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

NASDAQ: ONCS
MARCH 2021

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

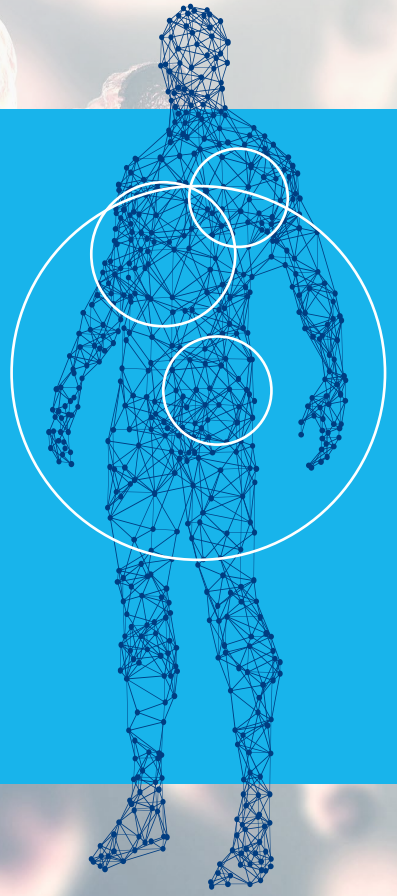
Ticker: NASDAQ: ONCS
Market Cap (as of 3/22/21): ~$211M
Stock Price (as of 3/22/21): $5.69
Shares Outstanding (as of 3/22/21): ~37M

- **Biotechnology company focused on intratumoral (IT) delivery of DNA-based immunotherapies as monotherapy and in combination regimes**
- **Developing treatments for solid tumor cancer indications, where a majority of patients do not respond to checkpoint inhibitor therapy alone; multi-billion market opportunity**

- **Differentiated platform delivers proprietary IL-12 immunotherapy 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® were presented at the SITC medical conference in November 2020**

- **Other key priorities include clinical studies in metastatic triple negative breast cancer, neo-adjuvant melanoma, our visceral lesion applicator (VLA), as well as new pharma partnerships**
- **Well 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®

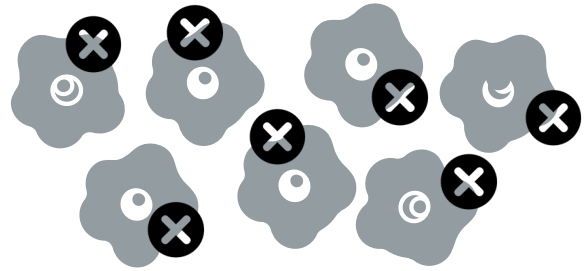
Powerful drugs (like KEYTRUDA®) have been highly successful for some patients, but not the majority

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 gene electro therapy (GET) 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

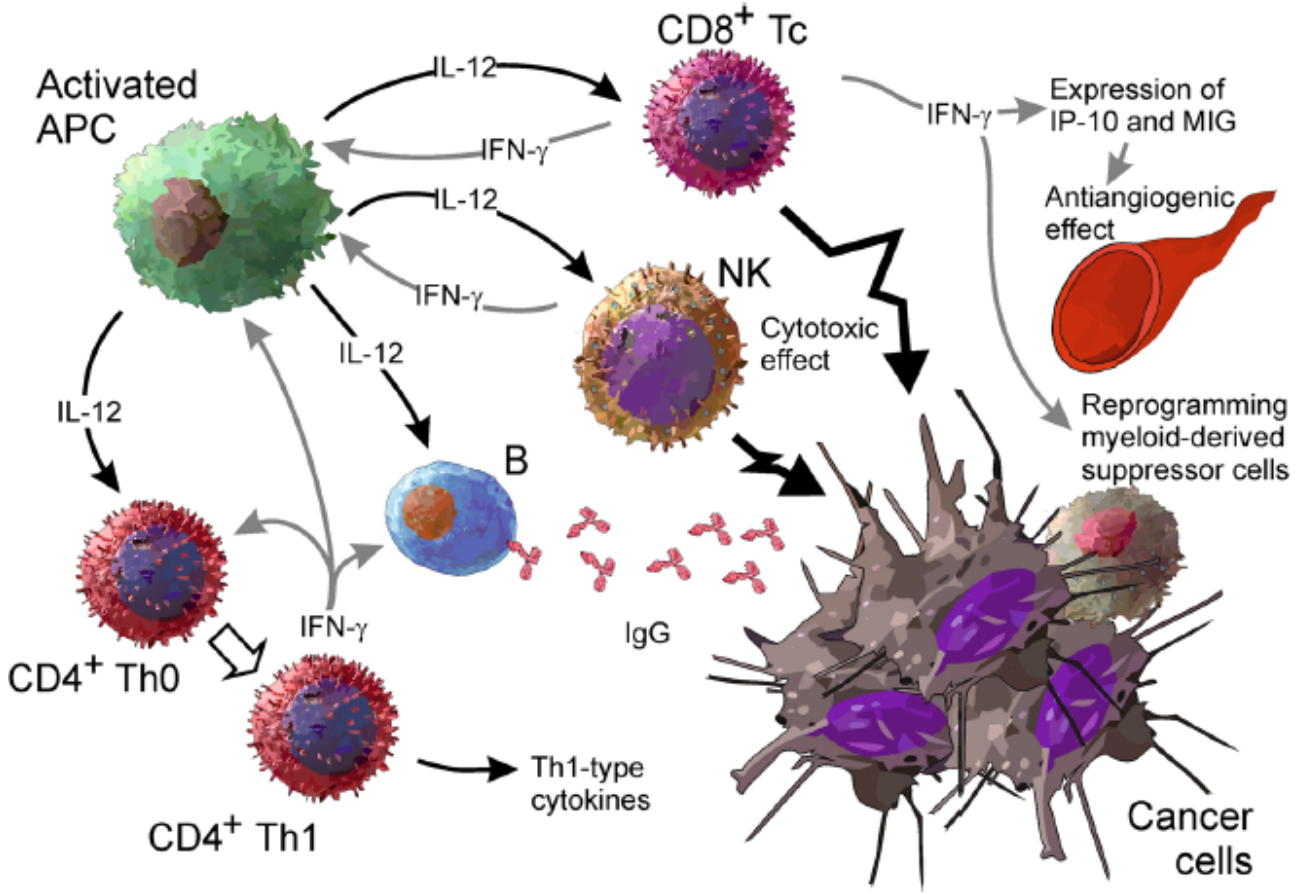
Cold to Hot

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

IL-12 IS A KEY MEDIATOR OF COMMUNICATION BETWEEN DC/MACROPHAGES (INNATE) & EFFECTOR T CELLS AND NK CELLS (ADAPTIVE)



Lasek W, et al, Cancer Immunol Immunother 2014

Benefits of Gene Electro Transfer (GET) 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

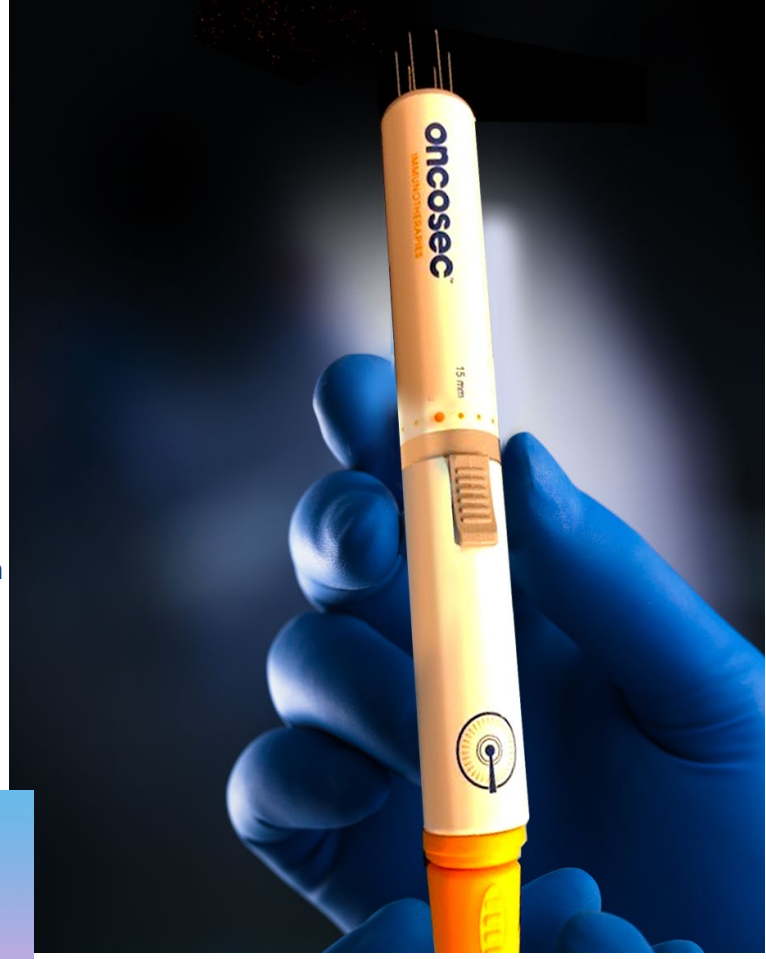
Non-Invasive

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

Generator

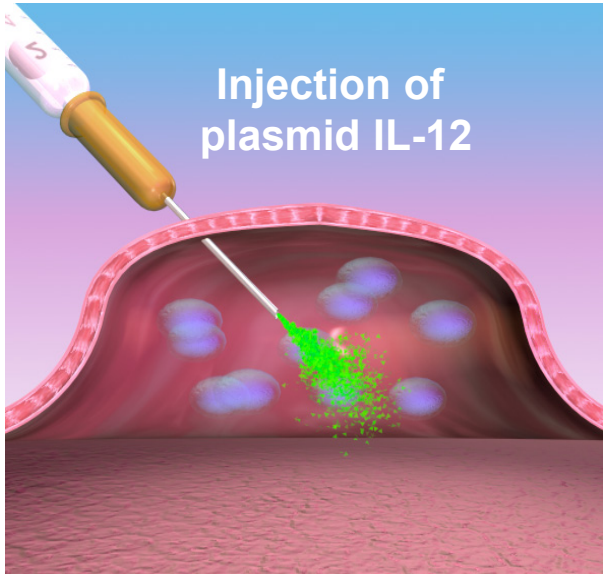
- Fixed electrical field intensity
- Momentary electrical pulses (100 µsec duration and 300 millisecond interval)
- Pulses activated by foot switch
- 16 lbs. 12.5” w x 5.5” h x 13” d

