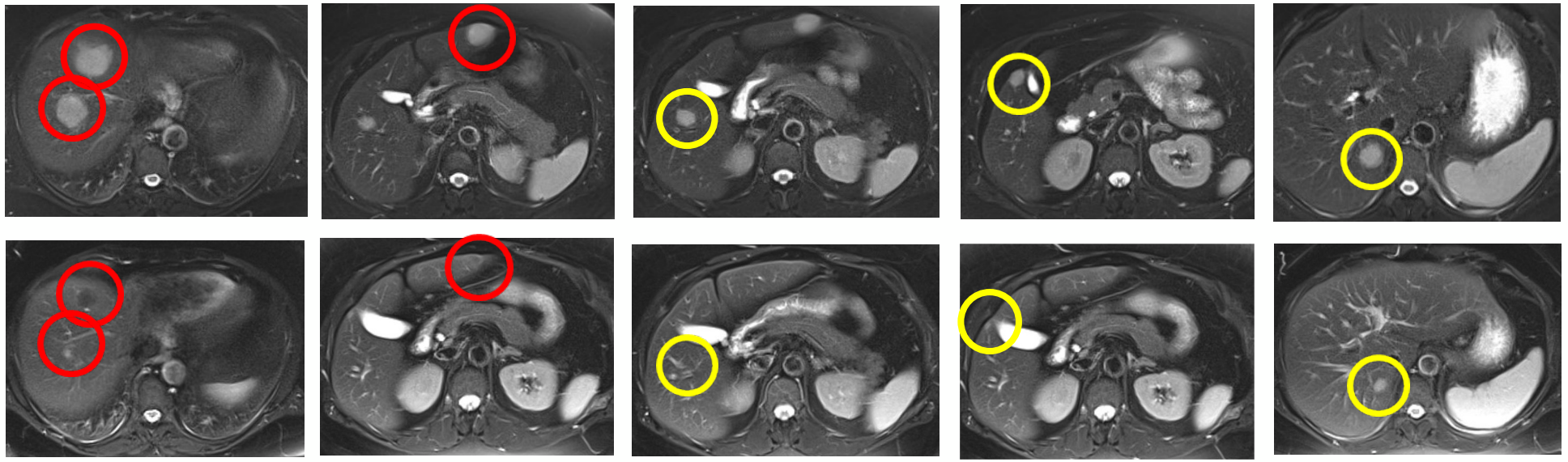
- The most common grade 1 or 2 TRAEs (≥20%) in both cohorts combined were pyrexia, chills, fatigue, hypotension, and pruritus
- Both cases of grade 3 hypotension were transient and readily managed with crystalloid repletion
- There were no grade 4 or 5 TRAEs
- In patients who underwent intrahepatic injections, there were no clinically significant bleeding events

All data presented as n (%). TRAEs include events deemed related to RP2 only, nivolumab only, or both RP2 and nivolumab.[a]Grade 1 or 2 TRAEs occurring in >10% of patients are shown.[b]For the combination therapy cohort, additional grade 3 TRAEs of alanine aminotransferase increase, arthralgia, diarrhea, gamma-glutamyltransferase increase, immune-mediated hepatitis, and lipase increase were reported in 1 patient each. TRAE, treatment-related adverse event.

Uveal Melanoma Patient Featured in ITV News

Prior nivolumab+ipilimumab – PR (RP2+nivolumab)

Replimune®



Pt 201-4403-0017 – ongoing PR

- Liver metastases
- Patient has ongoing PR at 19 months

"This trial has given me hope in the treatment, the trial, my care, and I'm happy. I don't think about dying anymore at all"

ITV, 03 November 2023

Injected Un-injected

Mucoepidermoid Carcinoma Monotherapy Patient Featured in BBC News

Prior carboplatin/paclitaxel, bicalutamide, ceralasertib - ongoing CR>2 years (RP2 mono)

