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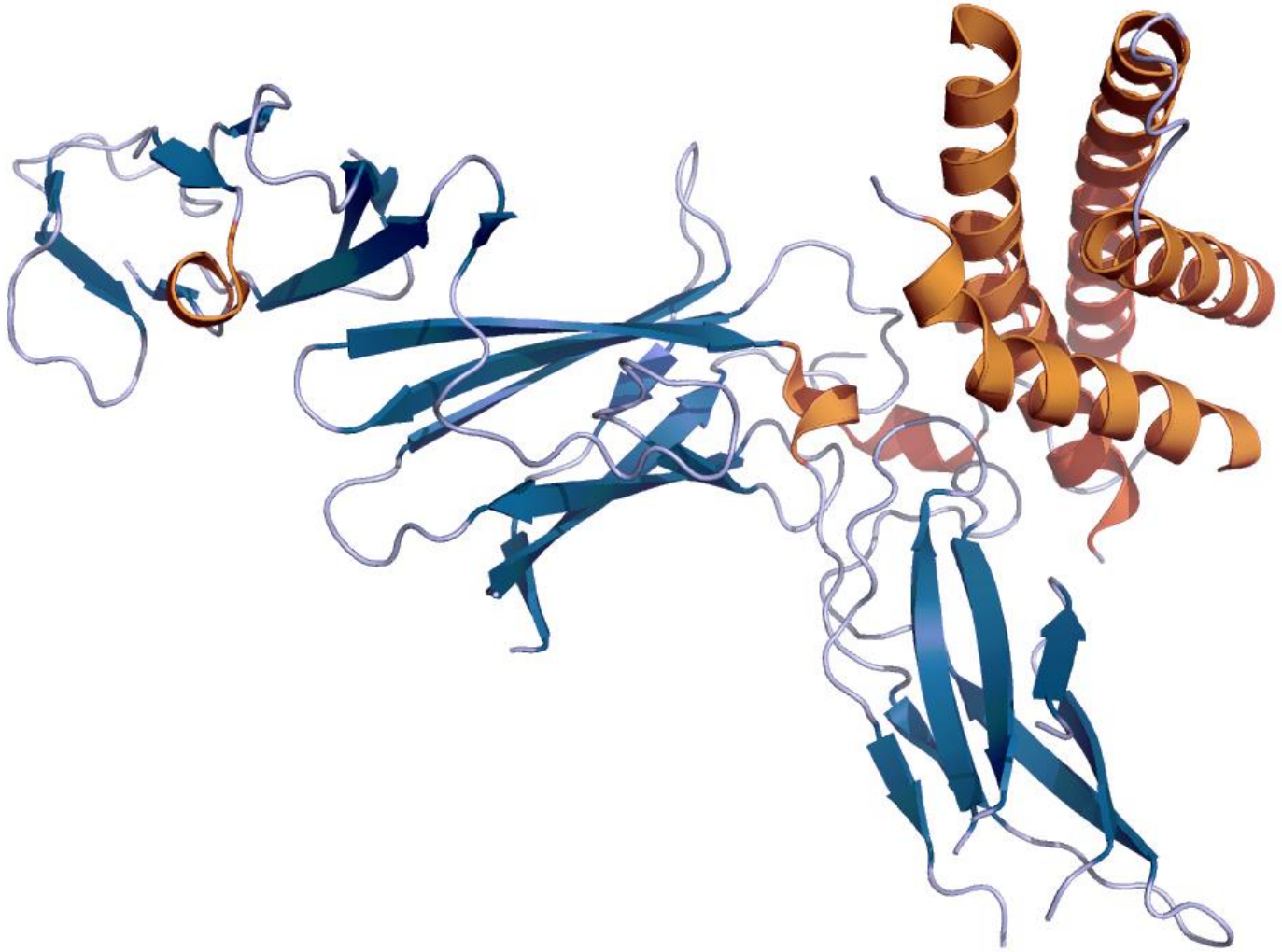
IMMUNOTHERAPIES



February 2019| NASDAQ:ONCS

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.