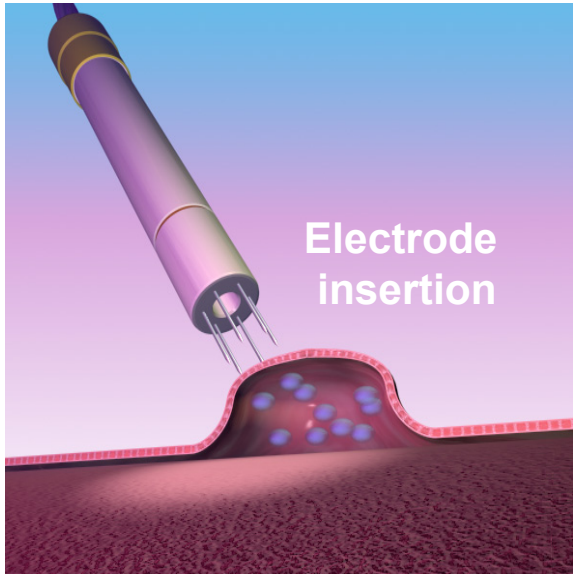


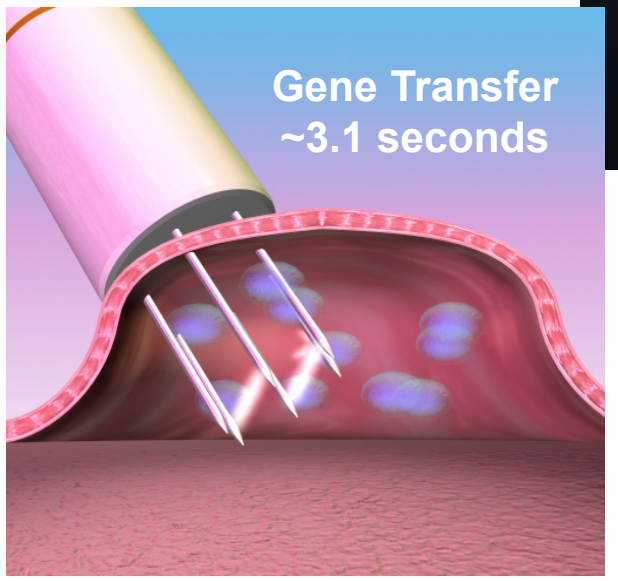
Step 1: TAVO™ Injection
Multiple copies of IL-12 coded DNA plasmids to produce immune modulatory proteins are injected directly into the tumor using a conventional needle and syringe

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







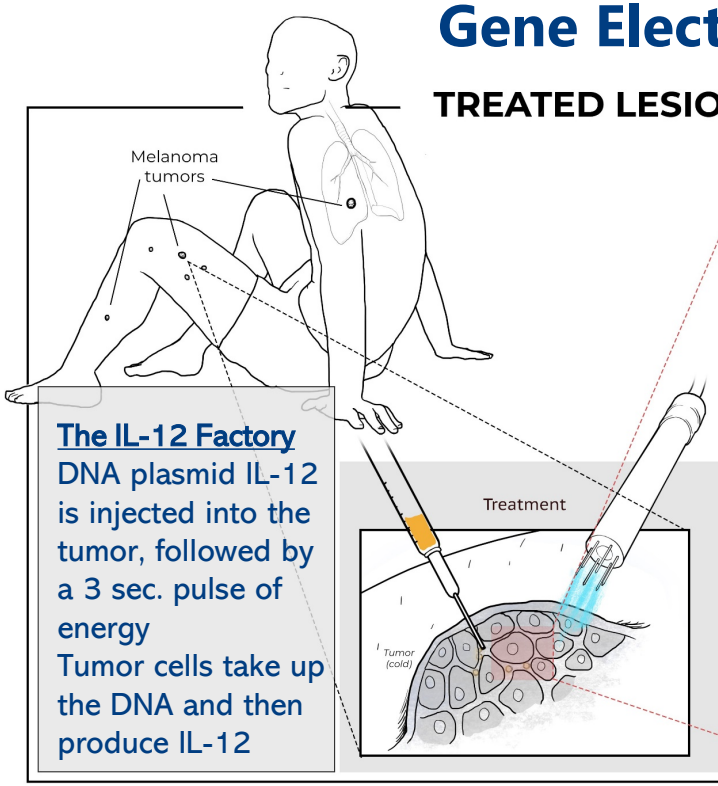
Sub/Cutaneous Applicator

- 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

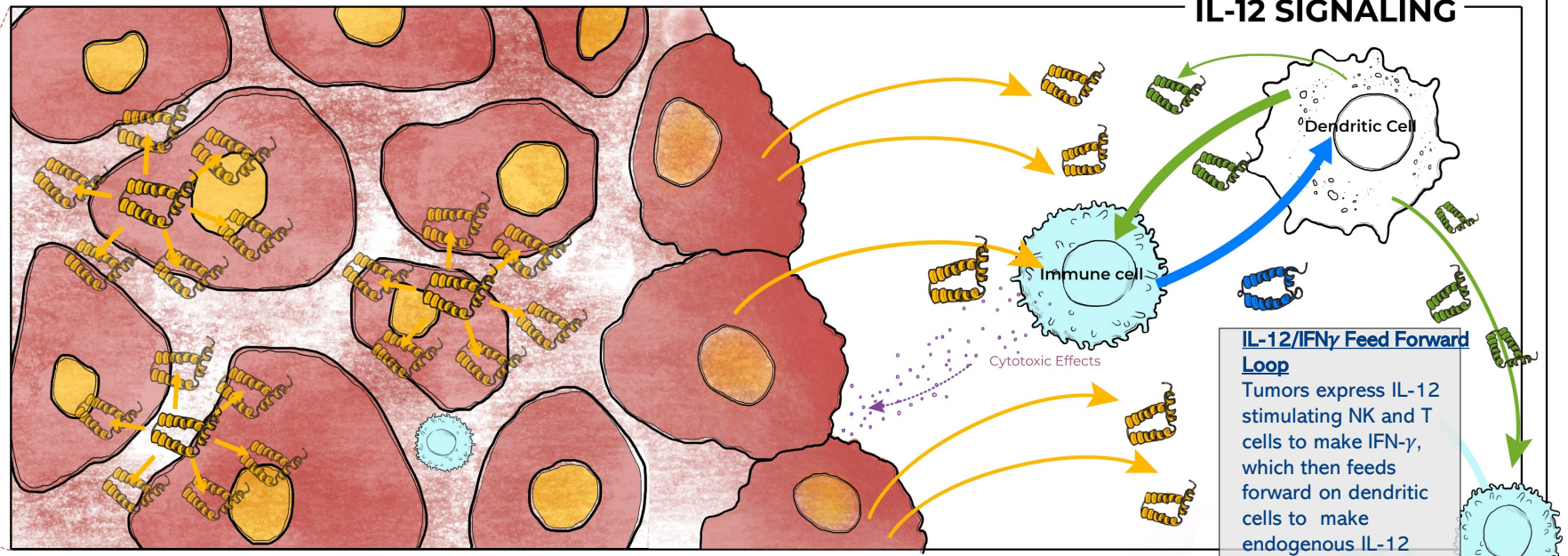
Gene Electro Transfer of Immunotherapy: An Intratumoral IL-12 Factory

TREATED LESION



The IL-12 Factory
DNA plasmid IL-12 is injected into the tumor, followed by a 3 sec. pulse of energy
Tumor cells take up the DNA and then produce IL-12

IL-12 SIGNALING

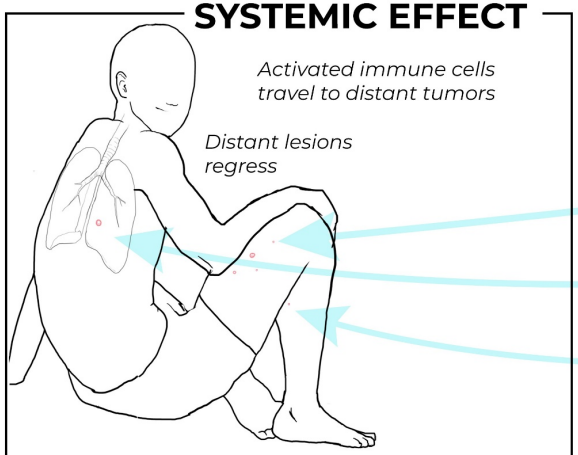


IL-12/IFNγ Feed Forward Loop
Tumors express IL-12 stimulating NK and T cells to make IFN-γ, which then feeds forward on dendritic cells to make endogenous IL-12

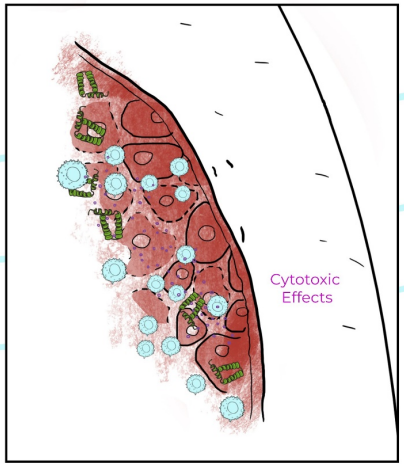
KEY

- Tumor-made IL-12
- Naturally-made IL-12
- Naturally-made IFNγ

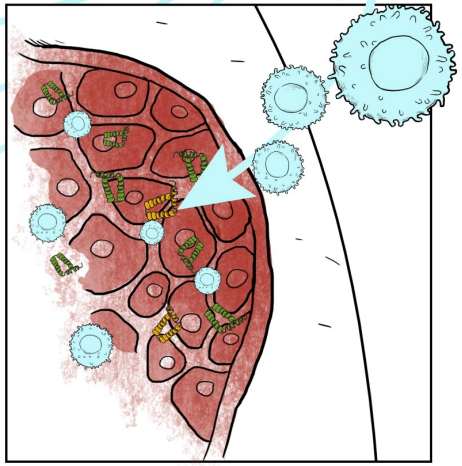
SYSTEMIC EFFECT



Systemic Effect
Killer T cells traffic to other tumor locations throughout the body in a "seek and destroy" fashion.



Licensing of the treated tumor
IL-12/IFNγ-feed forward loop increases the immunogenicity of the tumor leading to priming of new killer T cells and increased infiltration of immune cells into the tumor.



