ONCOSEC'S PLATFORM TO ATTACK VISCERAL, CUTANEOUS AND SUBCUTANEOUS TUMORS

NASDAQ: ONCS
NOVEMBER 2020

FORWARD LOOKING STATEMENTS

To the extent statements contained in the following presentations are not descriptions of historical facts regarding OncoSec Medical Incorporated, they should be considered "forward-looking statements," as described in the Private Securities Litigation Reform Act of 1995, that reflect management's current beliefs and expectations. You can identify forward-looking statements by words such as "anticipate," "believe," "could," "estimate," "expect," "forecast," "goal," "hope," "hypothesis," "intend," "may," "plan," "potential," "predict," "project," "should," "strategy," "will," "would," or the negative of those terms, and similar expressions that convey uncertainty of future events or outcomes. Forward-looking statements are not assurances of future performance and include, but are not limited to, statements regarding: (i) the success and timing of our product development activities and clinical trials; (ii) our ability to develop and commercialize our product candidates; (iii) our plans to research, discover, evaluate and develop additional potential product, technology and business candidates and opportunities; (iv) our and our partners' ability to develop, manufacture and commercialize our product candidates and to improve the manufacturing process; (v) the size and growth potential of the markets for our product candidates, and our ability to serve those markets; (vi) the rate and degree of acceptance of our product candidates; (vii) our ability to attract and retain key scientific or management personnel; (viii) the anticipated timing of clinical data availability; (ix) the anticipated timing of commercial launch of ImmunoPulse® IL-12; (x) our ability to meet our milestones; (xi) our expectations regarding our ability to obtain and maintain intellectual property protection; (xii) the level of our corporate expenditures; (xiii) the assessment of our technology by potential corporate partners; and (xiv) the impact of capital market conditions on us. Forward-looking statements are subject to known and unknown factors, risks and uncertainties that may cause actual results to differ materially from those expressed or implied by such forward looking statements. These statements are also subject to a number of material risks and uncertainties that are described in OncoSec's most recent Annual Report on Form 10-K filed with the Securities and Exchange Commission, as updated by its subsequent filings with the Securities and Exchange Commission. Undue reliance should not be placed on forward-looking statements. We undertake no obligation to publicly update any forward-looking statements, except as required by law. OncoSec's investigational drug and device products have not been approved or cleared by the FDA.

Investment Highlights

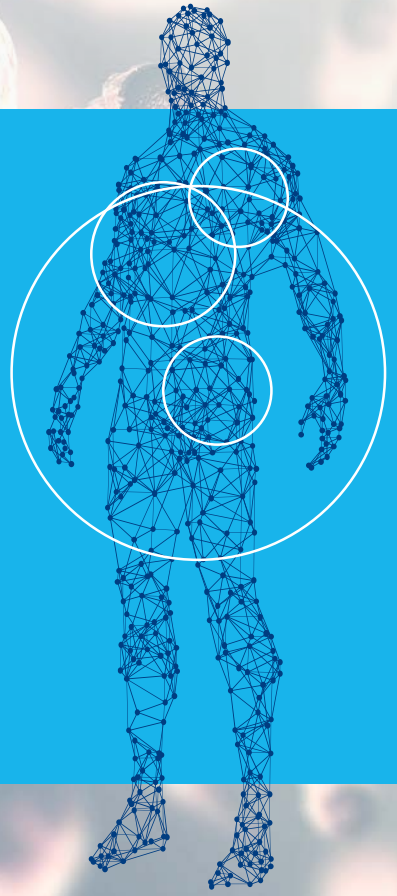
Ticker: NASDAQ: ONCS
Market Cap (as of 7/20/20): ~$82M
Stock Price (as of 7/20/20): $3.57

- **Late-stage biotechnology company focused on intratumoral delivery of DNA-based immunotherapies as monotherapy and in combination regimes**
- **Developing treatments for cancer indications where a majority of patients do not respond to checkpoint inhibitor therapy alone; multi-billion market opportunity**

- **Differentiated platform delivers proprietary therapeutic that enables a patient's own tumor cells to express IL-12 and become responsive to checkpoint inhibitors**
- **Clinical results for lead candidate, TAVO™, combined with Merck's Keytruda® to be announced at SITC medical conference in November**

- **Other key priorities include study results in triple negative breast cancer, neo-adjuvant melanoma, and CORVax-12, a COVID-19 treatment, as well as new pharma partnerships**
- **Capitalized to achieve multiple value-creating milestones**

The Promise of Immunotherapy Has Yet to Be Fully Realized



THE PROMISE

Instead of cytotoxic agents, use the body's own immune system against tumors

Immunotherapy in many forms — like checkpoint therapy — have had **unprecedented success** in halting or shrinking cancer

How Checkpoint Inhibitors Work

1. **Molecular switches known as checkpoints normally prevent T-cells from attacking healthy tissue**

2. **When these checkpoints, such as PD-1 and PD-L1, are hijacked by cancer cells, the immune system's T-cell response is switched off, allowing tumors to grow**

3. **Checkpoint inhibitors flip the switch back on, freeing the immune response so that T-cells are activated and destroy the cancer cells**

Yet, there are still too many patients who are not benefiting from these therapies

Checkpoint Non-response in 60-90% of Cases

TUMOR TYPE	% OF CHECKPOINT NON-RESPONDERS
MELANOMA	~60-80%
TRIPLE NEGATIVE BREAST	~95%
HEAD AND NECK	~68-86%
CERVICAL	~86%
SUBCUTANEOUS T-CELL LYMPHOMA	~57%

KEYTRUDA®

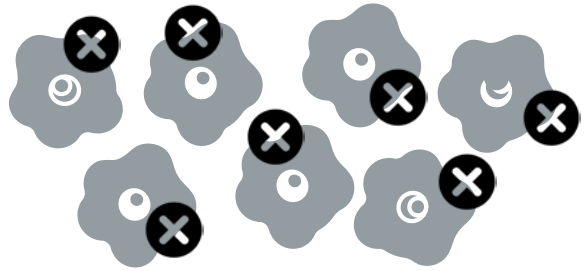
Powerful drugs (like KEYTRUDA®) have been highly successful for some patients, but not the majority

90% of cancers are solid tumors. Of these:

~30%

Hot Tumors

- Have T-cells and cancer fighters
- Respond to checkpoint therapies



~70%

Cold Tumors

- Have immunosuppressive cells
- Have few or no T-cells
- Do not respond to checkpoint therapies

There is an industry effort underway to improve response rates through new therapies or additional therapies

TAVO™ is Capable of Reversing Resistance to Checkpoint Therapies

TAVO (plasmid-based interleukin-12) is administered locally at the tumor site using OncoSec's electroporation gene delivery system. TAVO is designed to induce local expression of IL-12, turning "cold" tumors "hot" and **enabling checkpoint therapies to be effective.**

Well Tolerated

TAVO leverages IL-12, a naturally occurring chemical in the body; intratumoral approach avoids systemic toxicity

Intratumoral Approach with Abscopal Effect

Clinical data in five tumor types showing evidence of anti-tumor activity with whole body (abscopal) effect

Cold to Hot

Clinical data shows TAVO induces local expression of IL-12, converting immunologically suppressed "cold" tumors into T-cell inflamed "hot" tumors

Sustainable

Highly scalable with low manufacturing costs, potentially offering an innovative treatment option well below the cost of other biologic drug therapies

Benefits of Electro Gene Transfer System

A non-invasive, non-chemical, non-toxic method that is easy to perform

Rapid Transfection

More rapid than traditional chemical or biologic cell transfection techniques

Versatile

Wide array of molecules can be transfected, and can be applied to a broad selection of cell types

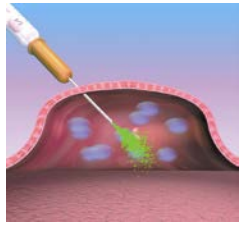
Surface & Visceral Lesions

Beyond cutaneous and subcutaneous; tumors can be accessed with an endoscope, bronchoscope, catheter, or trocar

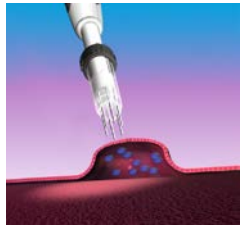
Non-Invasive

Electroporation gene delivery is noninvasive, nonchemical, nontoxic method of cell transfection, applicable to a wide array of immunologically relevant molecules

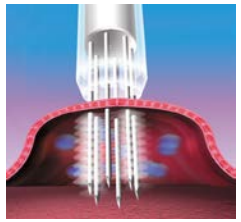
Seamless Delivery of Plasmid IL-12 + Energy



Step 1: TAVO™ Injection
Multiple copies of IL-12 coded DNA plasmids to produce immune modulatory proteins are injected directly into the tumor using a conventional needle and syringe.



Step 2: Applicator Insertion
The applicator's tip needle array is inserted into the tumor, up to a depth of 15mm.



Step 3: Electroporation
Electrical pulses, activated by a foot switch administered between hexagonal needle electrodes increases the permeability of cell membranes, facilitating uptake ("transfection") of IL-12 coded DNA into cells.