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INVESTMENT HIGHLIGHTS

PIVOTAL DATA IN 2019 & POTENTIAL COMMERCIALIZATION IN 2021

IL-12 REVERSES PD-1 RESISTANCE & DELIVERS WHOLE-BODY ANTI-CANCER EFFECT	• TAVO: IL-12 plasmid based-technology designed to reverse resistance to checkpoint inhibitors • Evidence of whole-body / abscopal effect, both as a monotherapy and in combinations with CPIs • Intratumoral delivery eliminates systemic toxicity – strong safety profile in over 150 patients
KEYNOTE-695 DATA INDICATES VIABLE ACCELERATED APPROVAL OPPORTUNITY	• KEYNOTE-695: TAVO + KEYTRUDA in metastatic melanoma patients who are definitive PD-1 failures • Preliminary data from KEYNOTE-695 demonstrating a clinically relevant response rate >20% • On track to file for U.S. Accelerated Approval in 1H 2020 and is Orphan and Fast Track designated
SECOND REGISTRATION-ENABLED STUDY IN CERVICAL CANCER UNDERWAY	• OMS-150: TAVO and commercially available KEYTRUDA in metastatic cervical cancer • KEYTRUDA conditional approval in metastatic cervical cancer was based on an ORR of only 14% • Patient enrollment expected to begin in 1H 2019; Targeting U.S regulatory filing in 2021
TAVO + PEMBRO DATA IN TNBC IN 2H 2019	• KEYNOTE-890 is a phase 2 study of TAVO plus KEYTRUDA in metastatic TNBC, representing a high unmet medical need • Extremely ”cold” tumor type, with only ~5-10% response rate to CPI’s
NEW PRODUCT AND APPLICATOR TO ATTACK VISCERAL LESIONS	• Next generation device capable of treating internal lesions • A new product candidate expected to enter IND in 2019, targeting not only IL-12, but also other important, immunologically relevant targets

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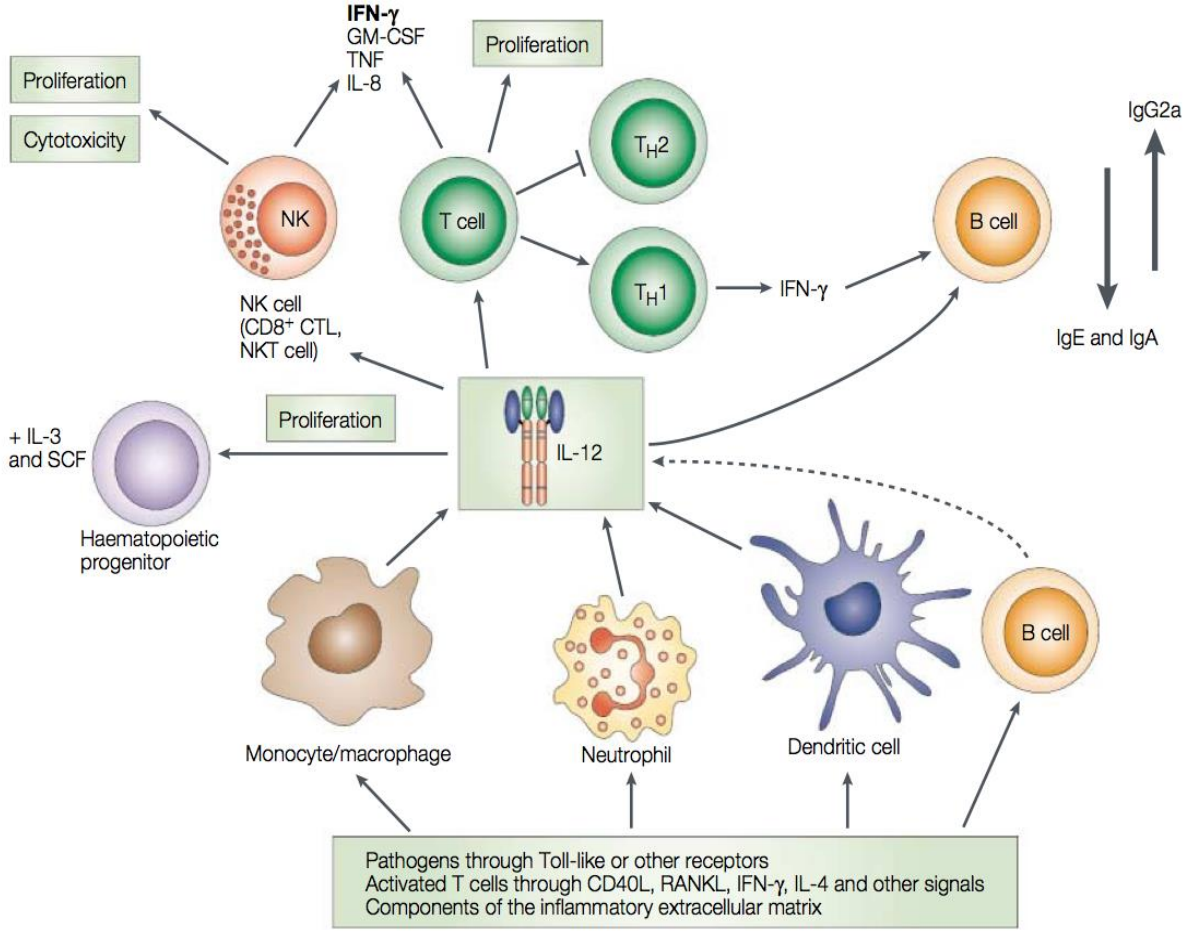
INTERLEUKIN 12 (IL-12) IS A POWERFUL IMMUNOREGULATORY CYTOKINE