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

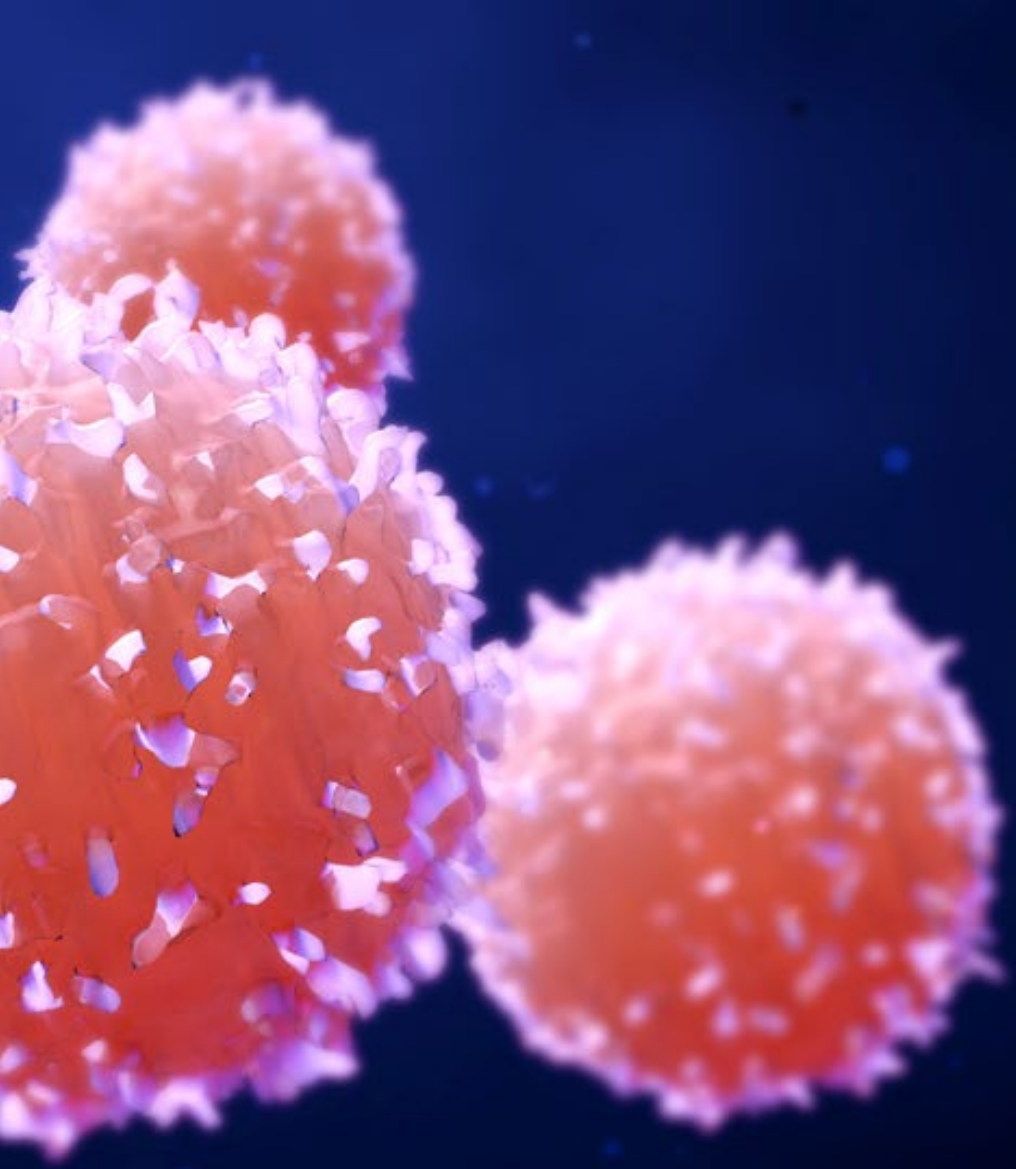
TAVO SINGLE AGENT
INVESTIGATOR-SPONSORED TRIALS

- 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	**CORVax12** Investigator Sponsored	**COVID-19 Vaccine**	**~36**	PROVIDENCE Cancer Center, NIH	→		
TAVO + epacadostat + pembrolizumab	**OMS-131** Investigator Sponsored	**Squamous cell carcinoma head and neck (SCCHN) cancer**	**~34**	UCSF	→		
TAVO + nivolumab	**OMS-104** Investigator Sponsored	**Neoadjuvant for operable locally/regionally advanced melanoma**	**~33**	MOFFITT CANCER CENTER	→	→	



FDA Fast Track
KEYNOTE-695

Ongoing pivotal trial in PD-1 checkpoint resistant metastatic melanoma provides a pathway towards accelerated approval

GRANTED FAST TRACK AND ORPHAN DRUG DESIGNATIONS

Fast-track makes TAVO™ eligible for accelerated approval program

Program for patients with no FDA approved treatment options

Must meet RECIST (tumor shrinkage) criteria – demonstrating that TAVO works

KEYNOTE695

Up To
30 Sites

Number Of
PATIENTS
TO BE TREATED

100

DEFINITIVE CLINICAL PROGRESSION ON FULL COURSE ANTI-PD-1

Stage 3/4 Melanoma

Received at least 12 weeks of anti-PD-1 therapy + **Progressive disease according to RECIST v1.1** + **Documented disease progression <12 weeks of last dose** + **No intervening therapies permitted between checkpoint failure and trial enrollment** = **Eligible patient/definitive by RECIST V1.1 anti-PD-1 refractory patient**

PRIMARY OUTCOME

ORR (by BICR) based on RECIST v1.1

SECONDARY OUTCOMES

ORR, DOR, PFS and OS

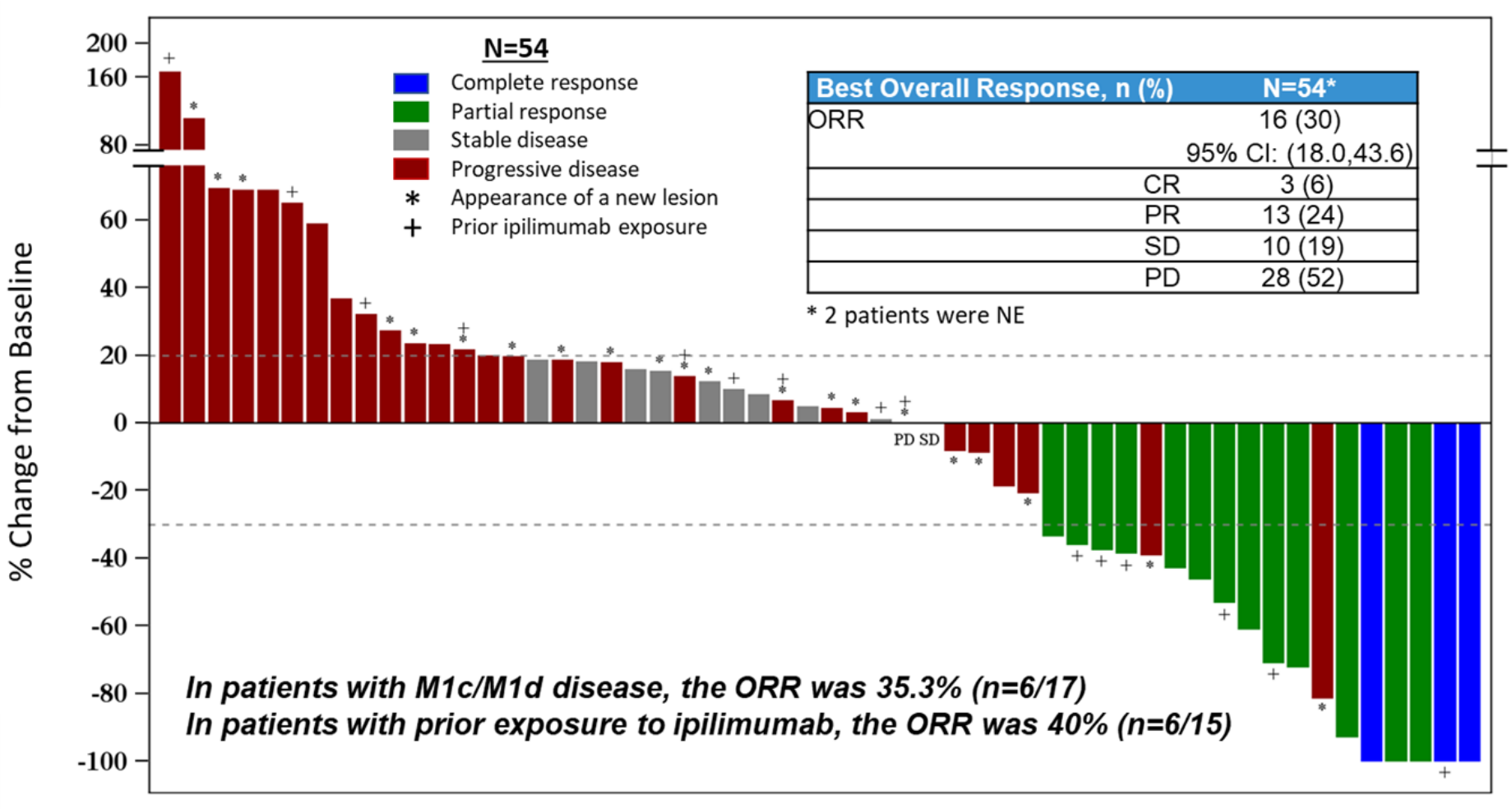
Patient Demographics and Disease Characteristics

	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%)

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

	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

Investigator-Assessed Response per Recist v1.1 – Preliminary Data
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

Fernandez-Peñas, P. *et al.*, SITC Annual Meeting 2020 data as of September, 2020

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

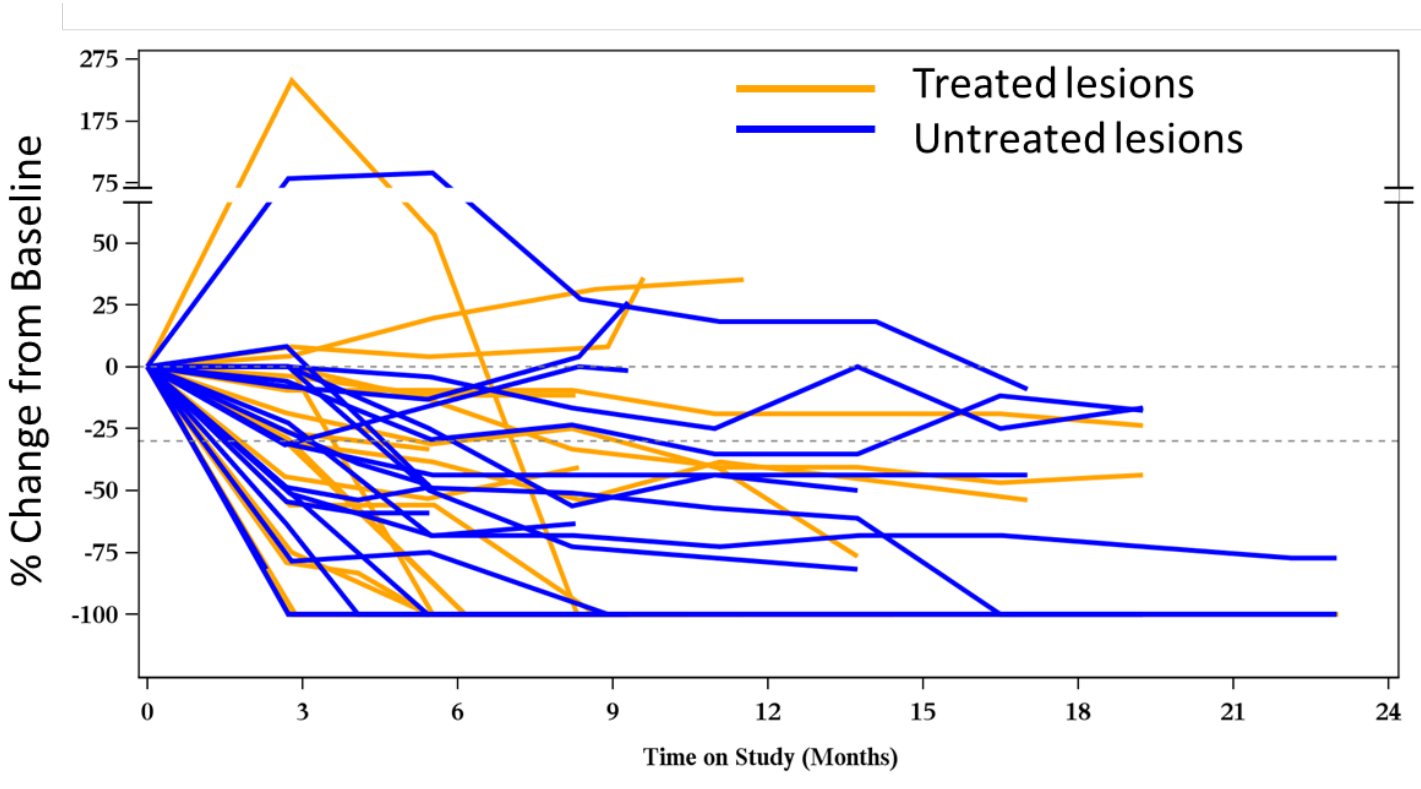
	All Grades n(%) (N=56)	Grade 1/2	Grade 3	Grade 4	Grade 5
Patients with at least one TEAE	43 (76.8%)	40 (71.4%)	**3 (5.4%)**	-	-
Fatigue	15 (26.8%)	15 (26.8%)	-	-	-
Procedural pain	13 (23.2%)	13 (23.2%)	-	-	-
Diarrhea	11 (19.6%)	11 (19.6%)	-	-	-
Nausea	6 (10.7%)	6 (10.7%)	-	-	-
Rash	6 (10.7%)	6 (10.7%)	-	-	-
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™) gene electro transfer 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.