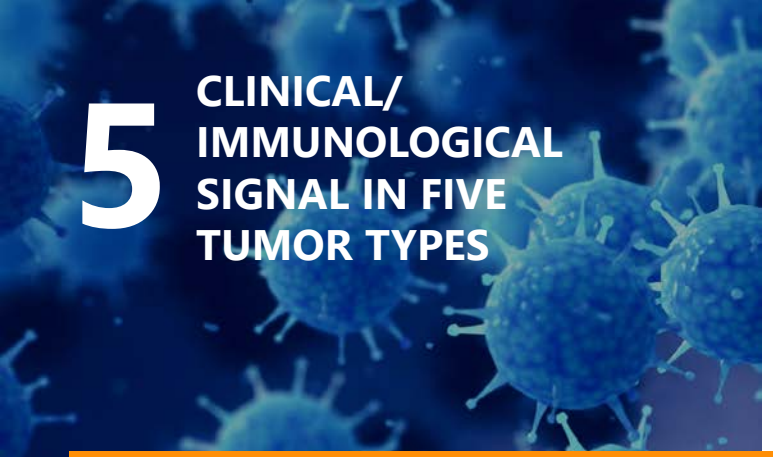
Genpulse™ Generator

Fixed electrical field intensity. Momentary electrical pulses (100 µsec duration and 300 millisecond interval). Pulses activated by foot switch. 16 lbs. 12.5" w x 5.5" h x 13" d

Sub / Cutaneous Applicator

Handle with electrode needed array disposable tip. Applicator 0.5 or 1.0 cm in diameter. Needle array hexagonal. Adjustable needles 1-15 mm.

Entire procedure takes approximately 30 minutes



5 CLINICAL/ IMMUNOLOGICAL SIGNAL IN FIVE TUMOR TYPES

TAVO: A Tumor Agnostic Platform with Single Agent Activity

TAVO + PEMBRO COMBINATION
SPONSORED TRIALS

Metastatic Melanoma
U.S. Orphan
Fast Track
EU ATMP

Metastatic TNBC
Accelerated Approval
Opportunity

KEYNOTE-695
TAVO + pembro
Second Line
CPI refractory
N=100

KEYNOTE-890
TAVO + pembro/chemo
First Line
N=65

TAVO SINGLE AGENT
INVESTIGATOR-SPONSORED TRIALS

- Metastatic Melanoma
- Metastatic Head & Neck
- Metastatic Merkel Cell Carcinoma
- Metastatic Cutaneous T-cell Lymphoma

Clinical Pipeline is Well Diversified with Multiple Growth Opportunities

TAVO™

REGIMEN	TRIAL	INDICATION	N	PARTNER	PHASE 1	PHASE 2	PIVOTAL
TAVO + pembrolizumab	**KEYNOTE-695**	Checkpoint Resistant Metastatic Melanoma	~100	MERCK	→	→	→
TAVO + pembrolizumab	**KEYNOTE-890**	Triple Negative Breast Cancer (TNBC)	~65	MERCK	→	→	
TAVO + SARS-CoV-2 spike glycoprotein	Phase 1, open-label study	COVID-19 Vaccine	~36	PROVIDENCE Cancer Center; NIH	→		
TAVO + epacadostat + pembrolizumab	OMS-131 (Investigator Sponsored Study)	Squamous cell carcinoma head and neck (SCCHN) cancer	~34	UCSF	→		
TAVO + nivolumab	OMS-104 (Investigator Sponsored Study)	Neoadjuvant for operable locally/regionally advanced melanoma	~33	MOFFITT CANCER CENTER	→	→	

KEYNOTE 695

FAST TRACK AND U.S. ORPHAN DESIGNATED

- **Single-arm phase 2 registration enabled**
- **Stage III/IV melanoma**
- **Rigorously confirmed anti-PD-1 non-responder**
  - Received at least 4 doses of FDA-approved anti-PD-1
  - Progressive disease according to RECIST v1.1
  - Documented disease progression <12 weeks of last dose, thus patients must be entered on study within this period
  - No intervening therapies permitted between checkpoint failure and trial enrollment
- **Primary outcome ORR (by BICR) based on RECIST v1.1**
- **Secondary outcomes: ORR, DOR, PFS, and OS**

Up To 30 Sites

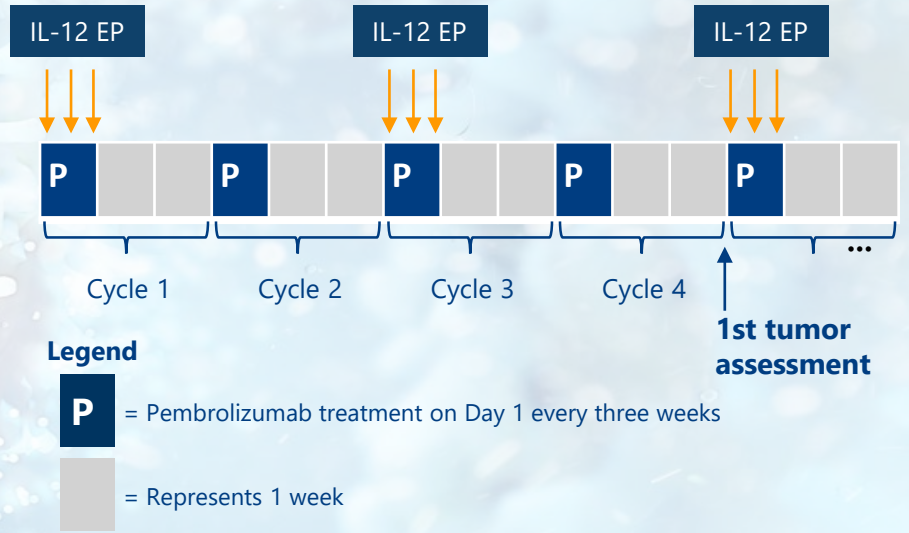
Canada
United States
Italy
Australia

Number Of PATIENTS TO BE TREATED

100

KEYNOTE 695

Dosing Schedule



IL-12 EP = intratumoral TAVO (tavokinogene telseplasmid) injections followed by electroporation on days 1, 5, and 8 every 6 weeks

Tumor assessment occurs every 12 weeks

Patient Demographics and Disease Characteristics

KEYNOTE695

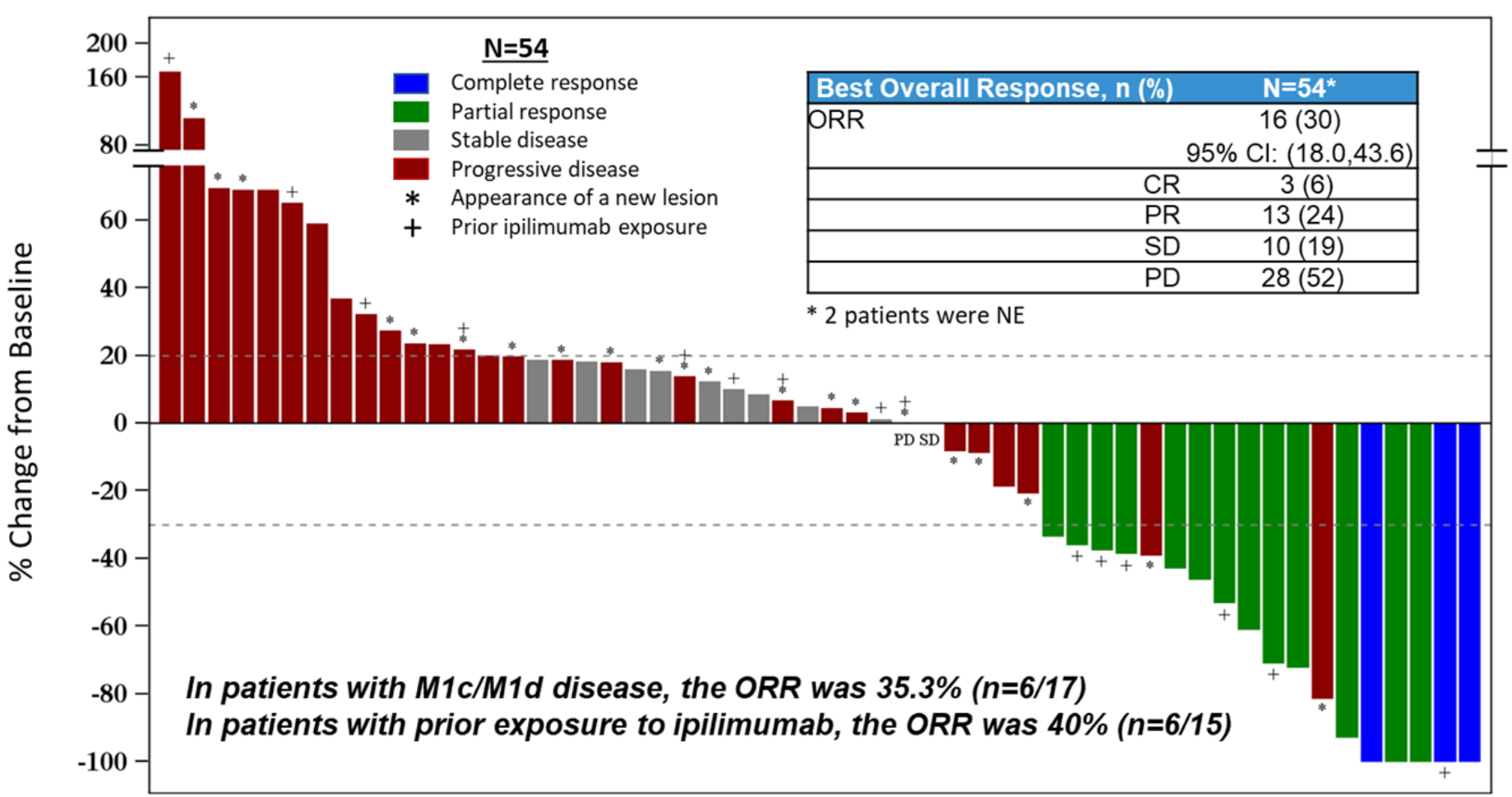
	N=56
Sex	
Female	25 (44.6%)
Male	31 (55.4%)
Age (years)	
Median (Range)	66 (30, 86)
ECOG Performance Status	
0	35 (62.5%)
1	21 (37.5%)
BRAF status	
Mutant (V600E, V600K)	12 (21.4%)
Wild-Type or non-V600 mutation	44 (78.6%)