POTENT, WELL-CHARACTERIZED, PRO-INFLAMMATORY

- Potent, well-characterized, pro-inflammatory cytokine
- Shown to make the tumor microenvironment (TME) immunogenic
- Targets innate cells allowing for productive Th1 adaptive immune responses
- Safer, local delivery with “systemic” benefits
- STRONG INNATE AND ADAPTIVE immune activation without observed systemic IL-12 toxicity
- Drives adaptive resistance in the tumor



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TAVO CAPABLE OF REVERSING RESISTANCE TO CPI'S

IMPROVING CHECKPOINT RESPONSES BY CONVERTING "COLD" TUMORS TO "HOT" TUMORS

CHECKPOINT INHIBITORS (CPIs)

- "Checkpoint inhibitors" or "CPIs" block the suppression of CTLs
- Specific immune cells called "Cytotoxic T Lymphocytes" (CTLs) can destroy cancer cells
- Tumors produce immune checkpoint inhibitors that suppress the activity of CTLs and prevent them from performing their cancer-fighting role

TAVO

INTRATUMORAL IL-12

- IL-12 is a potent pro-inflammatory cytokine that promotes activation of CTLs
- IL-12, when administered directly into the tumor, is able to increase frequency of anti-tumor CTLs – thereby making the tumor "hot"
- The anti-tumor activity of CPIs is greater with intratumoral CTLs

LEVERAGING IL-12 TO ADDRESS A LARGE UNMET MEDICAL NEED

The majority of patients with cancer do not benefit from CPIs because their tumors are immunologically "cold," or lacking immune cells, including CTLs