Fernandez-Peñas, P. *et al.*, SITC Annual Meeting 2020, data as of September, 2020

Treated and Untreated Lesions from 16 Responding Patients

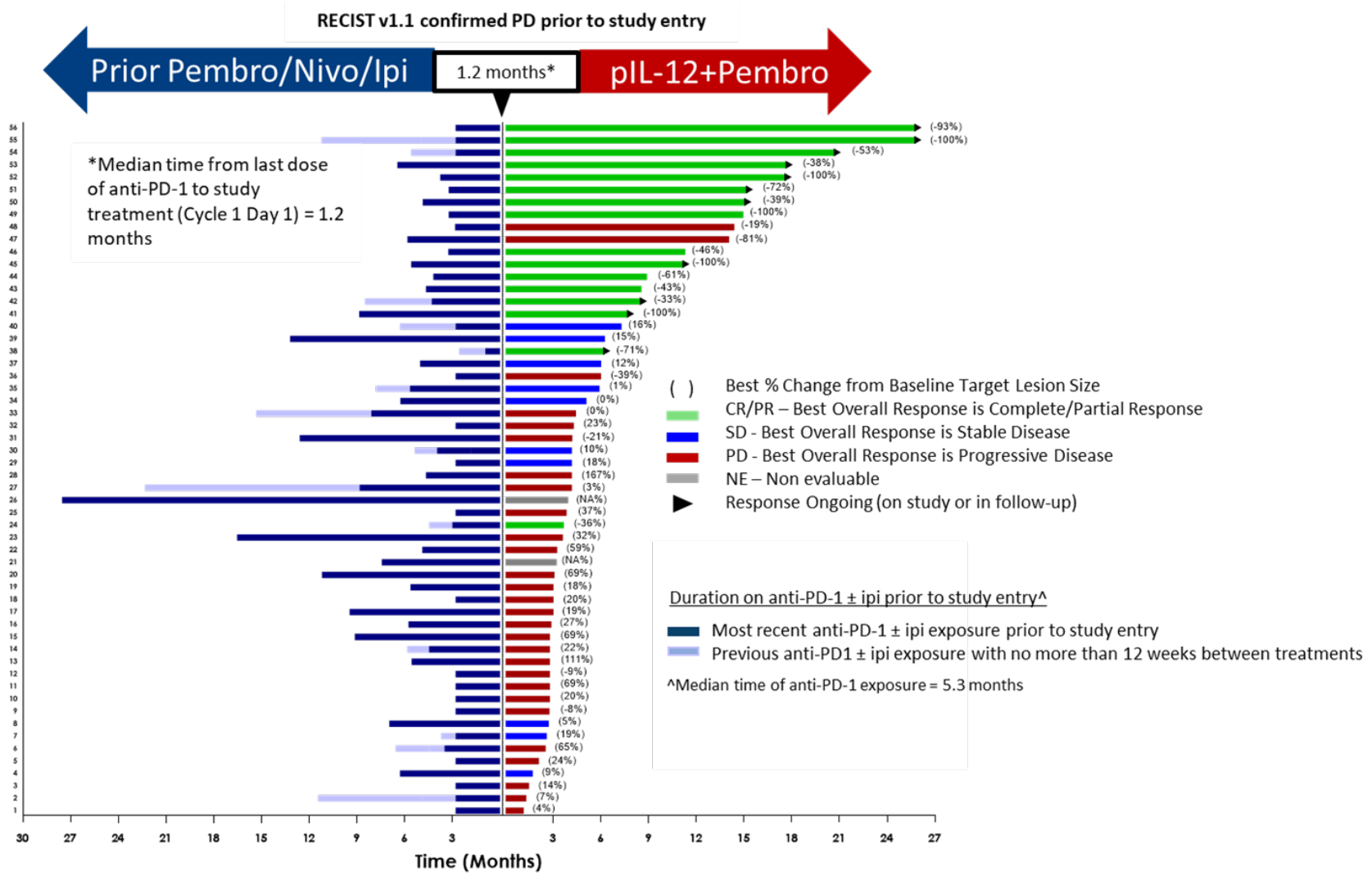


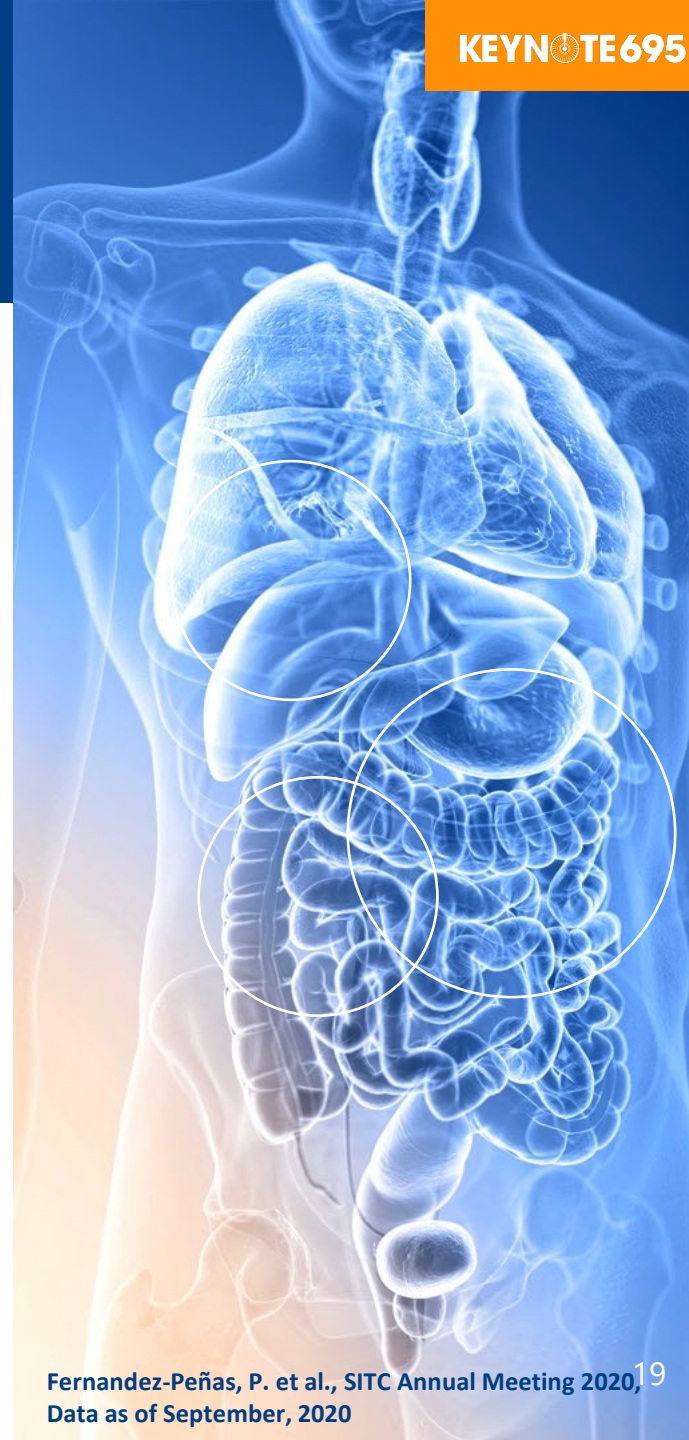
	Treated N=22	Untreated N=20
Skin/Subcutaneous	18 (82%)	3 (15%)
Lymph node local/regional	4 (18%)	5 (25%)
Lymph node distant	0	3 (15%)
Other: Kidney, liver, lung, other visceral metastases	0	9 (45%)

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

Fernandez-Peñas, P. *et al*., SITC Annual Meeting 2020, data as of September, 2020