	N=56
LDH[‡]	
Normal	42 (75.0%)
Elevated >ULN[#]	11 (19.6%)
Unknown	3 (5.4%)
Stage	
III (B,C,D)	9 (16%)
IV (a,b)	30 (53.6%)
IV (c,d)	17 (30.4%)
Number of Target + Non Target Lesions at Baseline	
>3	43 (76.8%)
Mean	8.9 (range 1, 169)
Number of Prior Therapies	
1 line	28 (50%)
2-3 lines	13 (23.2%)
≥ 4 lines	15 (26.8%)
Median	1.5
Mean	2.9 (range 1, 17)
No. of pts with prior Ipilimumab	15 (27%)
Median time of anti-PD-1 exposure prior to study entry with no more than a 12 week gap in between treatments	5.3 months
Median time from last dose of anti-PD-1 to study treatment (Cycle 1 Day 1)	1.2 months

[‡]Based on maximum value prior to dosing; [#]2 patients with ≥ 2X ULN

Investigator-Assessed Response per Recist v1.1

5 of 54 Evaluable Patients had 100% Tumor Reduction



Best Overall Response, n (%)	N=54*
ORR	16 (30)
	95% CI: (18.0,43.6)
CR	3 (6)
PR	13 (24)
SD	10 (19)
PD	28 (52)

* 2 patients were NE

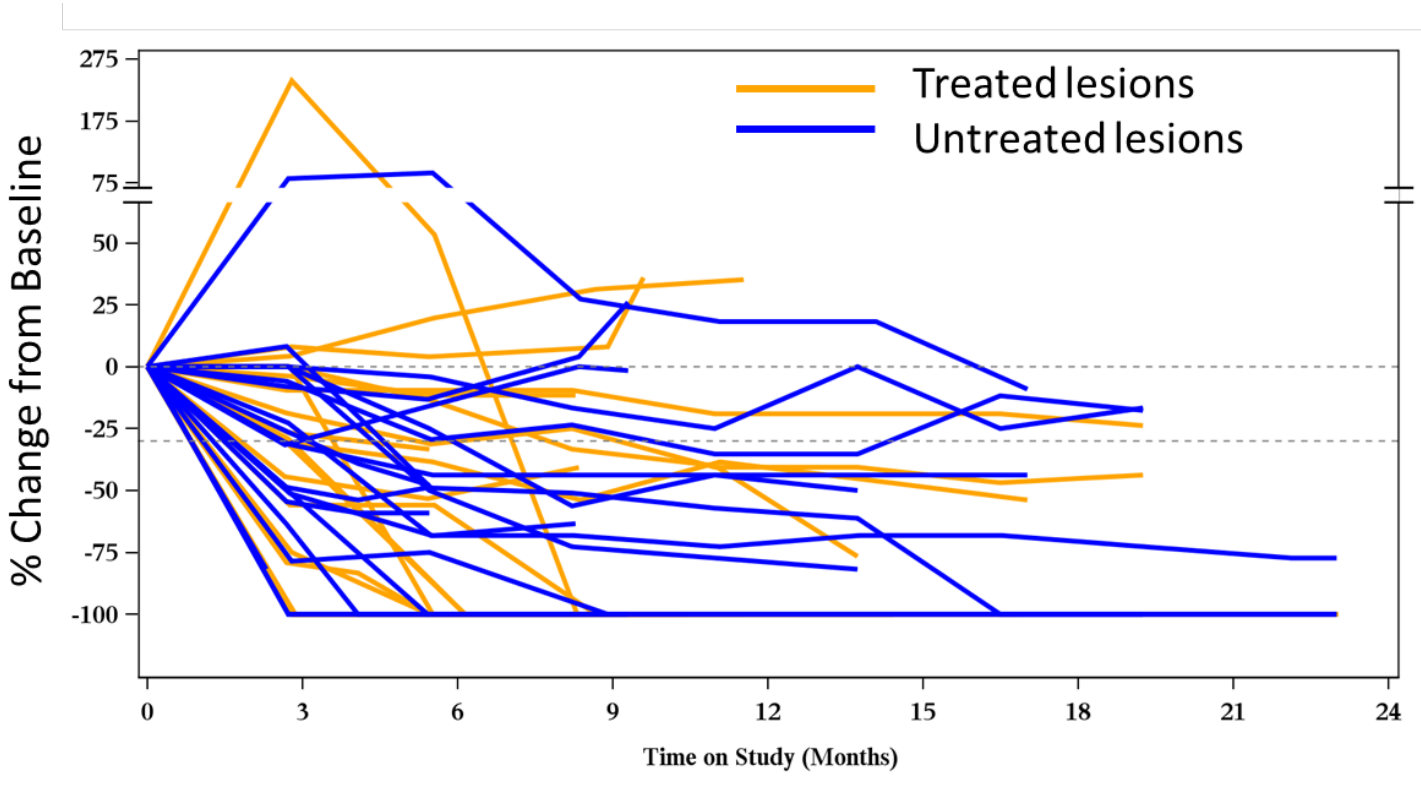
Treatment–Related Adverse Events (TRAE) in ≥ 5% of Patients

	All Grades n(%) (N=56)	Grade 1/2	Grade 3	Grade 4	Grade 5
Patients with at least one TEAE	43 (76.8%)	40 (71.4%)	**3 (5.4%)**	-	-
Fatigue	15 (26.8%)	15 (26.8%)	-	-	-
Procedural pain	13 (23.2%)	13 (23.2%)	-	-	-
Diarrhea	11 (19.6%)	11 (19.6%)	-	-	-
Nausea	6 (10.7%)	6 (10.7%)	-	-	-
Rash	6 (10.7%)	6 (10.7%)	-	-	-
Abdominal pain	4 (7.1%)	4 (7.1%)	-	-	-
Arthralgia	4 (7.1%)	4 (7.1%)	-	-	-
Injection site pain	4 (7.1%)	4 (7.1%)	-	-	-
Myalgia	4 (7.1%)	4 (7.1%)	-	-	-
Pruritus	4 (7.1%)	4 (7.1%)	-	-	-
Administration site reaction	3 (5.4%)	3 (5.4%)	-	-	-
Aspartate aminotransferase increased	3 (5.4%)	3 (5.4%)	-	-	-
Cellulitis	3 (5.4%)	2 (3.6%)	1 (1.8%)	-	-
Dyspnea	3 (5.4%)	3 (5.4%)	-	-	-
Upper respiratory tract infection	3 (5.4%)	3 (5.4%)	-	-	-
Enteritis	1 (1.8%)	0	1 (1.8%)	-	-
Lichen planus	1 (1.8%)	0	1 (1.8%)	-	-

The median time for pIL-12 (TAVO™) electroporation treatment was 11 minutes (range 1,76)

Patients who experienced the same TEAE on more than one occasion (based on the specific category) are counted once in each relevant category (n). Adverse event terms are coded using the Medical Dictionary for Regulatory Activities (MedDRA) Version 19.0.

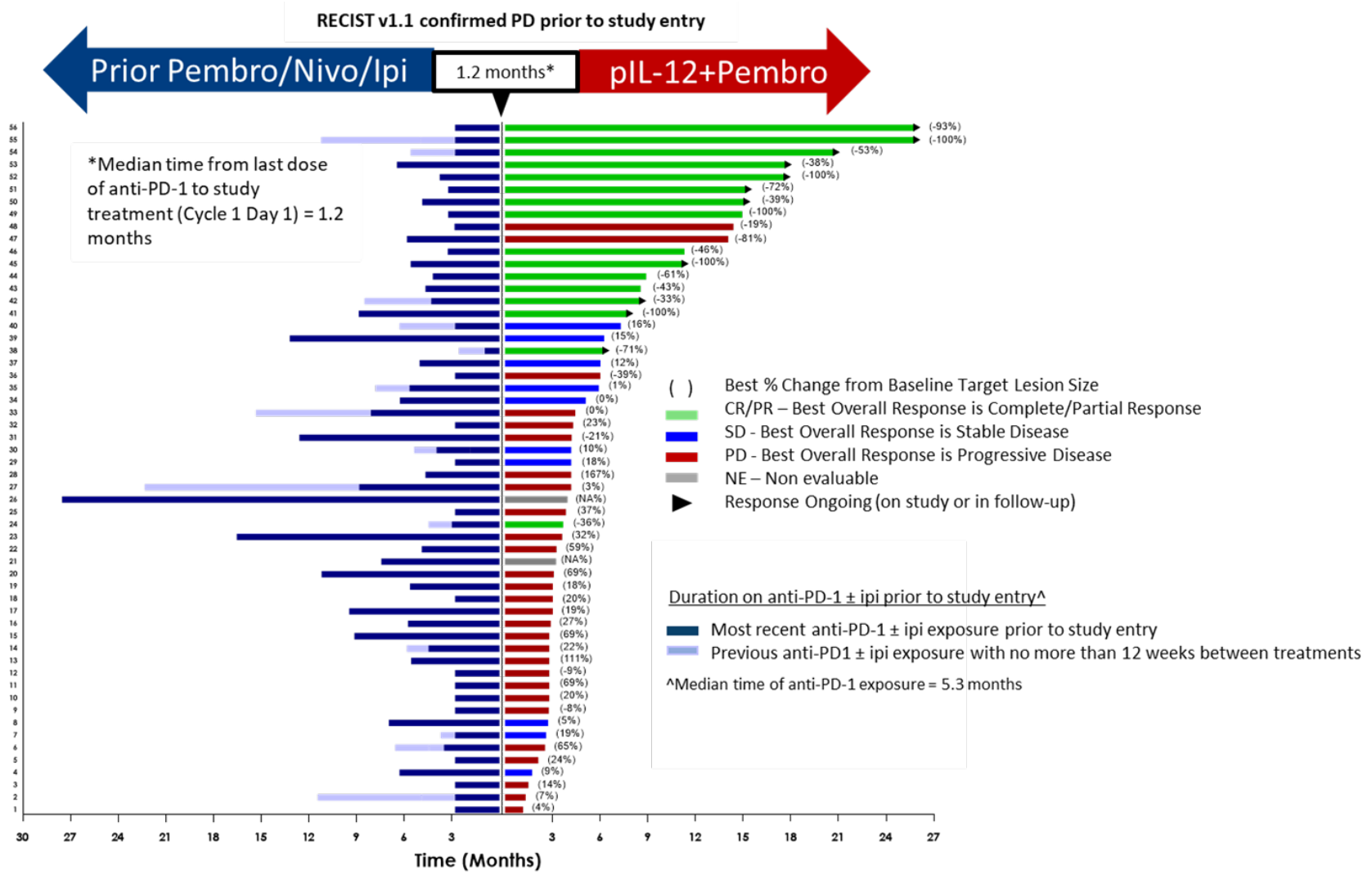
Treated and Untreated Lesions from 16 Responding Patients