BBC

Home News Sport Business Innovation Culture Travel Earth Video Live

Krzysztof's cancer is no longer detectable

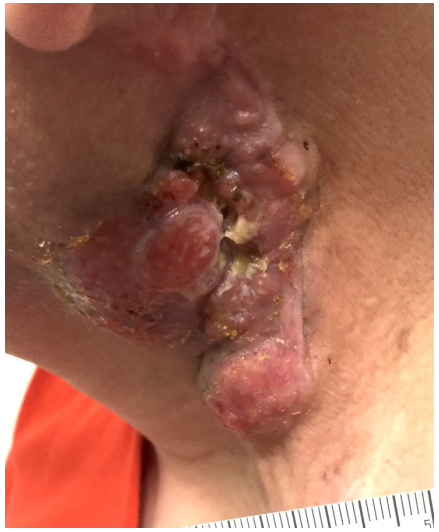
ICR The Institute of Cancer Research

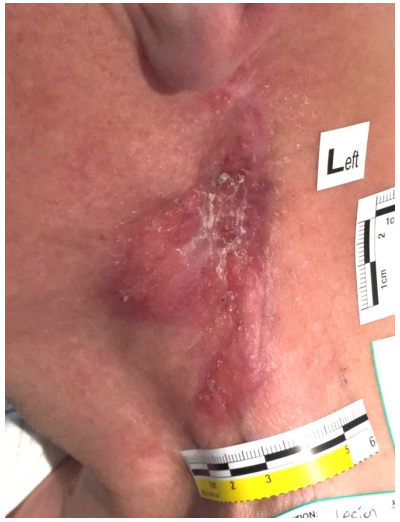
“My final lifeline”

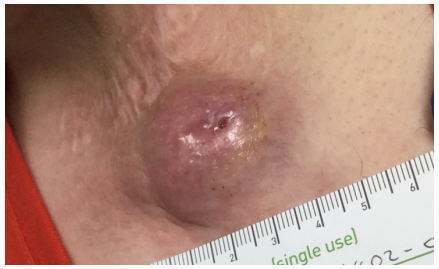
"I had injections every two weeks for five weeks which completely eradicated my cancer. I've been cancer-free for two years now."