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

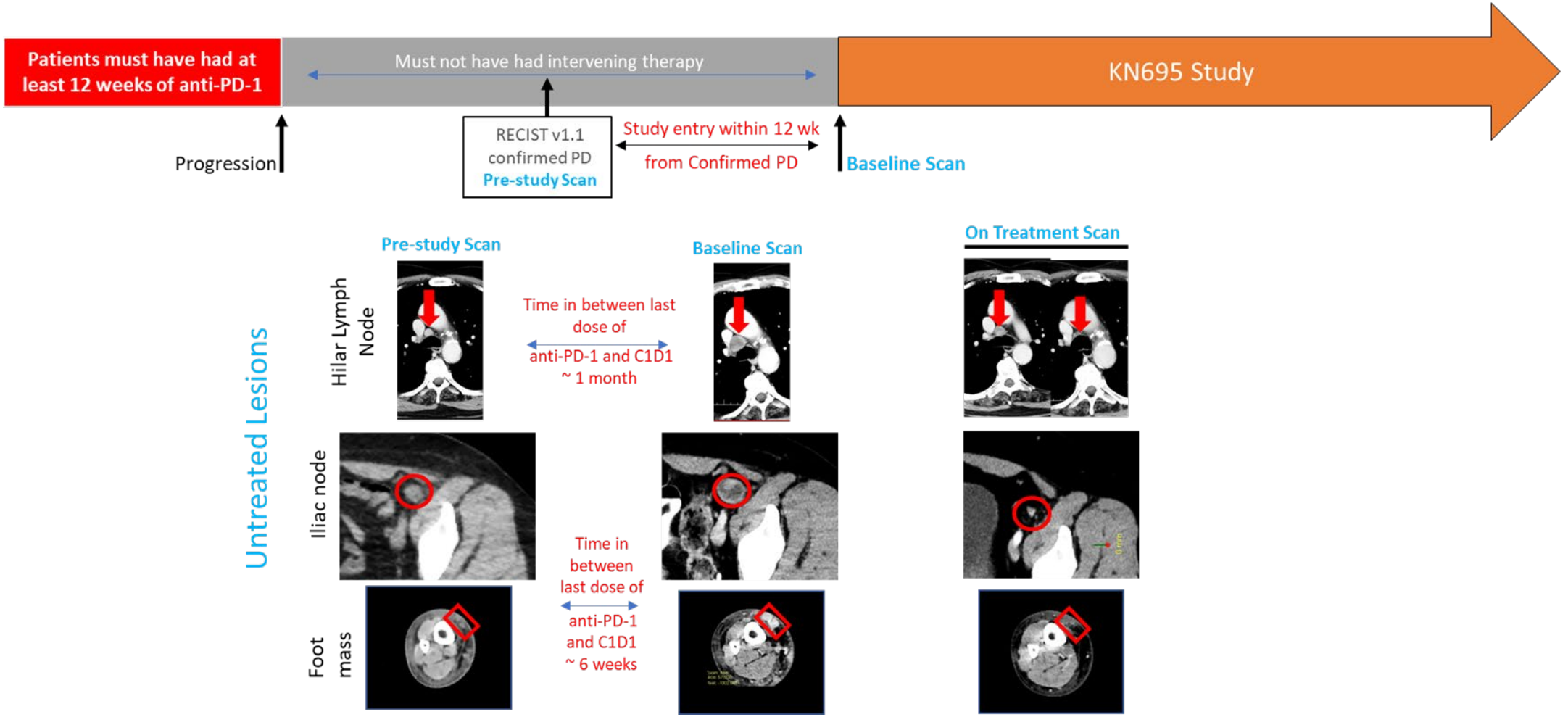




KEYNOTE695

Fernandez-Peñas, P. et al., SITC Annual Meeting 2020, Data as of September, 2020

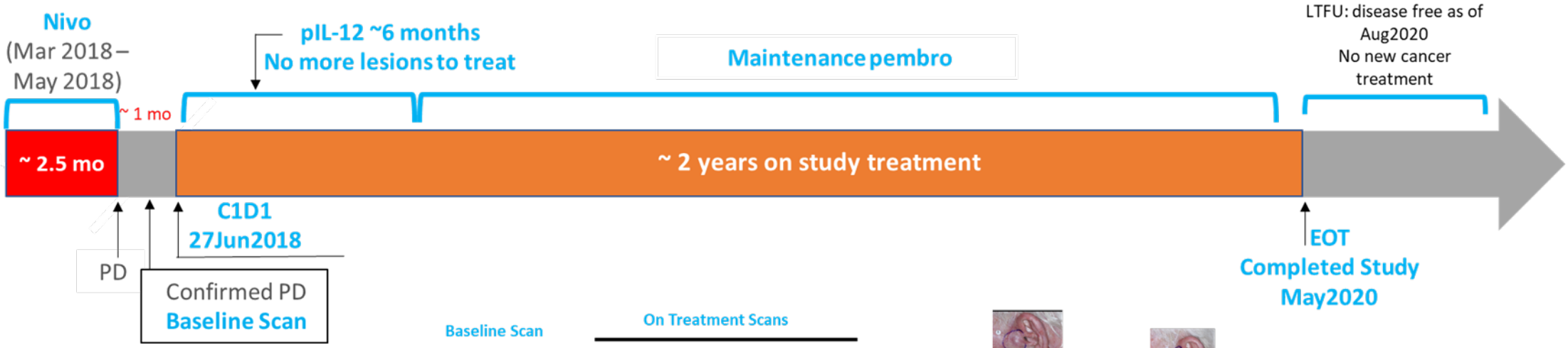
Actively Growing Lesions Significantly Reduced in Size after pIL-12 + Pembrolizumab Treatment

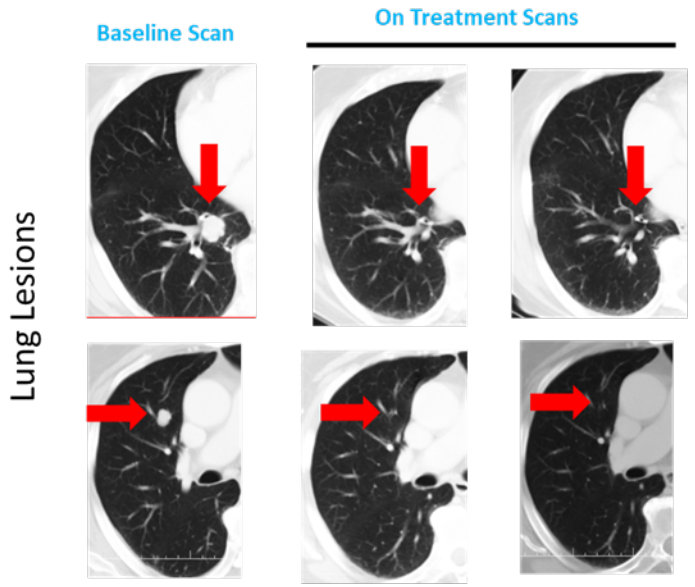


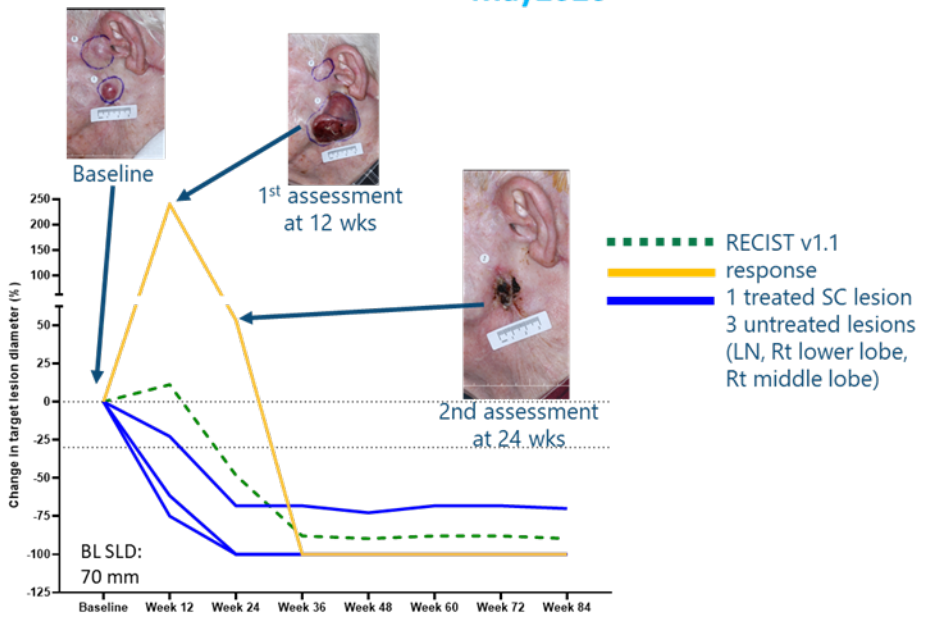
Fernandez-Peñas, P. *et al.*, SITC Annual Meeting 2020, data as of September, 2020

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

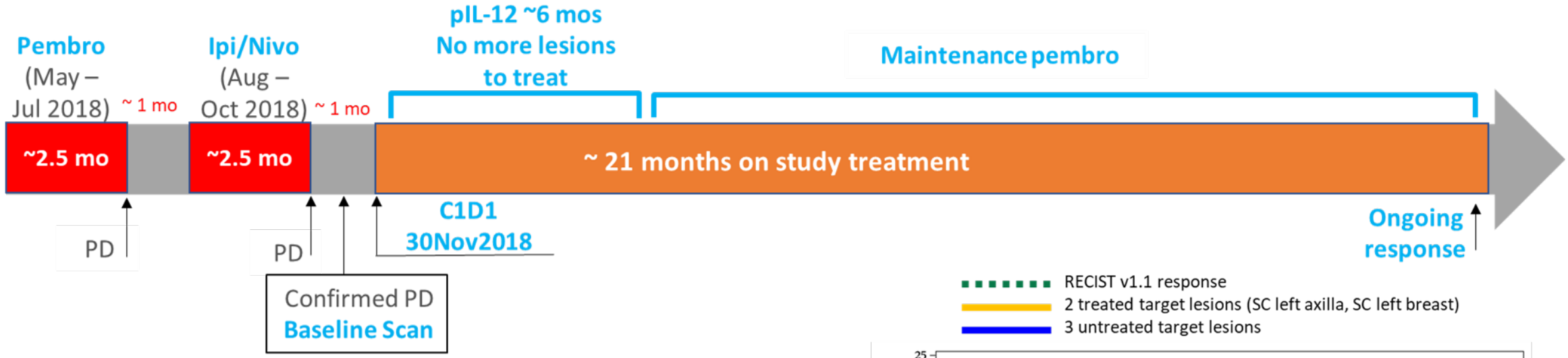
KEYNOTE695



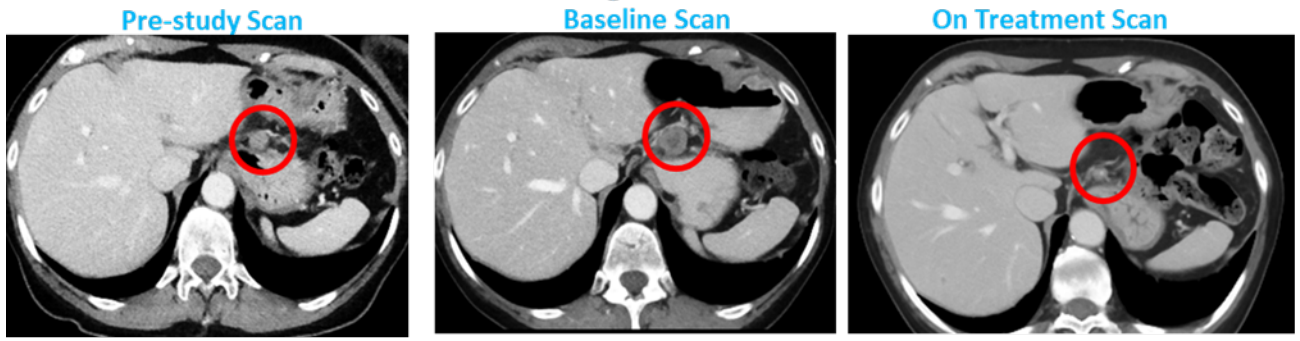


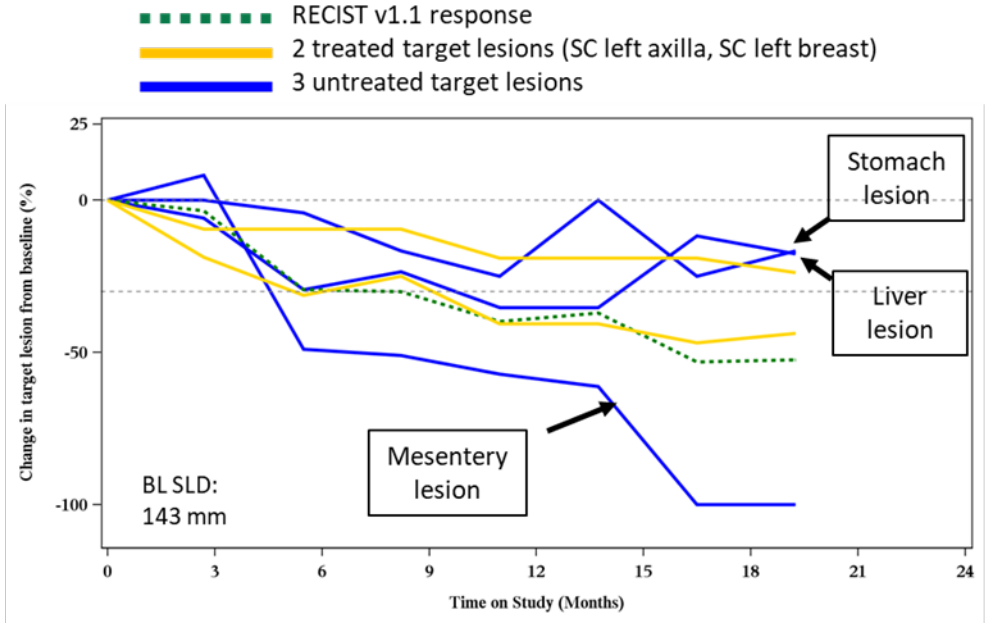


Progression on Ipi/Nivo Followed by Tumor Response[Stage IVC; PR (-53%)]