	Treated N=22	Untreated N=20
Skin/Subcutaneous	18 (82%)	3 (15%)
Lymph node local/regional	4 (18%)	5 (25%)
Lymph node distant	0	3 (15%)
Other: Kidney, liver, lung, other visceral metastases	0	9 (45%)

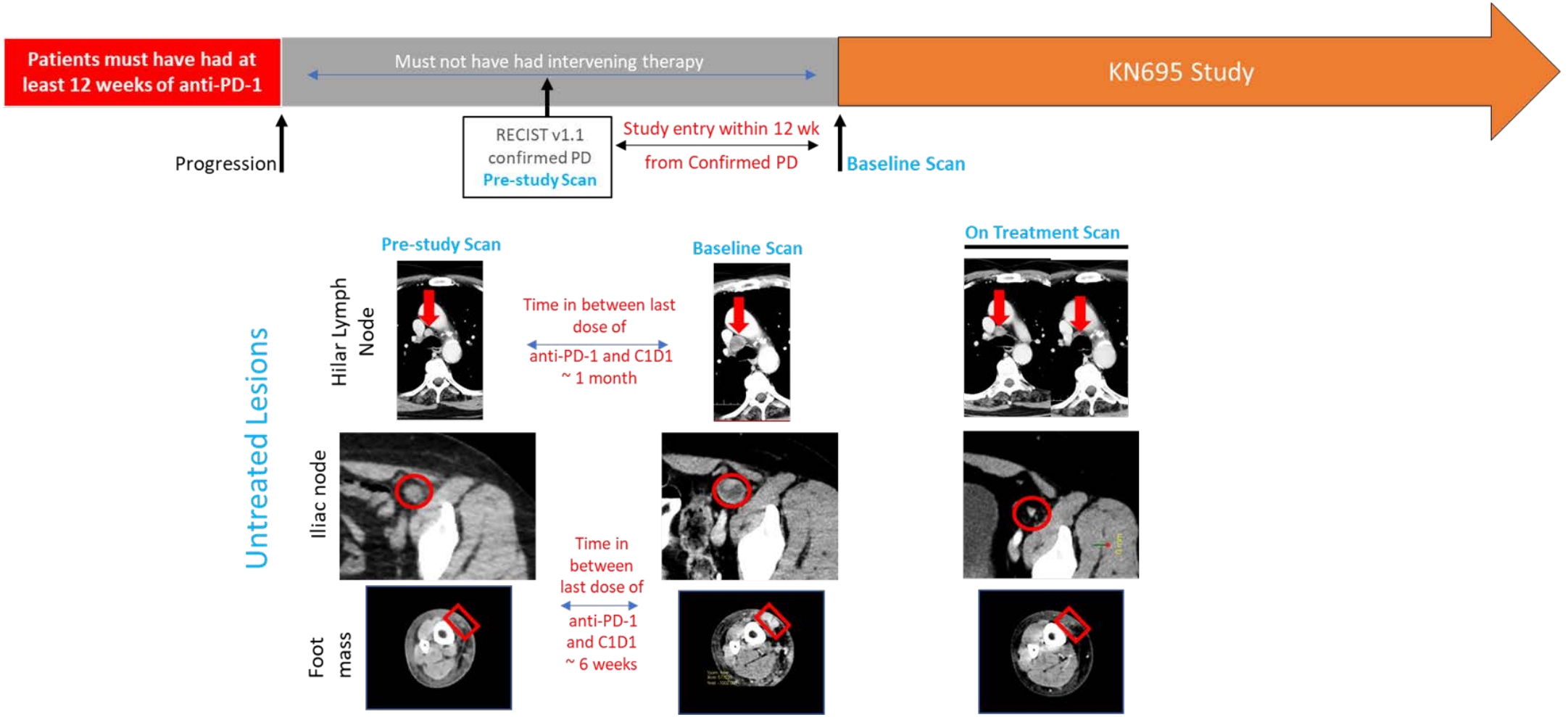
ORR for patients with < 50% of target lesions injected	40% (6/15)
ORR for patients with 100% of target lesions injected	32% (7/22)

Actively Progressing Patients & Short Interval Between the Last Dose of Anti-PD-1 and Study Treatment



Fernandez-Peñas, P. *et al.*, SITC 2020

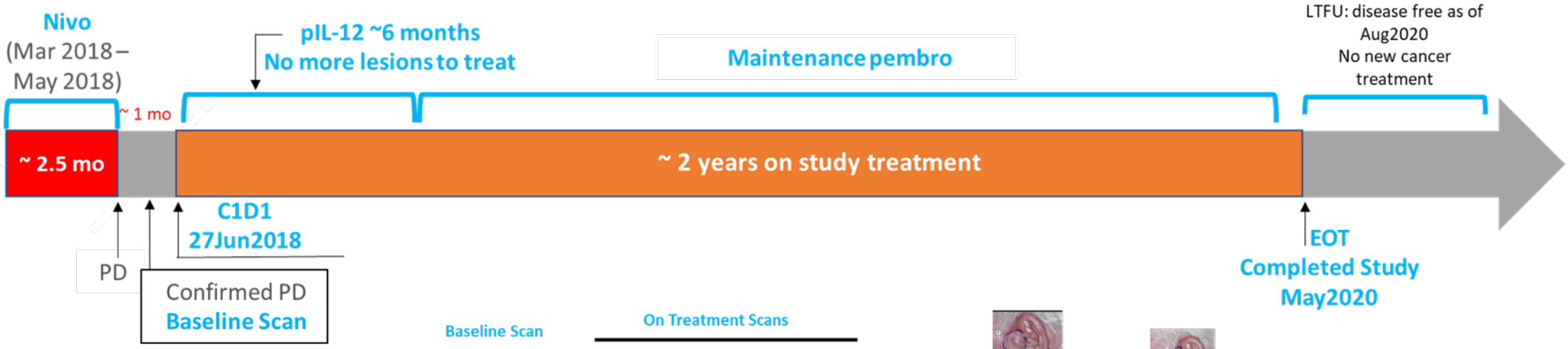
Actively Growing Lesions Significantly Reduced in Size after pIL-12 + Pembrolizumab Treatment

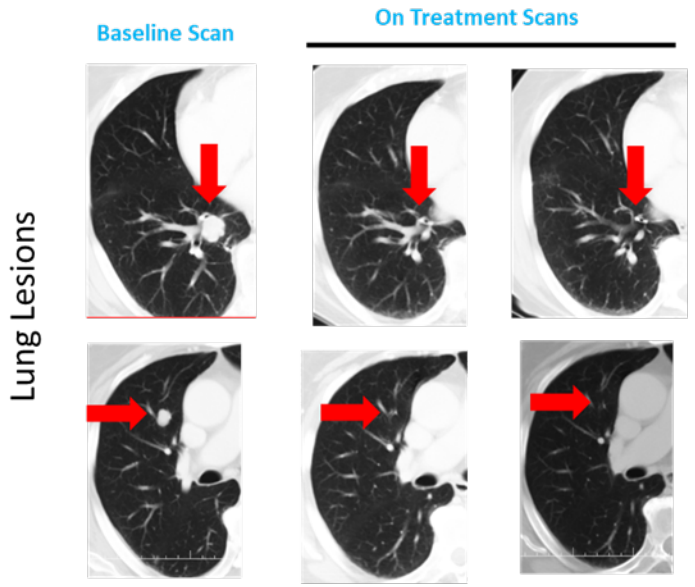


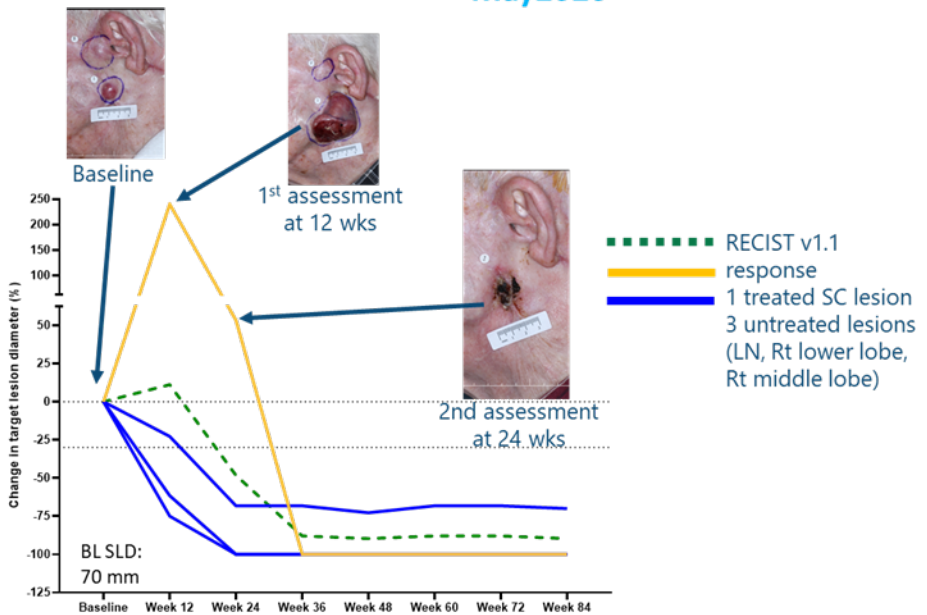
Fernandez-Peñas, P. *et al.*, SITC 2020

Pseudo Progression in Target Lesion followed by tumor Response [Stage IVB; PR (-93%)]