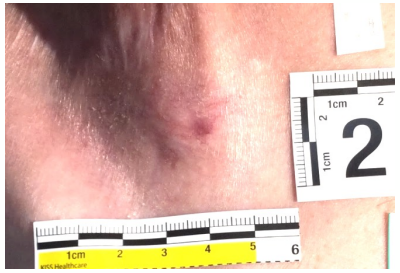
1 month

4 months







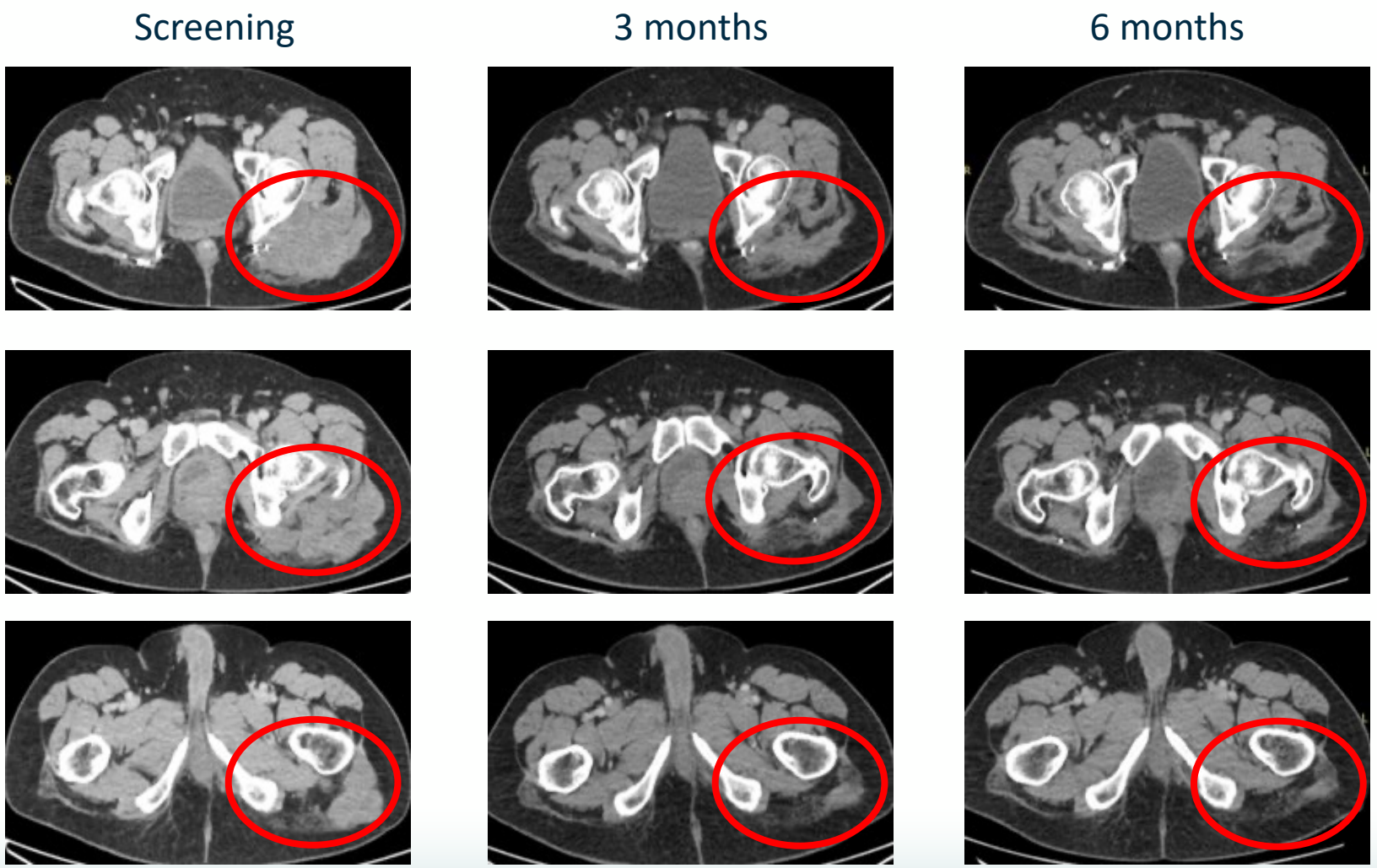


"It’s a true miracle, there is no other word to describe it. I’ve been able to work as a builder again and spend time with my family, there’s nothing I can’t do.”

RP2 Monotherapy Patient with Chordoma

Prior imatinib – ongoing PR at over 8 months (RP2 monotherapy)