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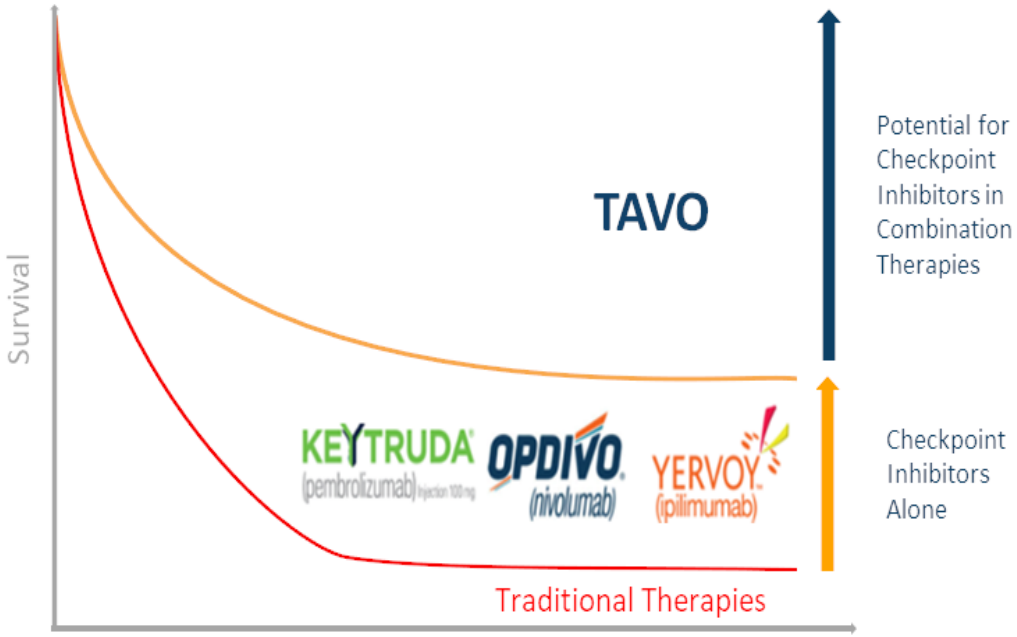
TAVO'S OPPORTUNITY IS SIGNIFICANT

60-90% OF PATIENTS HAVE NO ANTI-PD-1 RESPONSE

IL-12 + CPI'S Elicits a Highly Potent Attack Against A Wide Array of Solid Tumors



90%

Of all cancer cases are solid tumors

1.6M

New cases of solid tumors in the U.S.[6]

Tumor Type	% of Checkpoint Non-Responders
Melanoma	~60-80%
Triple Negative Breast	~95%[1]
Head and Neck	~68-86%[3,4]
Cervical	~86%[2]
Subcutaneous T Cell Lymphoma	~57%

[1] ASCO 2017, KEYNOTE-086 Study; [2] Merck PR, June 12, 2018 ; [3] Ferris et al., N Engl J Med. 2016; [4] Seiwert et al., Lancet Oncol. 2016 ; [5]J Hematol Oncol. 2018; 11: 15; [6] https://seer.cancer.gov

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INTRATUMORAL DELIVERY OF TAVO

COST EFFECTIVE & AVOIDS SYSTEMIC TOXICITIES

GENPULSE ™ Generator

Fixed electrical field intensity, 6 electrical pulses, 100 µsec duration and 300 millisec interval. Pulses activated by foot switch. 16 lbs, 12.5” W x 5.5” H x 13” D

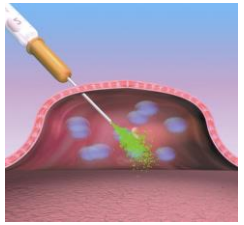
Applicator

Handle with electrode needle array disposable tip. Applicator 0.5 or 1.0 cm in diameter; needle array hexagonal. Adjustable needles, 1 to 15 mm.

PROCEDURE

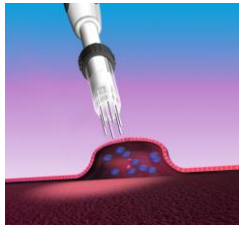
Step 1: TAVO Injection

Trillions of IL-12 coded DNA plasmids to produce immune modulatory proteins are injected directly into the tumor using a conventional needle and syringe



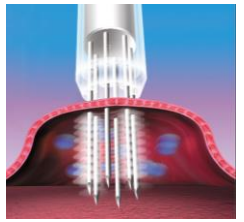
Step 2: Applicator Insertion

The applicator’s tip needle array is inserted into the tumor, up to a depth of 15mm