Untreated non-target lesion; lesser omentum





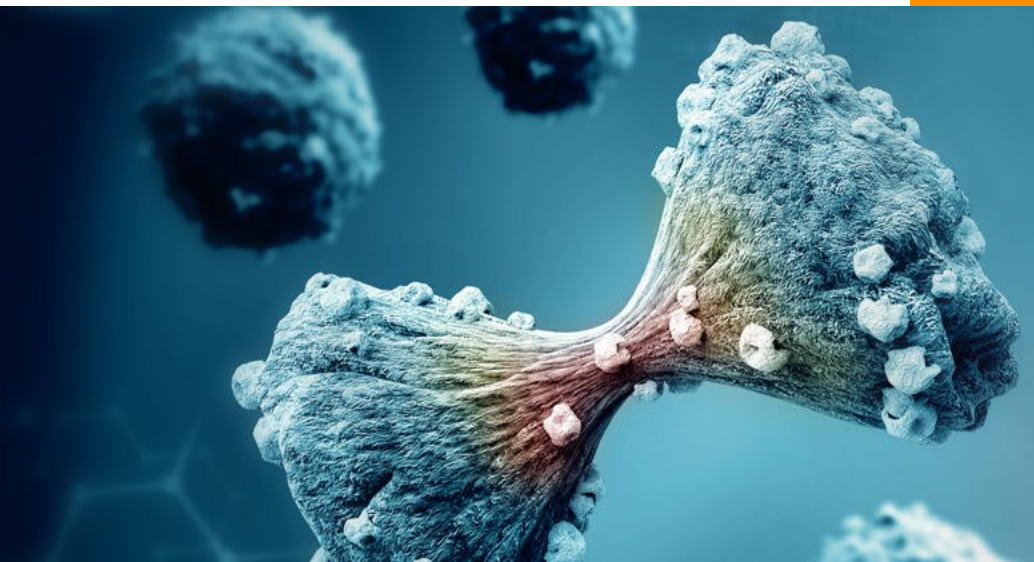
US Market Opportunity

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
Projected FDA Accelerated Approval of TAVO for Metastatic Melanoma

2021/22
Planned 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

EARLY 2019
Obtained Advanced Therapy Medicinal Product (ATMP) Designation

2021
Meetings with EU Rapporteurs

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

2023
Projected EMA Conditional Approval of TAVO for Metastatic Melanoma

Anticipated timelines are KEYNOTE-695 data outcome dependent

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

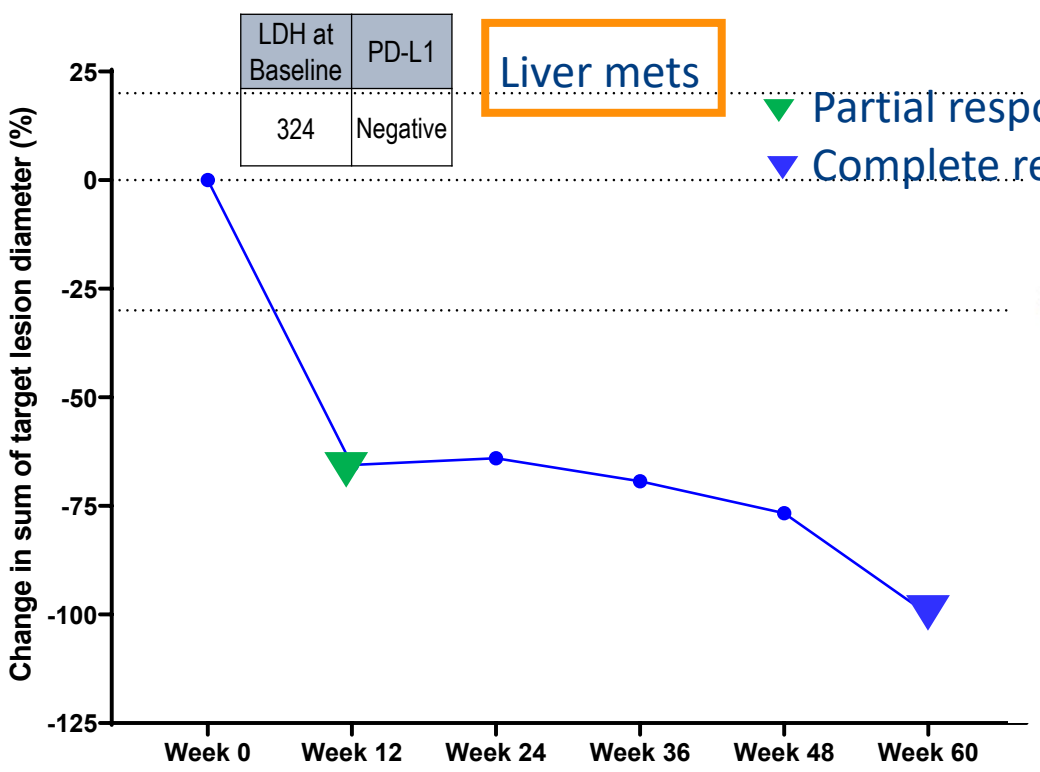
Cohort 2 designed to expand into pivotal study

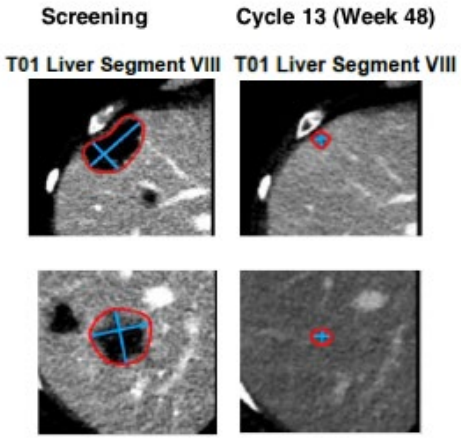
Larger overall patient population – greater commercial opportunity vs. last-line setting

Phase I/II trials in mTNBC with anti-PD-1 have shown response rates 5%–10%

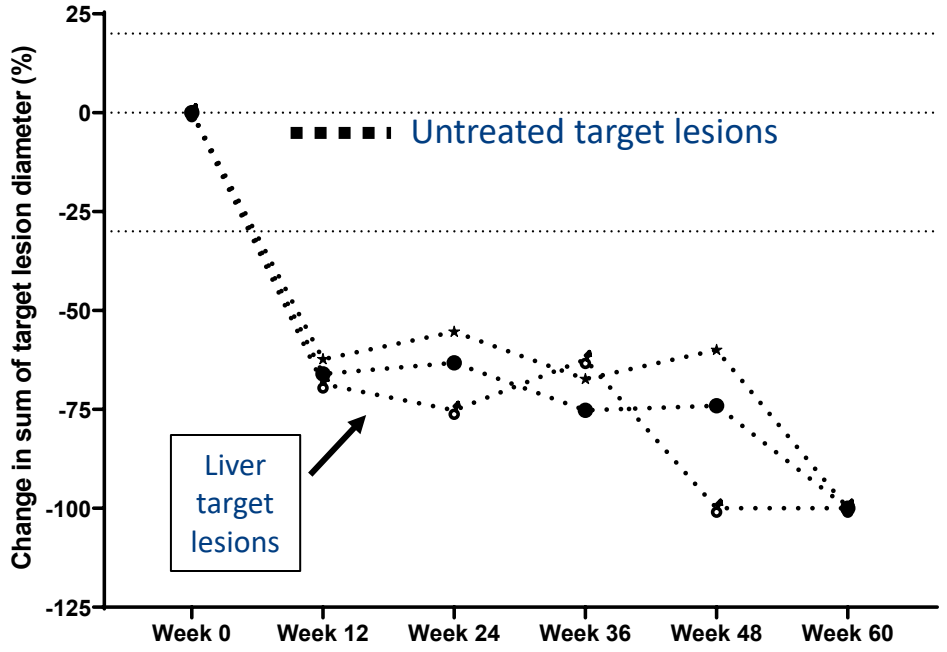
CASE #1: TNBC BOR: CR (-100.0%)

Age	Sex	Metastasis	Total # of priors	Prior Rx	Baseline SLD (mm)	Max tumor reduction	EOT
35	F	Liver, skin, LN	3	Paclitaxel; dox + cyclopho + goserelin; capecitabine	84.5	-100	Ongoing





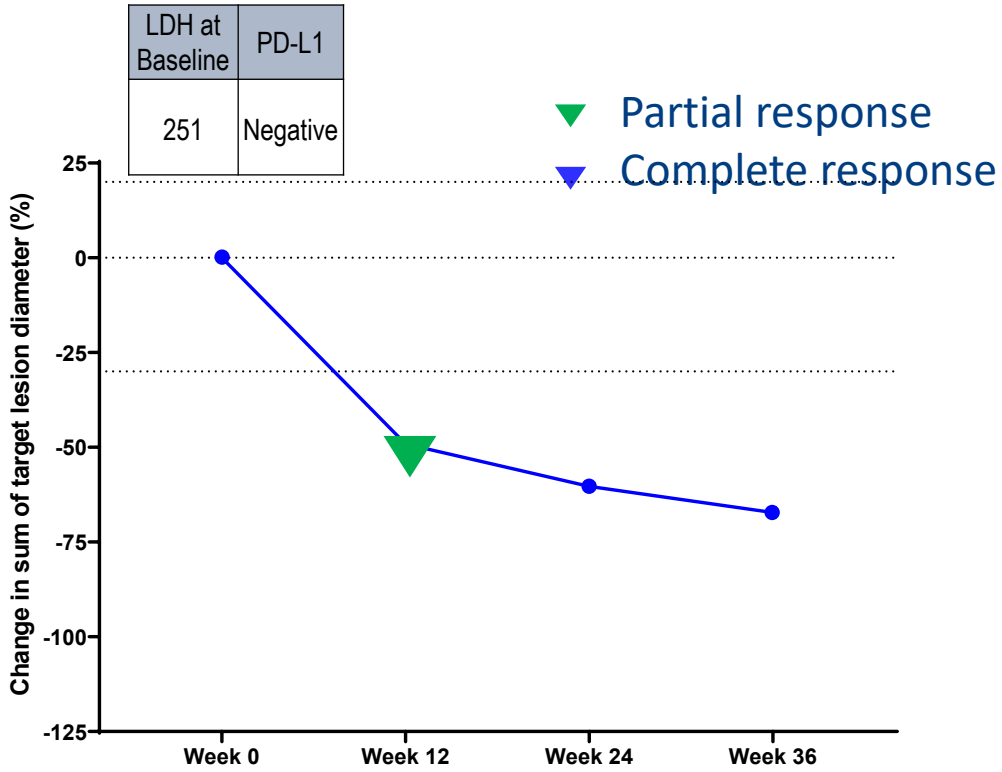
1 non target skin nodule was treated with IL-12 EP. Three liver target lesions responded