Replimune®



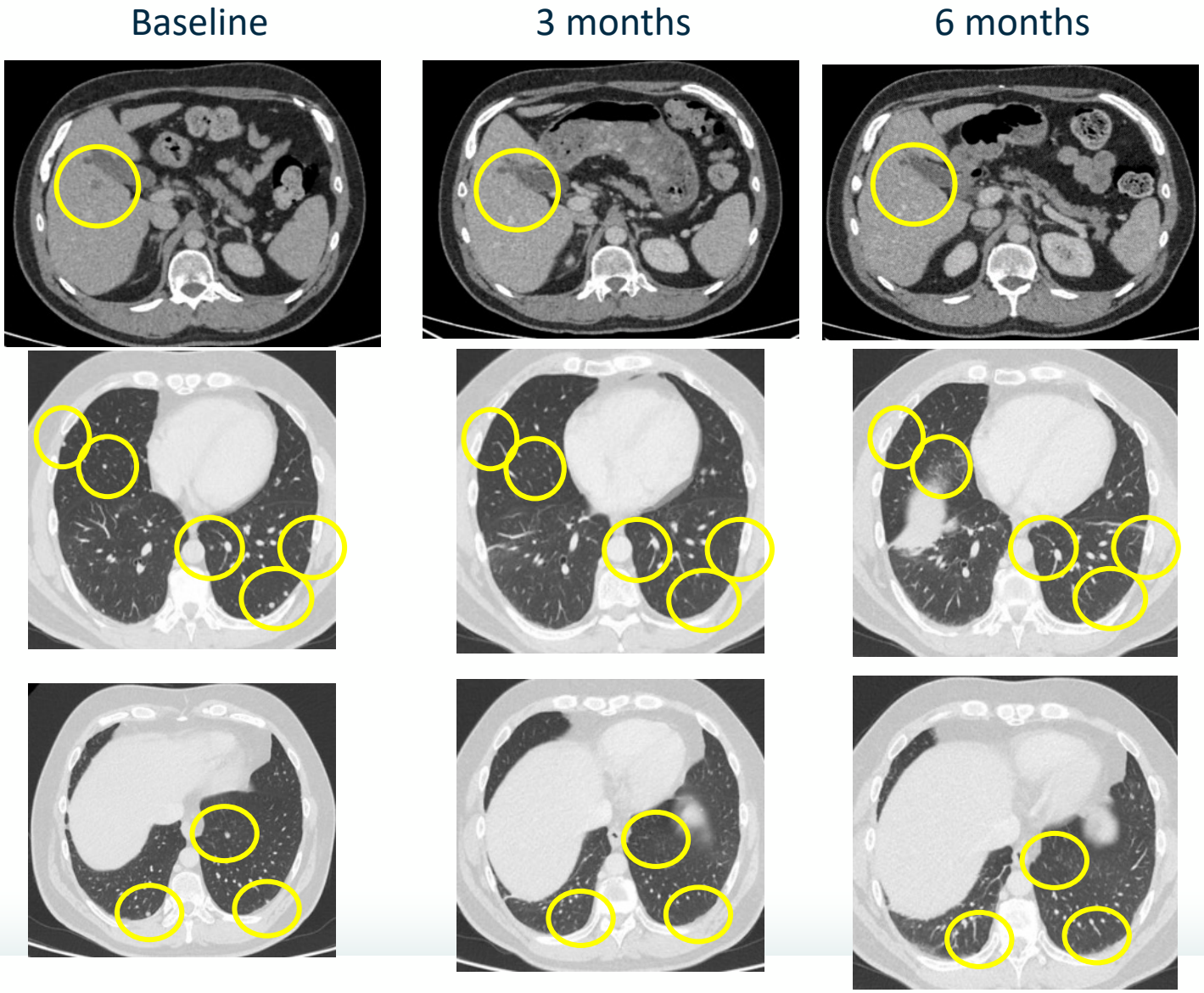
Pt 4401-0029 - ongoing PR

- Left gluteal muscle injected
- Liver & >50 small lung lesions also disappeared during treatment

Injected Un-injected

RP2 Monotherapy Patient with Chordoma

Prior imatinib – ongoing PR at over 8 months (RP2 monotherapy)



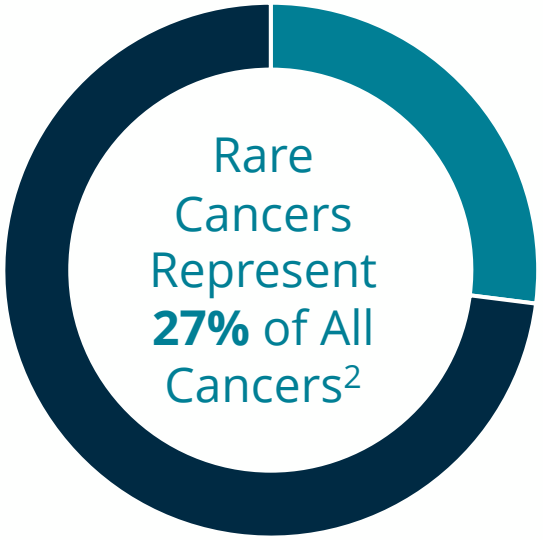
Pt 4401-0029 - ongoing PR

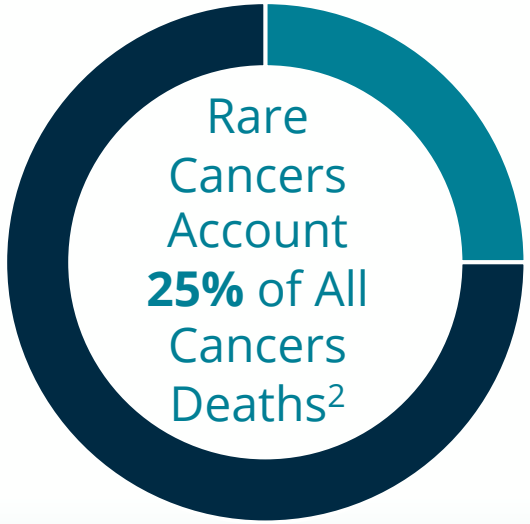
- Left gluteal muscle lesion injected
- Liver & >50 small lung lesions also disappeared during treatment