Step 3: Electroporation

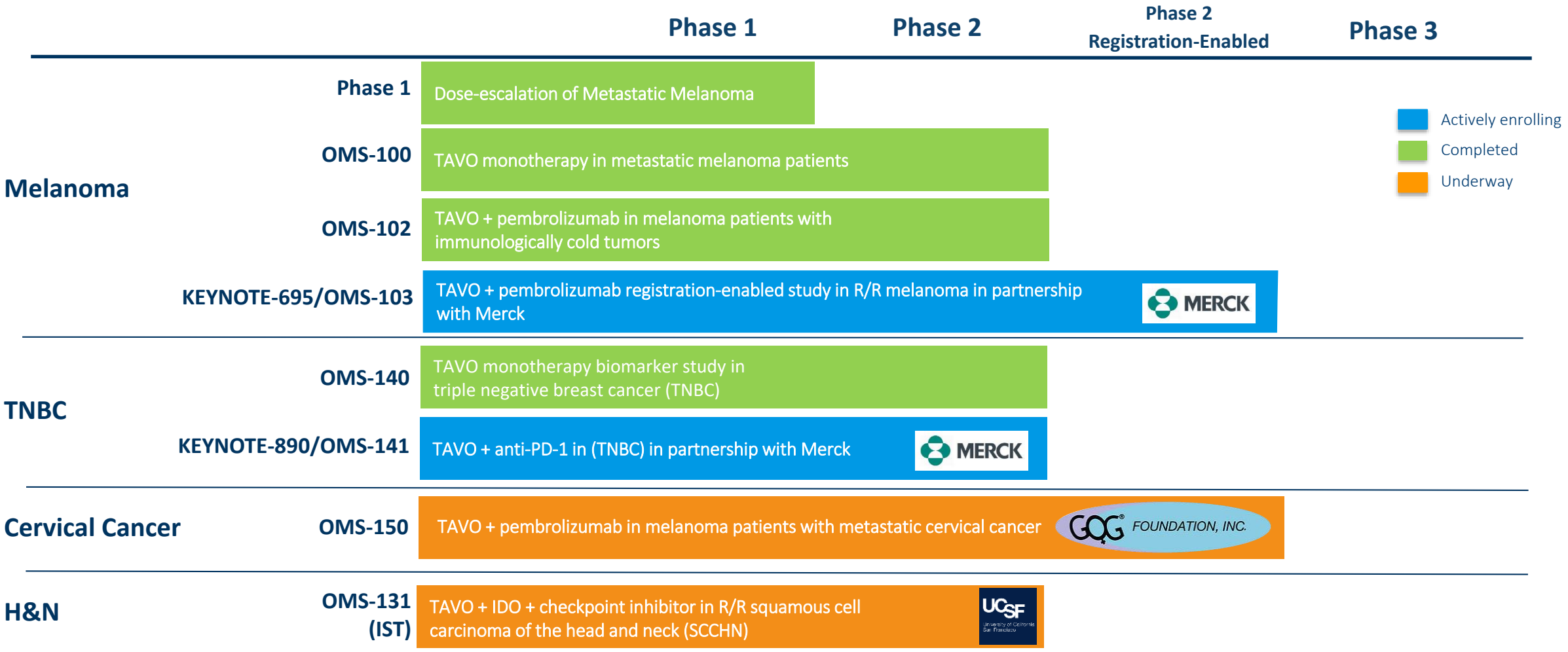
Electrical pulses, activated by a foot switch, administered between hexagonal needle electrodes increases the permeability of cell membranes, facilitating uptake (“transfection”) of IL-12 coded DNA plasmids into cells



IL-12 transfected cells express and secrete IL-12 into the tumor microenvironment (TME)
IL-12 expression in the TME enhances immunomodulatory molecules to promote local tumor inflammation
IL-12 expression in the TME induces systemic immune activation and T-cell education for a systemic anti-tumor immune response