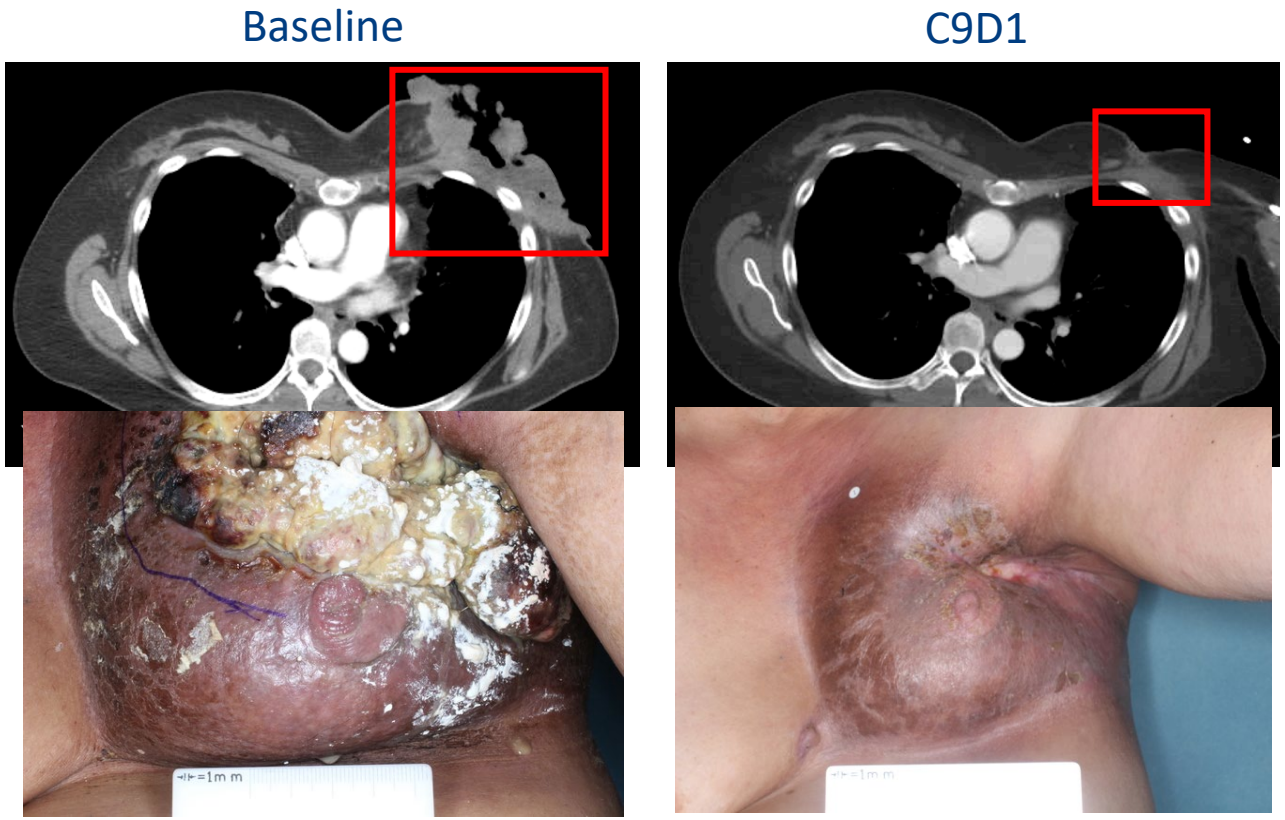


Telli, et. al. SABCS Annual Meeting 2019, data as of November 2019

CASE #2: TNBC BOR: PR (-67.0%)

Age	Sex	Metastasis	Total # of priors	Prior Rx	Baseline SLD (mm)	Max Tumor reduction	EOT
46	F	Breast, lung, lymph node	5	Paclitaxel: capecitabine: eribulin; cyclo + dox: carbo + gem	116	-67	Ongoing





Recent Peer Reviewed Publications

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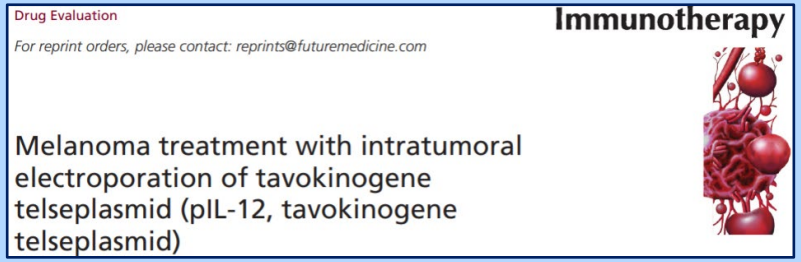
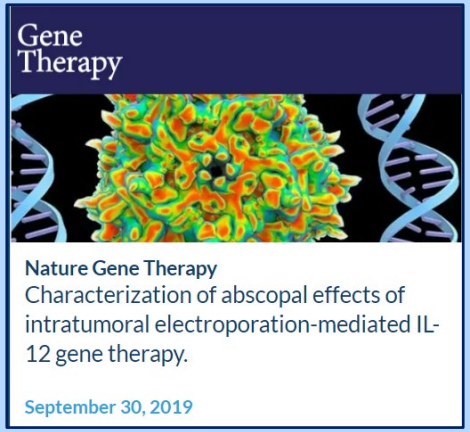
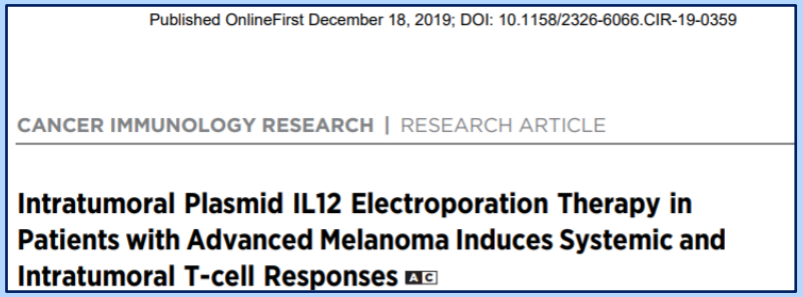
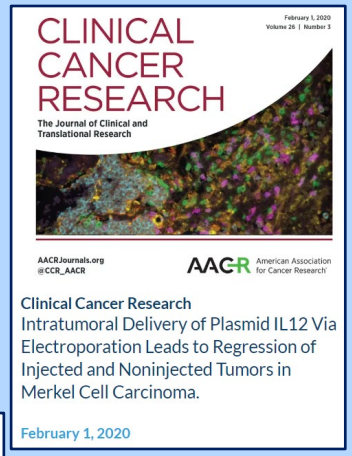
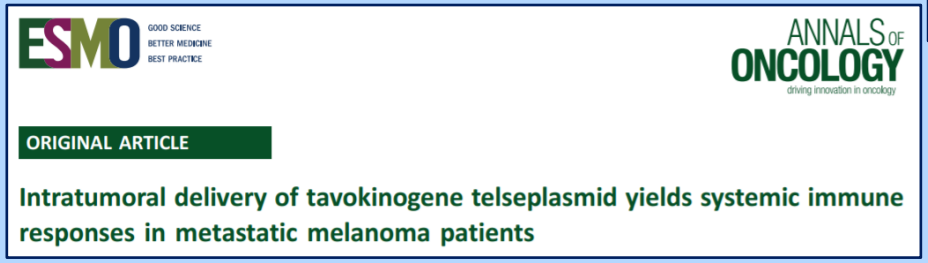
TAVO SINGLE AGENT ABSCOPAL EFFECT