Injected Un-injected

Uveal Melanoma is the Foundation for a Potential Rare Cancer Franchise for RP2

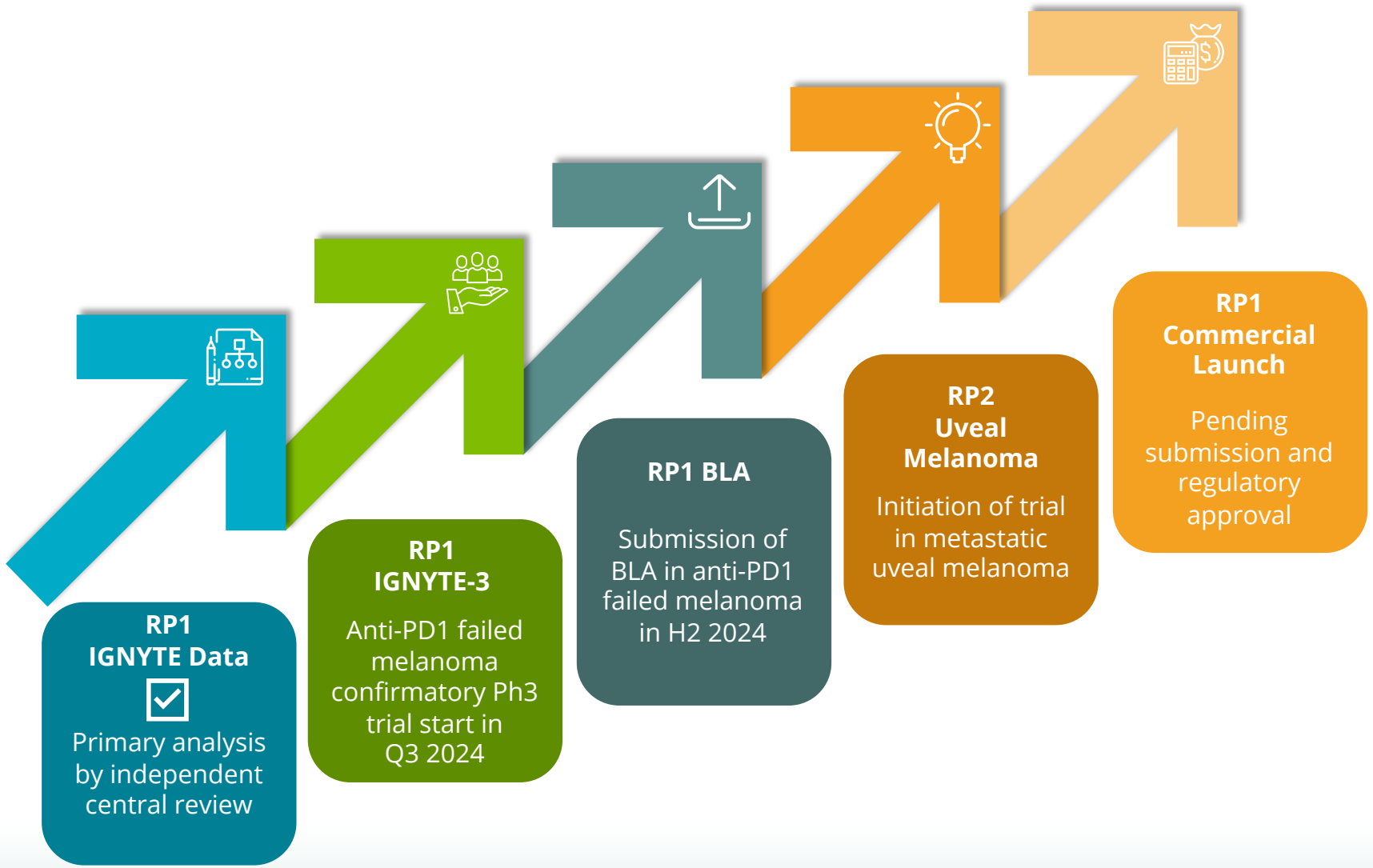
- Treatment with RP2 has led to responses in rare cancer settings including uveal, chordoma, and mucoepidermoid carcinoma[1]
  - Durable monotherapy and combination responses demonstrated in multiple immune insensitive tumor types[1]
- Rare cancers present a significant unmet need and potential for paths to market for RP2
  - Uveal melanoma as a foundation; preparations are underway for a registrational trial
  - Potential to expand to other rare cancers based on clinical activity observed with RP2 (soft tissue sarcomas, rare head and neck, etc.)[1]