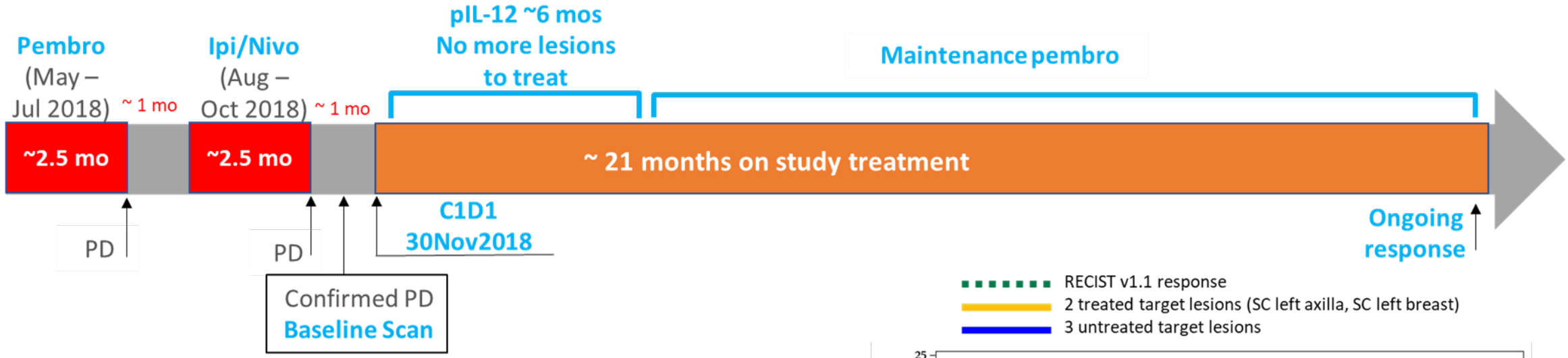
KEYNOTE695



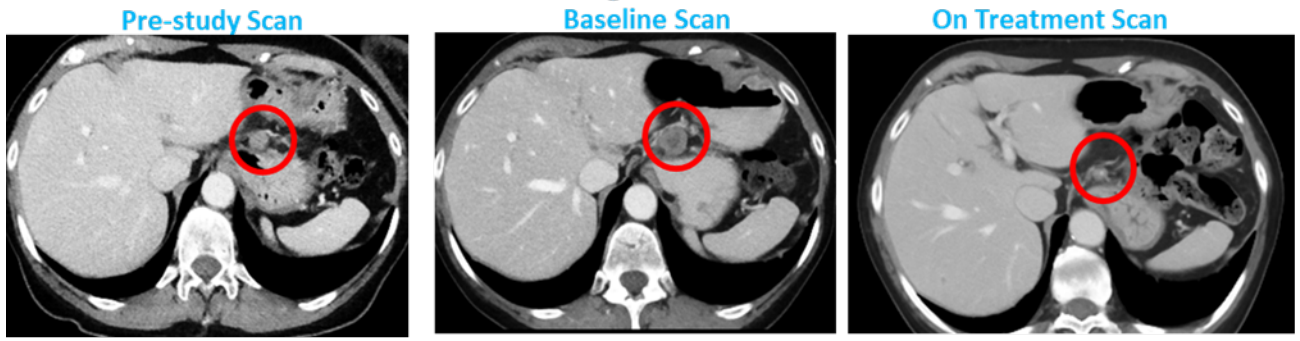


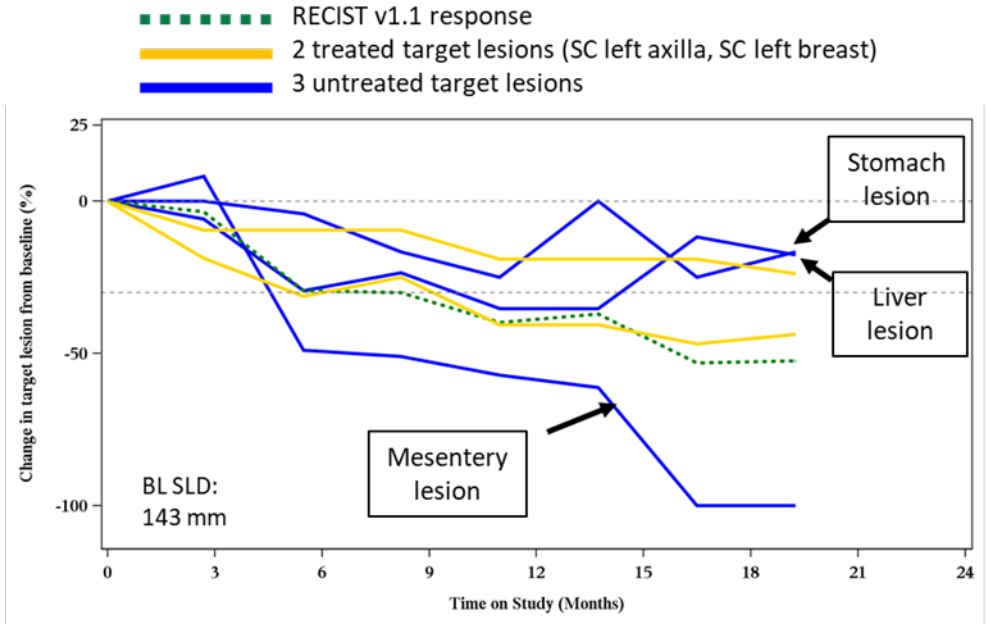


Progression on Ipi/Nivo Followed by Tumor Response[Stage IVC; PR (-53%)]



Untreated non-target lesion; lesser omentum





US Market Opportunity

90% of all cancer cases are solid tumors

1.6M new cases of solid tumors in the US

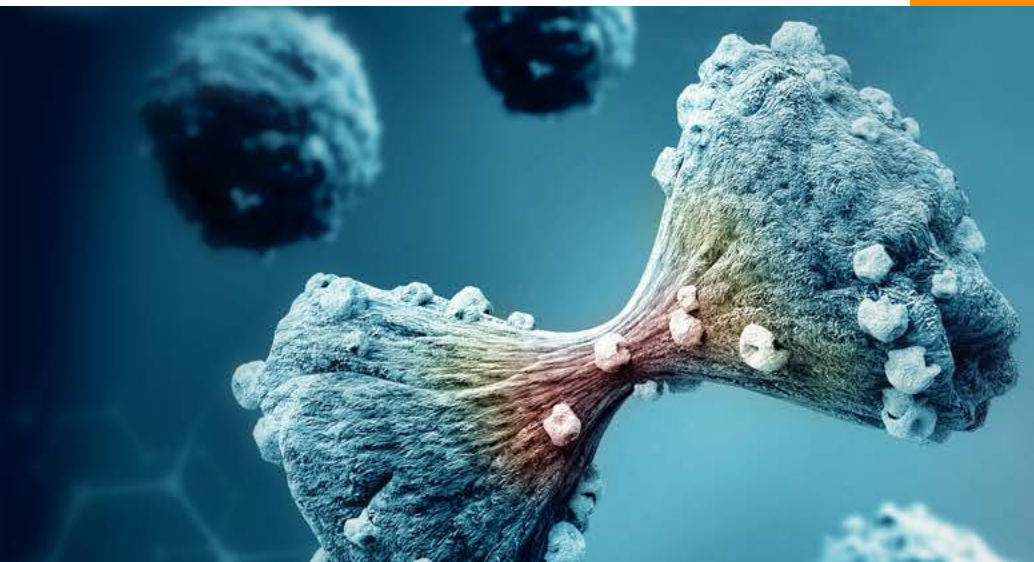
Focusing First on Metastatic Melanoma in the United States

91,000 diagnosis each year

9,000 deaths each year

Incidence of melanoma on the rise (1.4% yearly for a decade)

US melanoma market projected to almost double from $2B in less than 10 years



15,000
Patients receiving PD-1 inhibitors

9,000
PD-1 refractory patients

2,700
PD-1 refractory with accessible lesions

Commercialization by 2022 Targeted

Potential US Regulatory Timeline

2021
Pre-BLA Meeting with FDA

2022
FDA Accelerated Approval of TAVO for Metastatic Melanoma

2021
Submission of BLA for Accelerated Approval

KEYNOTE 695

TAVO is US Orphan Designated and Keynote-695 is fast tracked. OncoSec will seek accelerated approval

Potential EU Regulatory Timeline

Awarded EU small-medium enterprise (SME) and ATMP designations by EMA's committee on advanced therapeutics (CAT) in 2020