TAVO + KEYTRUDA

TWO REGISTRATION-ENABLED TRIALS



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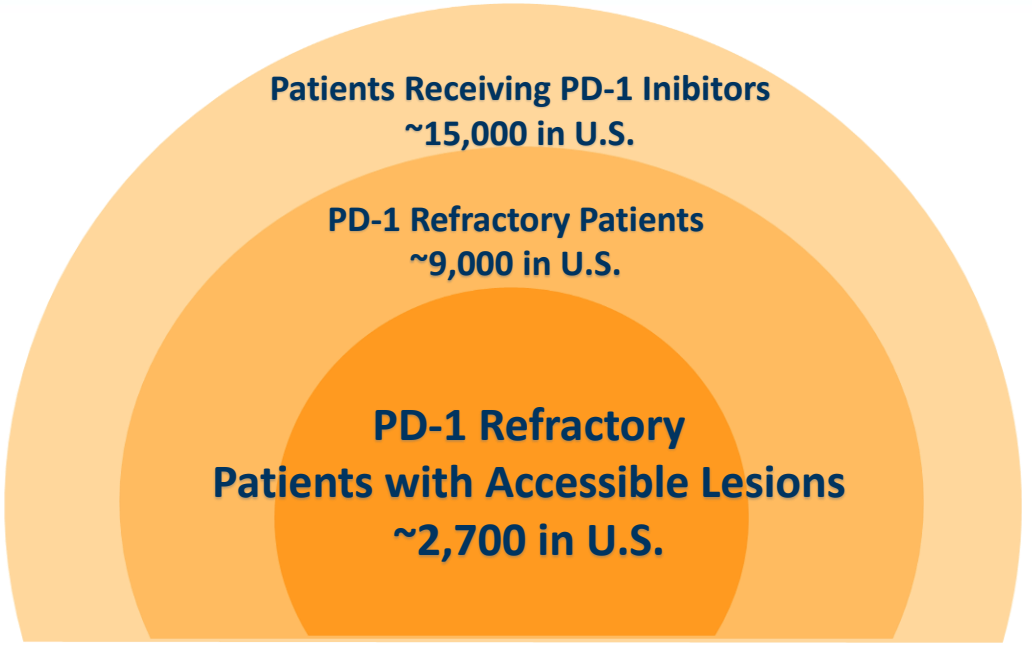
TAVO OPPORTUNITY IN METASTATIC MELANOMA IN THE U.S.

CPI FAILURE IN METASTATIC MELANOMA IS A HIGH UNMET NEED

91K **Diagnoses in U.S.** each year[1]

9K **Deaths in U.S.** each year[1]

Available care - immunotherapy as first line option	BRAF positive patients treated with BRAF/MEK inhibitors	• Response rates of re-treatment in a post-anti-PD-1 setting do not exist • 5% among ALL patients is a reasonable approximation



- The incidence of diagnosed melanoma has been on an upwards trend, with a yearly growth rate of approximately 1.4% for the past decade
- In 2014, the National Cancer Institute's SEER program estimated ~1.17 M prevalent diagnosed melanoma patients in the U.S.
- The U.S. melanoma market is projected to almost double from ~$2 B in less than 10 years, driven by growing prevalence and entrance of novel therapies

STRATEGY

OBTAIN ACCELERATED APPROVAL FOR PD-1 REFRACTORY PATIENTS AND THEN MOVE INTO EARLIER LINES OF TREATMENT

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[1] https://seer.cancer.gov

TAVO IN METASTATIC MELANOMA - TRADITIONAL DEVELOPMENT

PROOF OF CONCEPT IN LATE STAGE MELANOMA LEADS TO KEYNOTE-695 COMBINATION WITH KEYTRUDA & PURSUIT OF ACCELERATED APPROVAL

Clinical Study	Finding
Phase 1 Dose-Escalation Metastatic Melanoma	Strong safety profile with early efficacy results
Phase 2 Repeat Dose (OMS-100)	Abscopal tumor response
Phase 2 Retrospective Analysis (OMS-100)	Evidence of priming for anti-PD-1 response
Phase 2 Combination with Pembro (OMS-102)	Evidence of efficacy in predicted PD-1 non-responders

Phase 2b Combination with Pembro (OMS-103)

KEYNOTE-695 REGISTRATION-ENABLED UNDER ACCELERATED APPROVAL PROGRAM

→ Assess efficacy and safety in PD-1 non-responders

TAVO IS U.S. **ORPHAN DESIGNATED** & KEYNOTE-695 IS **FAST TRACKED**

ONCOSEC WILL SEEK ACCELERATED APPROVAL

Accelerated Approval Program

FDA can reduce the bar for approval in cases where there is an unmet medical need for a serious condition or in cases where an experimental drug is being added to an approved drug