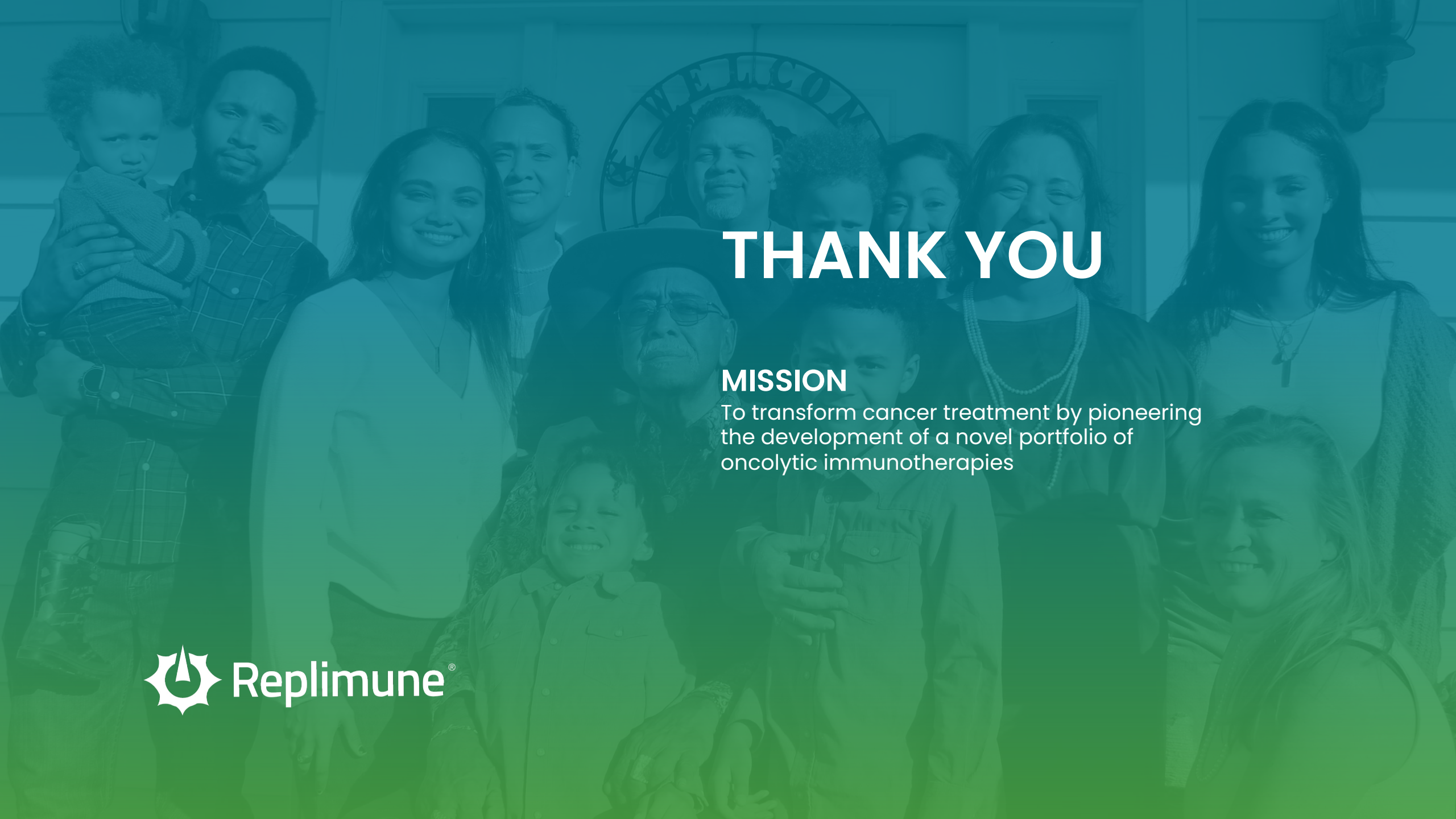
1) Data on file
2) https://www.cancer.gov/pediatric-adult-rare-tumor/rare-tumors/about-rare-cancers

Upcoming Milestones to Drive Value



Positioned to Bring our Oncolytic Immunotherapies to Market

- ✓ All programs wholly owned
- ✓ Potential to deliver substantial commercial revenues beginning in late 2025
- ✓ Strong financial position with cash of $420.7M as of 31st March 2024
- ✓ Cash runway into 2H 2026



THANK YOU

MISSION

To transform cancer treatment by pioneering the development of a novel portfolio of oncolytic immunotherapies

Replimune®