2020
Obtain CE Mark for to-be-marketed GenPulse Device

2021
Meetings with EU Rapporteurs

2023
EMA Conditional Approval of TAVO for Metastatic Melanoma

EARLY 2019
Obtained Advanced Therapy Medicinal Product (ATMP) Designation

2022
File MAA for Conditional Approval in EU and File Device Application in EU

Expanding KEYNOTE-890 into First-Line mTNBC

PHASE 2

Multi-cohort, open-label study of TAVO in combination with KEYTRUDA with or without chemotherapy in approximately 65 patients with metastatic TNBC

COHORT 1

TAVO and KEYTRUDA in patients with heavily pre-treated mTNBC

N=25

CLOSED ENROLLMENT

COHORT 2

TAVO and KEYTRUDA plus Chemotherapy in patients with mTNBC (first-line setting)

N=40

NOW ENROLLING

Primary Endpoint: ORR by blinded independent central review (BICR) based on RECIST v1.1

If KEYNOTE 890 Cohort 2 is successful, plan to expand into pivotal study

TAVO could be eligible for FDA accelerated approval

KEY ADVANTAGES OF MOVING TO FIRST-LINE

High unmet medical need

Opportunity to improve PFS and OS

Cohort 2 designed to expand into pivotal study

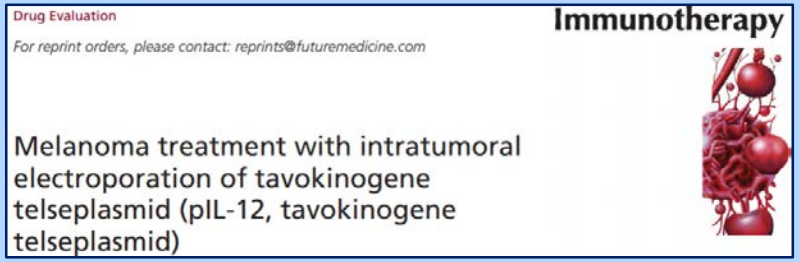
Larger overall patient population – greater commercial opportunity vs. last-line setting

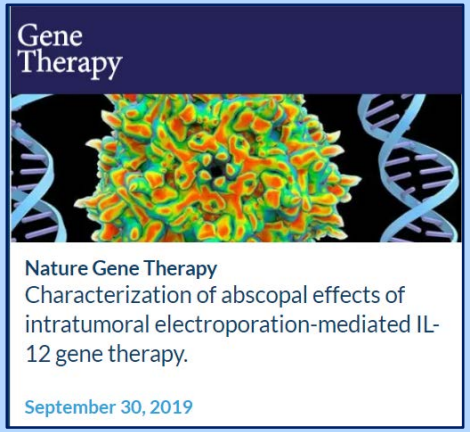
TAVO has shown higher efficacy in less refractory patients in melanoma

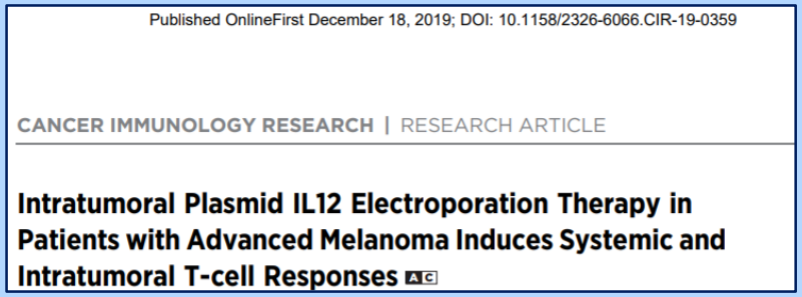
Recent Peer Reviewed Publications

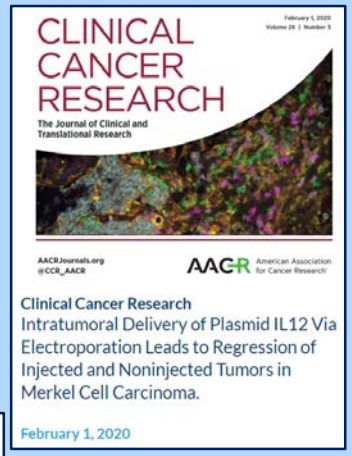
*Click thumbnails to access full articles