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COMPLETED: MULTI-CENTER PHASE 1 & PHASE 2 MONOTHERAPY TAVO IN METASTATIC MELANOMA STUDIES

SINGLE-AGENT ACTIVITY WITH CR'S AND STRONG ABSCOPAL EFFECT

OMS-100 PHASE 2 RR DATA (n=26)

ORR	CR	Regression of at Least One Non-Treated Lesion	DCR
30%	21%	46%	77%

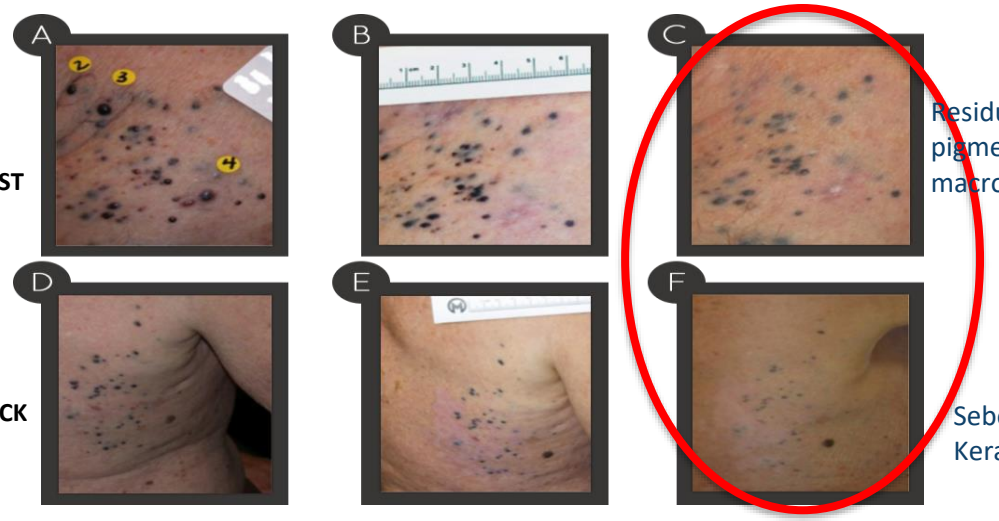
- TAVO **MONOTHERAPY** demonstrated anti-tumor efficacy after only one treatment cycle
- Complete tumor regression was seen in 21% of patients
- TAVO caused local necrosis and increased TIL infiltrate
- TAVO was shown to be safe and well-tolerated

OMS-100 PHASE 2 MONOTHEAPY DATA HAS BEEN PRESENTED AT SEVERAL MAJOR MEDICAL MEETINGS, INCLUDING, 2016 AACR, 2017 SMR AND 2018 MELANOMA BRIDGE CONFERENCE AND IS CURRENTLY PENDING PUBLICATION IN RELEVANT MEDICAL JOURNALS