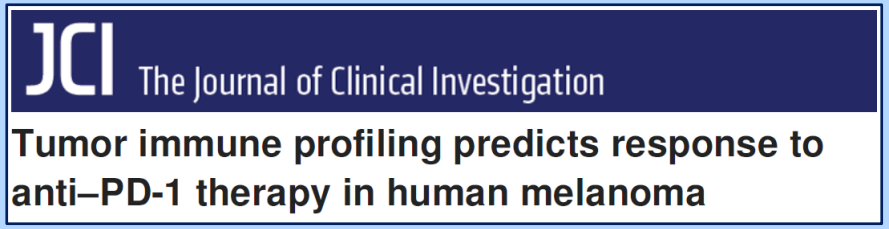


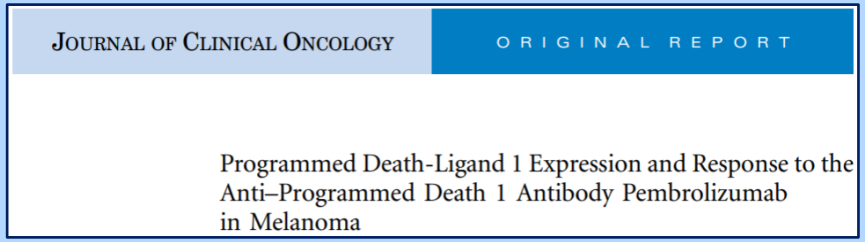


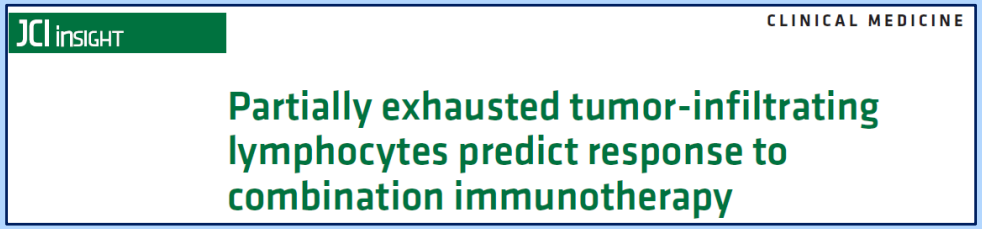


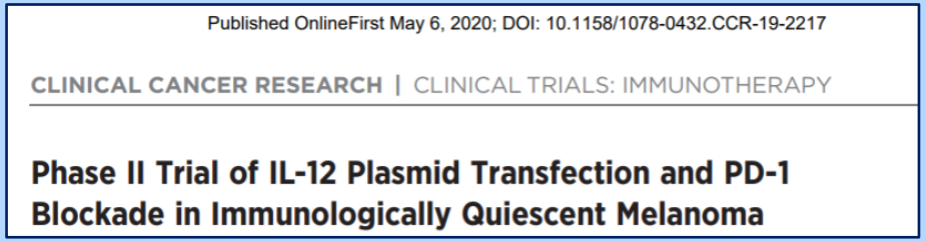


TAVO + PEMBRO IN ANTICIPATED ANTI-PD-1 CHECKPOINT FAILURES

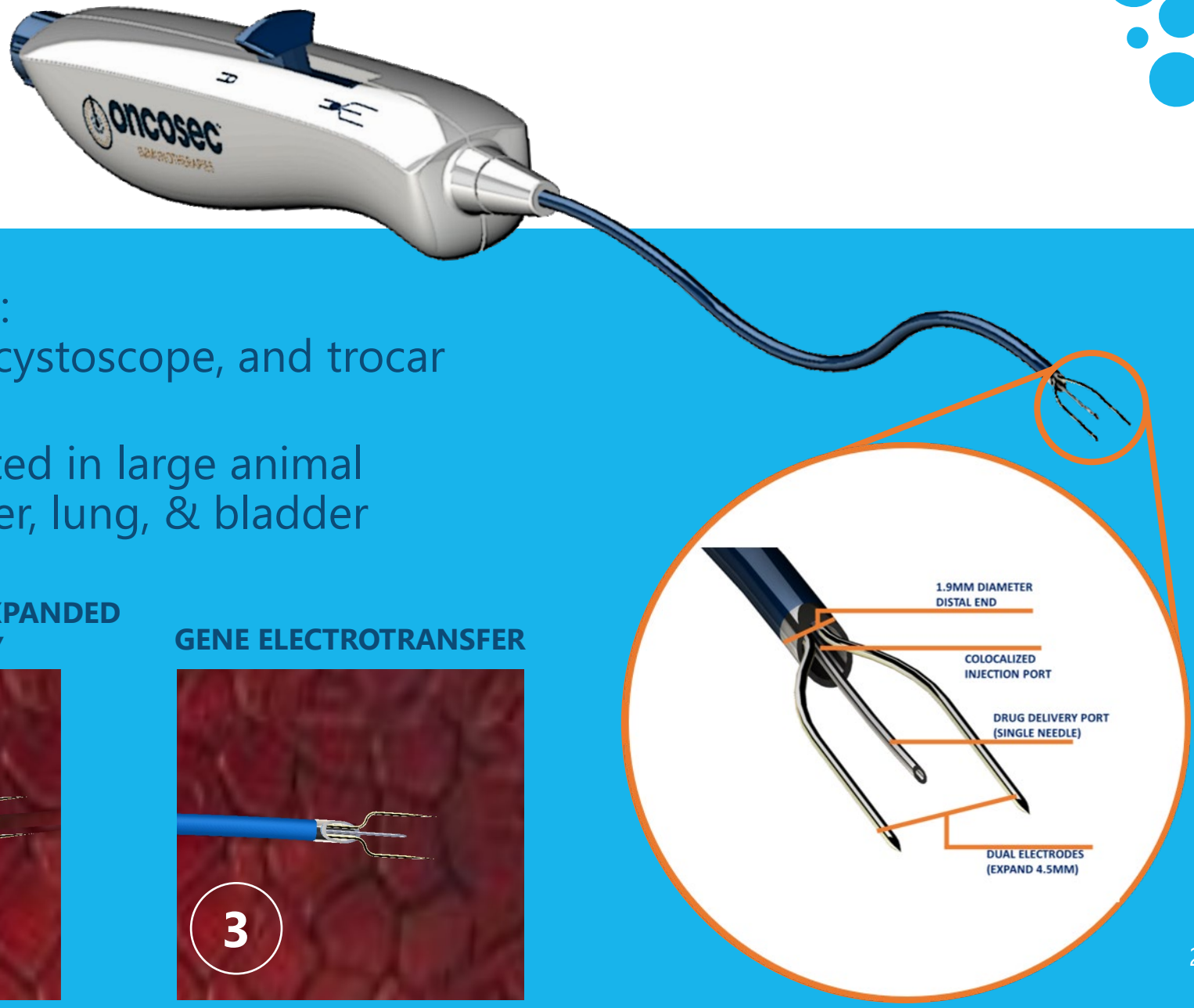








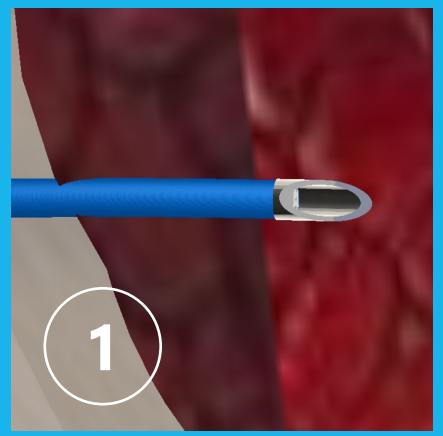
VLA Highlights



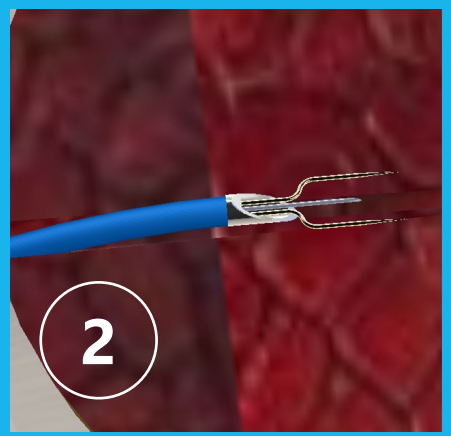
1. Rigid and catheter models:
Used with bronchoscope, cystoscope, and trocar

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

ENTERS THE ORGAN



NEEDLE/ELECTRODES EXPANDED DRUG DELIVERY



GENE ELECTROTRANSFER

ONCOSEC CATHETER VLA

VISCERAL LESION APPLICATOR

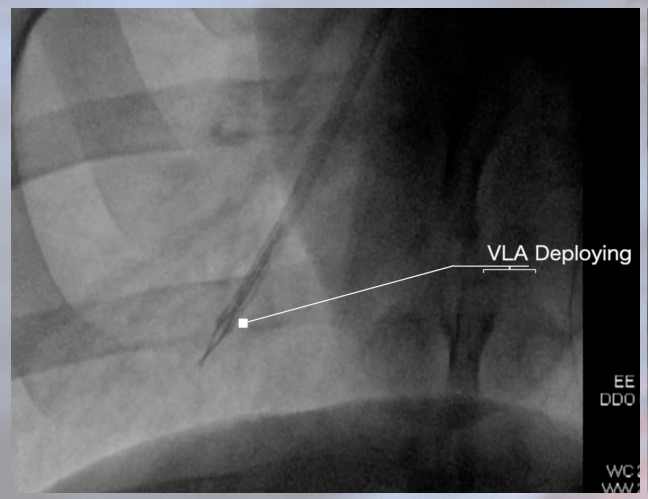
APPLICABLE INDICATIONS

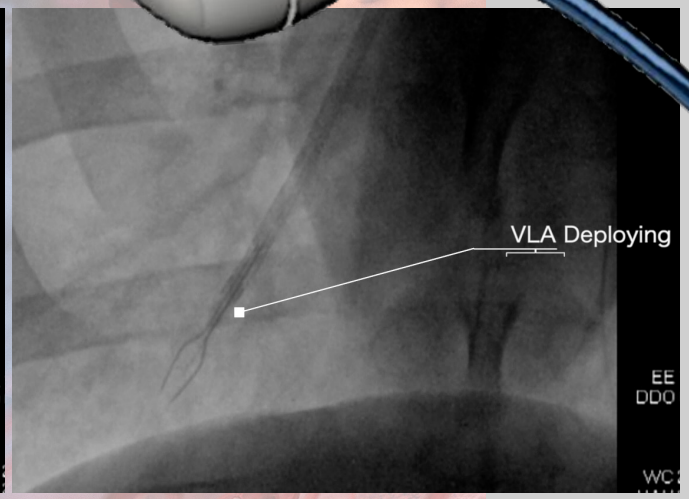
- Lung — BRONCHOSCOPE
- Bladder — CYSTOSCOPE
- GI Tract — ENDOSCOPE

APPLICATOR MEASUREMENTS

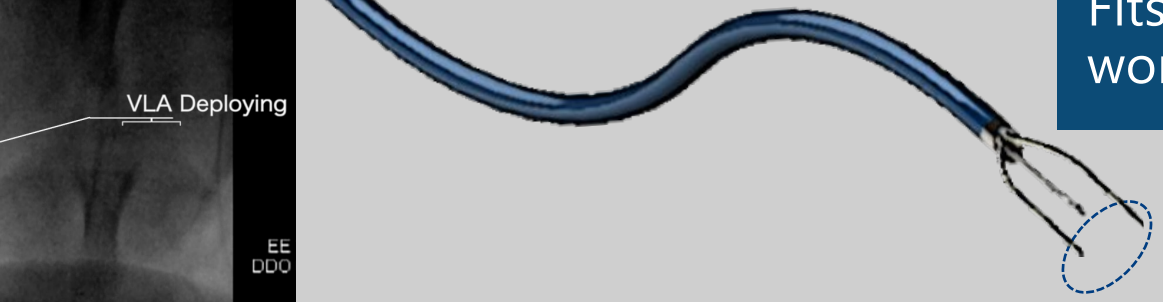
Electrode Width	Electrode Length	Injection Needle
4.5mm (+/- 0.5mm)	**8mm** (+/- 0.5mm)	**4mm** (+/- 1mm)

May reduce length depending on application





Fits within 2mm working channel



4.5mm

ONCOSEC RIGID VLA

VISCERAL LESION APPLICATOR

APPLICABLE INDICATIONS

Liver Bone Pancreas

APPLICATOR MEASUREMENTS

Electrode Width	Electrode Length	Injection Needle
4.5mm (+/- 0.5mm)	**8mm** (+/- 0.5mm)	**4mm** (+/- 1mm)

May reduce length depending on application

LIVER

PANCREAS

Strong Financial Position to Achieve Near Term Milestones

~$60M in Cash as of 1/31/21
No debt

- **Filing of new IND for second product candidate combining IL-12 with CXCL9**
- **FDA clearance GenPulse, the planned go-to-market generator**
- **Commencing Phase 3 clinical trial of TAVO + pembro in metastatic melanoma**

Established Biotech Leaders
WITH A TRACK RECORD OF SUCCESS

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Thank You

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IMMUNOTHERAPIES

Brian Leuthner
CHIEF OPRERATING OFFICER
908.531.4566
baleuthner@oncosec.com

HEADQUARTERS

24 NORTH MAIN STREET
PENNINGTON, NJ

LAB & RESEARCH

3565 GENERAL ATOMICS CT.
SAN DIEGO, CA