TAVO SINGLE AGENT ABSCOPAL EFFECT

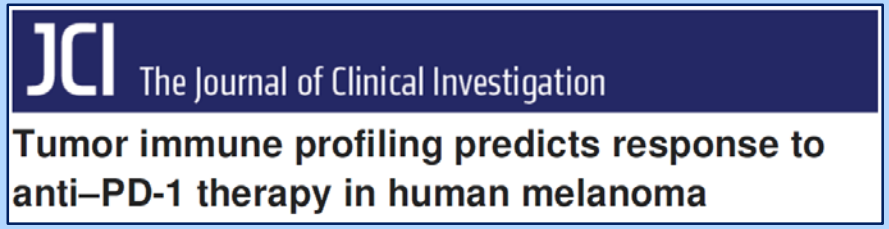


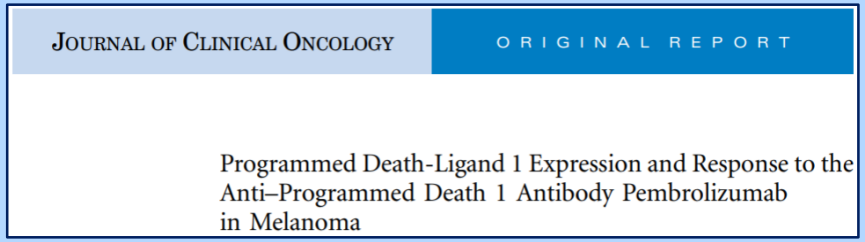


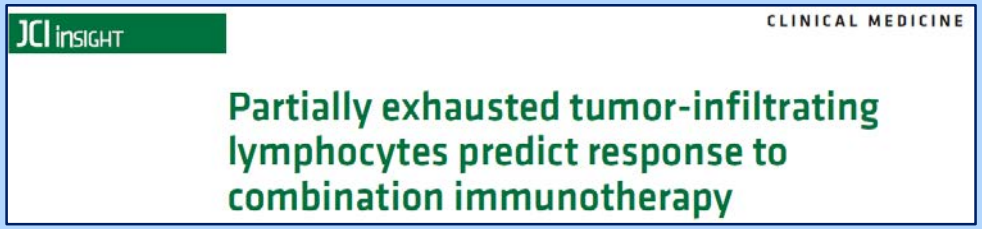


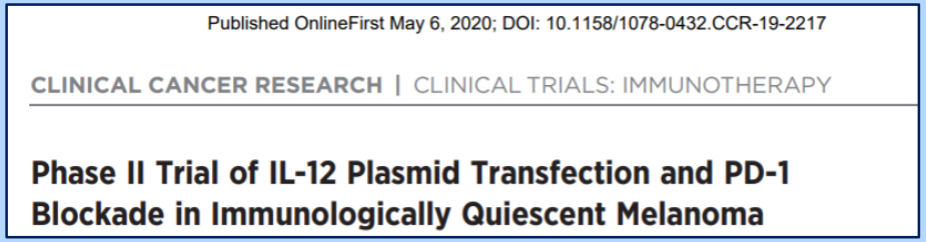


TAVO + PEMBRO IN ANTICIPATED ANTI-PD-1 CHECKPOINT FAILURES



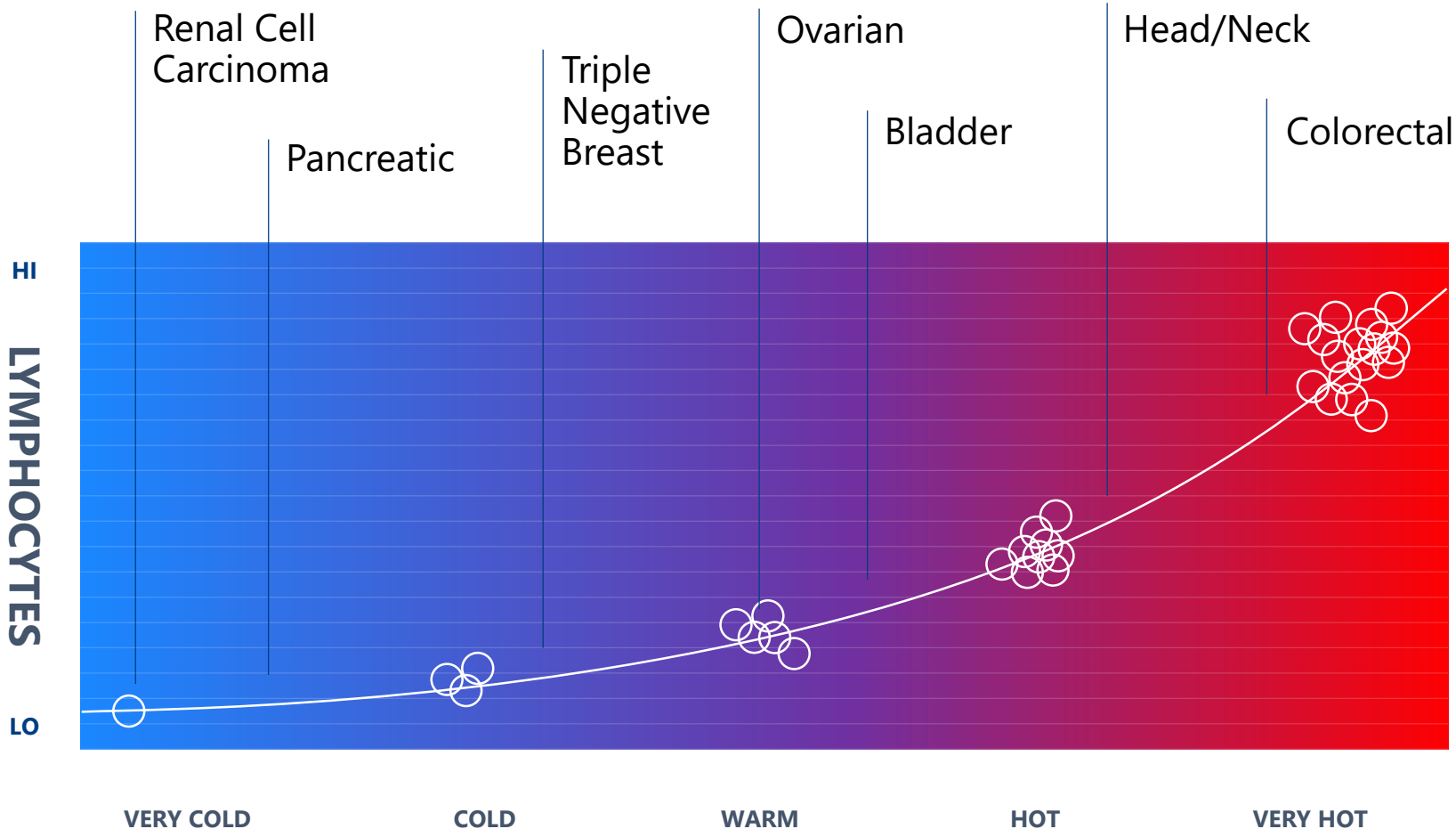






FUTURE OPPORTUNITIES

TAVO™ is Tumor Agnostic



Giving life to the promise of immunotherapies across cancer types

Few cancers are highly infiltrated or "HOT" - most fall on a spectrum from warm (cold-acting) to cold

TAVO is widely applicable, we plan to expand our studies to include a wider range of tumors that do not respond well to checkpoints, including traditionally "cold"

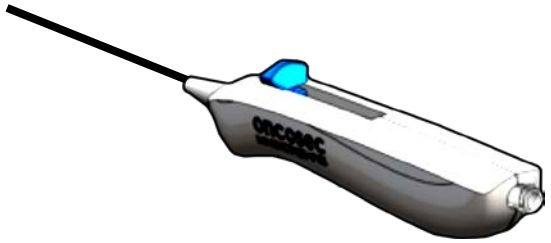
The Power of TAVO™ for Visceral Lesions (liver, GI, lung)

Pioneering technology designed to target and treat tumors located deep inside the body

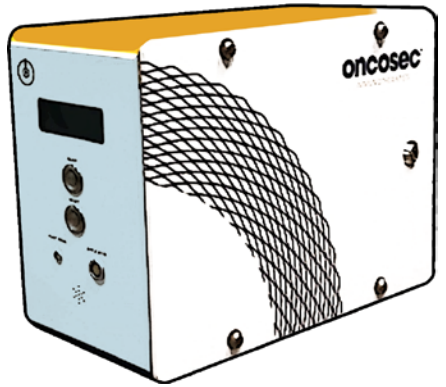
INTRODUCING THE

VLA: Visceral Lesion Applicator

Flexible catheter-based applicator



Rigid trocar-based applicator



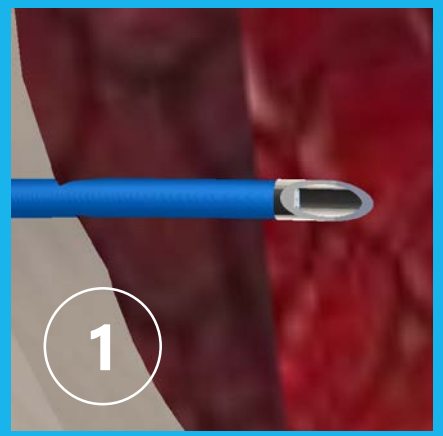
Lower voltage Apollo generator to be used with VLA

VLA Highlights

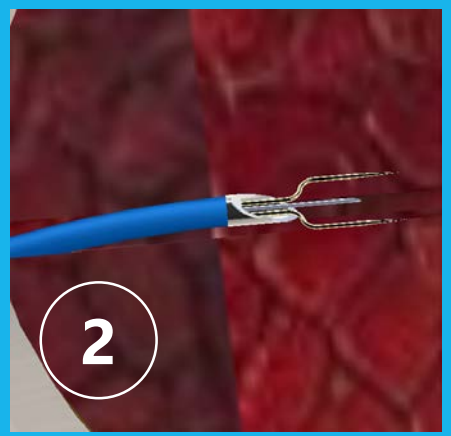
1. Rigid and catheter models:
   Used with bronchoscope, cystoscope, and trocar

2. Prototype successfully tested in large animal model: bone, pancreas, liver, lung, & bladder

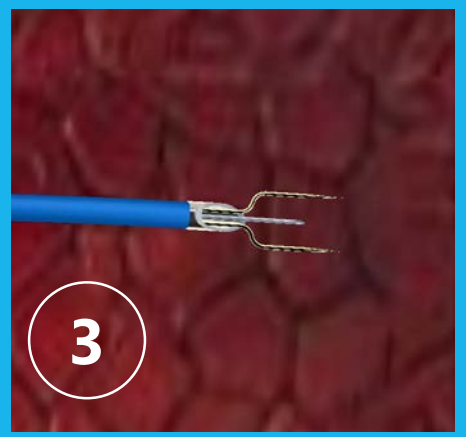
ENTERS THE ORGAN

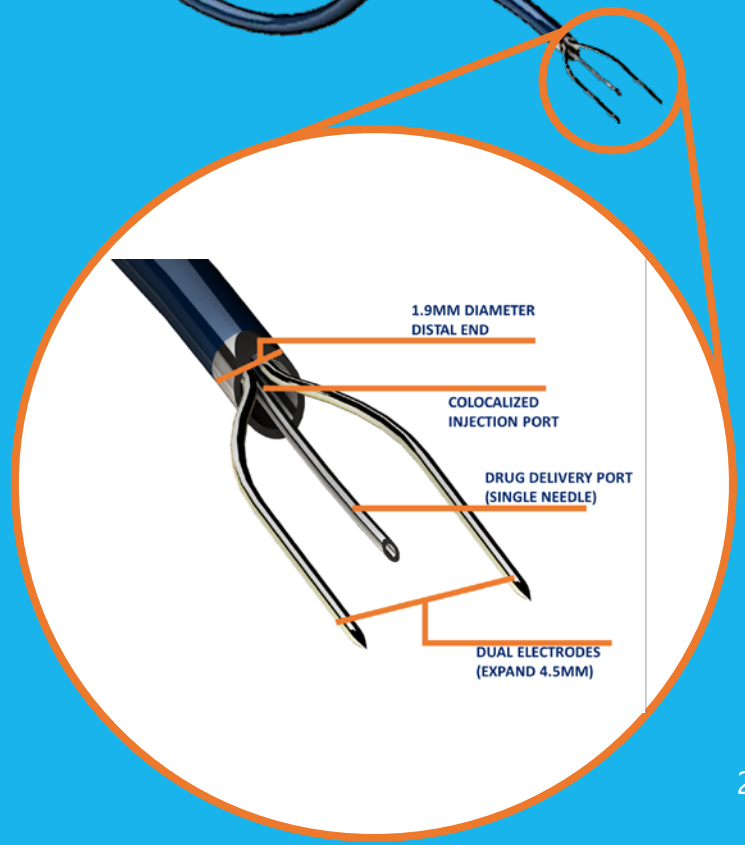


NEEDLE/ELECTRODES EXPANDED DRUG DELIVERY



GENE ELECTROTRANSFER





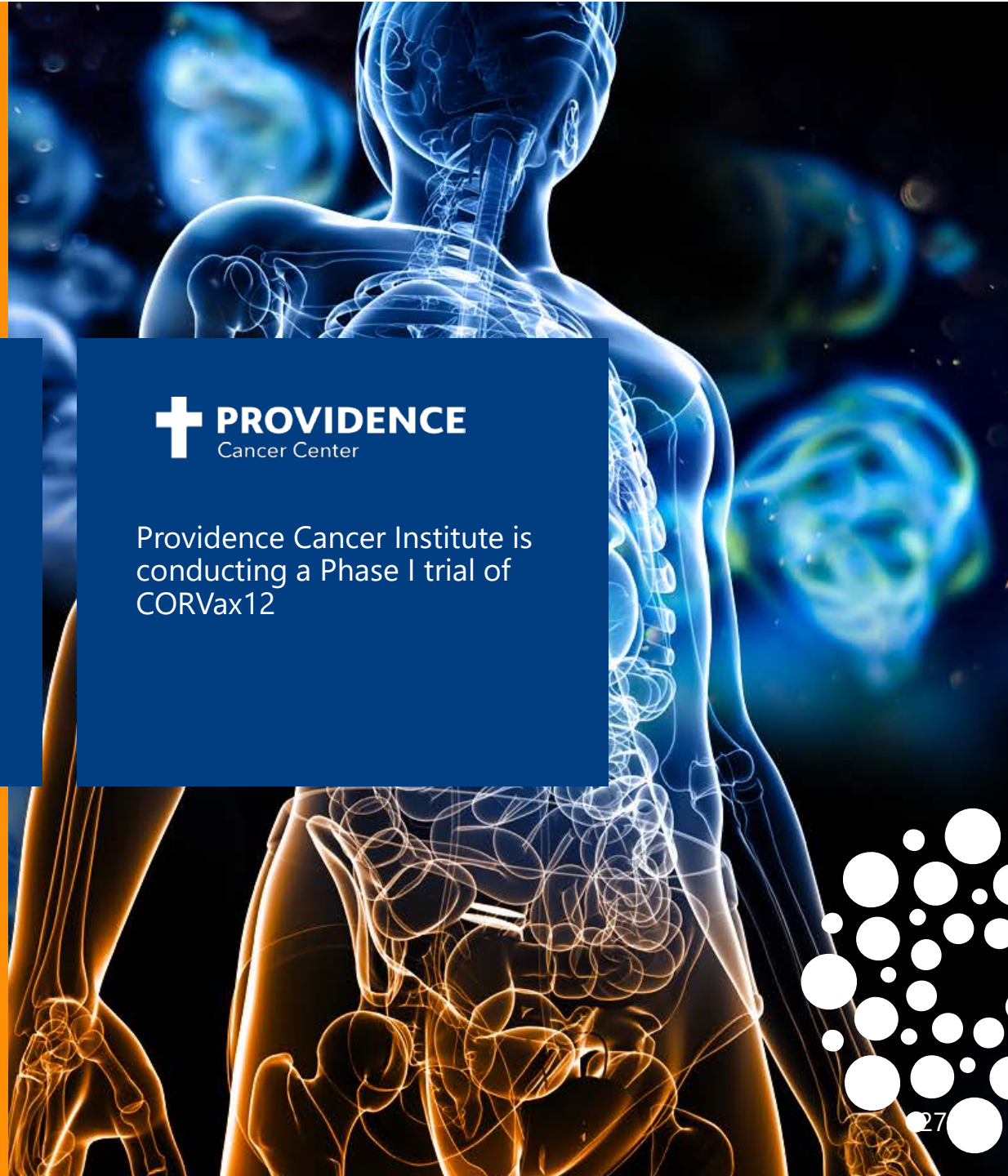
CORVax12 Vaccine for COVID-19

CORVax12 is a DNA vaccine which combines OncoSec's TAVO / IL-12 immunotherapy with NIH's "spike" protein developed by NIAID as a vaccine against the 2019 novel coronavirus

The combination of IL-12 and NIH's spike protein is designed to drive a coordinated vaccine response, capable of eliciting a Th1-biased cellular immune response to drive robust humoral immunity

PROVIDENCE Cancer Center

Providence Cancer Institute is conducting a Phase I trial of CORVax12



IND granted by FDA in November 2020
Phase 1 clinical trial to as soon as possible

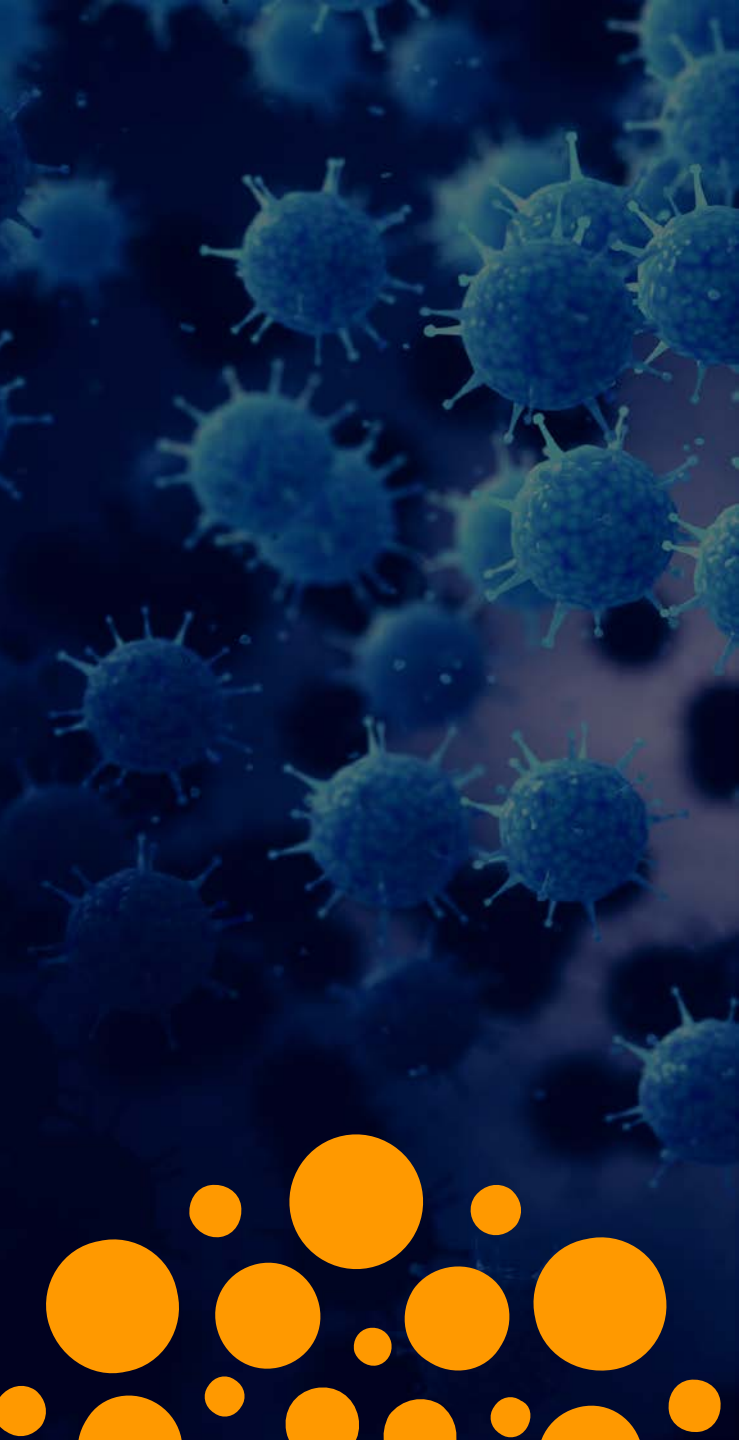
As of October 2020, there are seven vaccine candidates currently being tested in human participants in the U.S.[1]

[1]https://www.marketwatch.com/story/there-are-seven-coronavirus-vaccine-candidates-being-tested-in-the-us-heres-where-they-stand-2020-09-08

Leveraging World Class Strategic Partnerships to Enhance Pipeline Value

CGE HEALTHCARE	SIRTeX	MERCK	emerge health
Our partnership with CGP gives us the ability to develop and introduce our products to the important Chinese market	Through our partnership with Sirtex, we have access to top-notch commercial talent and resources	We are partnering with Merck on several KEYNOTE clinical programs to potentially address a great unmet need: anti-PD-1 non-responders	Emerge collaboration provides Australian metastatic melanoma patients early access to TAVO™ via the Special Access Scheme

Other TAVO R&D Partnerships Include: UCSF, Duke University, Roswell Park



Strong Financial Position to Drive TAVO™ Development Forward

$20.4M
Cash & Equivalent as of 7/31/20

27,771,571
Total Shares Outstanding as of 8/31/20

~$14M
Financing Completed August 2020

None
Debt

Key Developments in 1H 2020

- Closed on $30 million strategic financing and partnership with CGP/Sirtex
- Presented promising preclinical data on novel visceral lesion applicator
- Announced partnership with Providence Cancer Institute to investigate OncoSec's CORVax-12 vaccine for COVID-19
- Appointed renowned oncologist and immunologist – Herbert Kim Lyerly, MD, Duke University – to board of directors
- TAVO™ granted CAT certification in Europe to support marketing authorization application in melanoma
- Increased recognition of TAVO data via 4 peer-reviewed publications year-to-date
- Strengthened IP estate with three new patents covering TAVO and electroporation gene delivery system
- Initiated a second TAVO / KEYTRUDA® combination study in TNBC designed to expand into a pivotal study

Anticipated Milestones

- [x] Closed on $15 million financing
- [x] Obtain IND for CORVax12, a vaccine for COVID-19
- [x] Provide interim data update at SITC 2020 for KEYNOTE-695
- [ ] First patient dosed CORVax12
- [ ] Complete enrollment in registration directed KEYNOTE-695 study
- [ ] Prepare to file TAVO™ for accelerated FDA approval in metastatic melanoma
- [ ] Initiate TAVO neoadjuvant study in metastatic melanoma
- [ ] Complete preclinical assessment and IND prep for VLA, APOLLO™ and SPARK™

Established Biotech Leaders
WITH A TRACK RECORD OF SUCCESS

MANAGEMENT

Daniel J. O'Connor
President/Director/CEO

Christopher G. Twitty, Ph.D
Chief Scientific Officer

Keir Loiacono
General Counsel, Vice President, Corporate Development

Robert J. DelAversano, CPA
Principal Accounting Officer And Controller

Kim Jaffe, Ph.D
Associate Vice President, Business Development & Operations

Robert W. Ashworth, Ph.D
Senior Vice President, Regulatory, Quality/CMC

Sandra Aung, Ph.D
Senior Vice President, Clinical Development

John Rodriguez
Vice President, Product Engineering

Jendy Sell
Associate Vice President, Clinical Development

BOARD OF DIRECTORS

Daniel J. O'Connor, JD
Chief Executive Officer & Director

Margaret R. Dalesandro, Ph.D.
Chair

Herbert Kim Lyerly, M.D.
Director

Chao Zhou
Director

Yuhang Zhao, Ph.D., M.B.A.
Director

Kevin R. Smith
Director

Jim DeMesa, M.D., M.B.A.
Director

Robert E. Ward
Director

Joon Kim, JD
Director

CLINICAL ADVISOR

Alain Algazi, M.D.

OncoSec is Positioned for Success with TAVO™

Positive tumor shrinkage/response data being generated by our lead product candidate, TAVO, across multiple solid tumor types

Well tolerated, natural solution that may increase the efficacy of checkpoint therapies

Expanding device development and clinical studies into new tumor types to serve a wider set of patients

Fast track status and partnership with Merck provides opportunity for more robust drug development

Strong financial position with no debt

Thank You

oncosec™
IMMUNOTHERAPIES

Keir Loiacono
HEAD OF CORPORATE DEVELOPMENT

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