PHASE 1 REPRESENTATIVE EXAMPLE

Treated Lesions
Numbered lesions on the chest were treated

Untreated Lesions
No lesions on the back were injected or electroporated



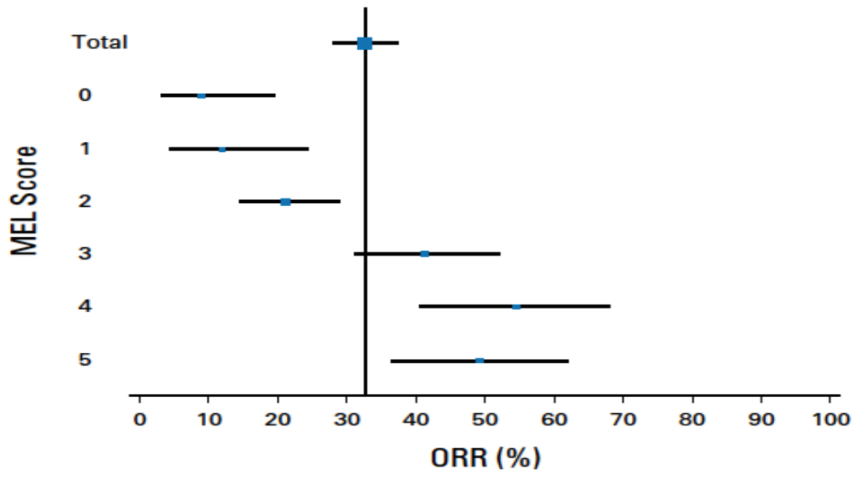
CR AFTER ONLY ONE CYCLE OF TAVO, REGRESSION OF ALL LESIONS

COMPLETED: PHASE 2 STUDY OF TAVO + PEMBRO PATIENTS WITH "COLD" TUMORS (OMS-102)

LOW TILS PREDICTING KEYTRUDA ALONE RESPONSE RATE ~5-10%

- Open-label, Phase 2 Multicenter Study
- Primary Endpoint: BORR based on RECIST v1.1
- Secondary Endpoint: DOR, PFS, OS
- Eligible patients using biomarker assay < 25% CTLA4^{hi}PD1^{hi} TIL phenotype

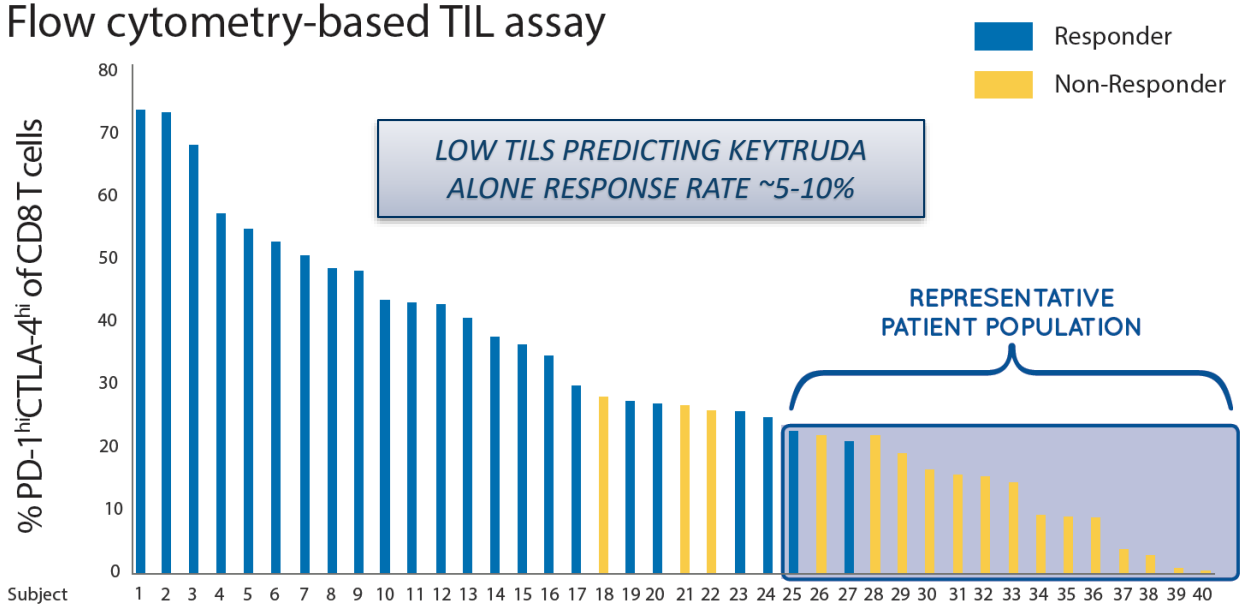
22C3 MEL IHC assay



Daud, *et al.* Journal of Clinical Oncology. 2016:1–12.

- Stage III-IV Melanoma
- 3 week treatment cycles with 200 mg pembrolizumab administered as a 30 minute IV infusion
- 22 patients treated with TAVO on days 1, 5 and 8 of every other cycle (every 6 weeks)

Flow cytometry-based TIL assay



Daud, *et al.* J. Clin. Invest. 2016:1–6.

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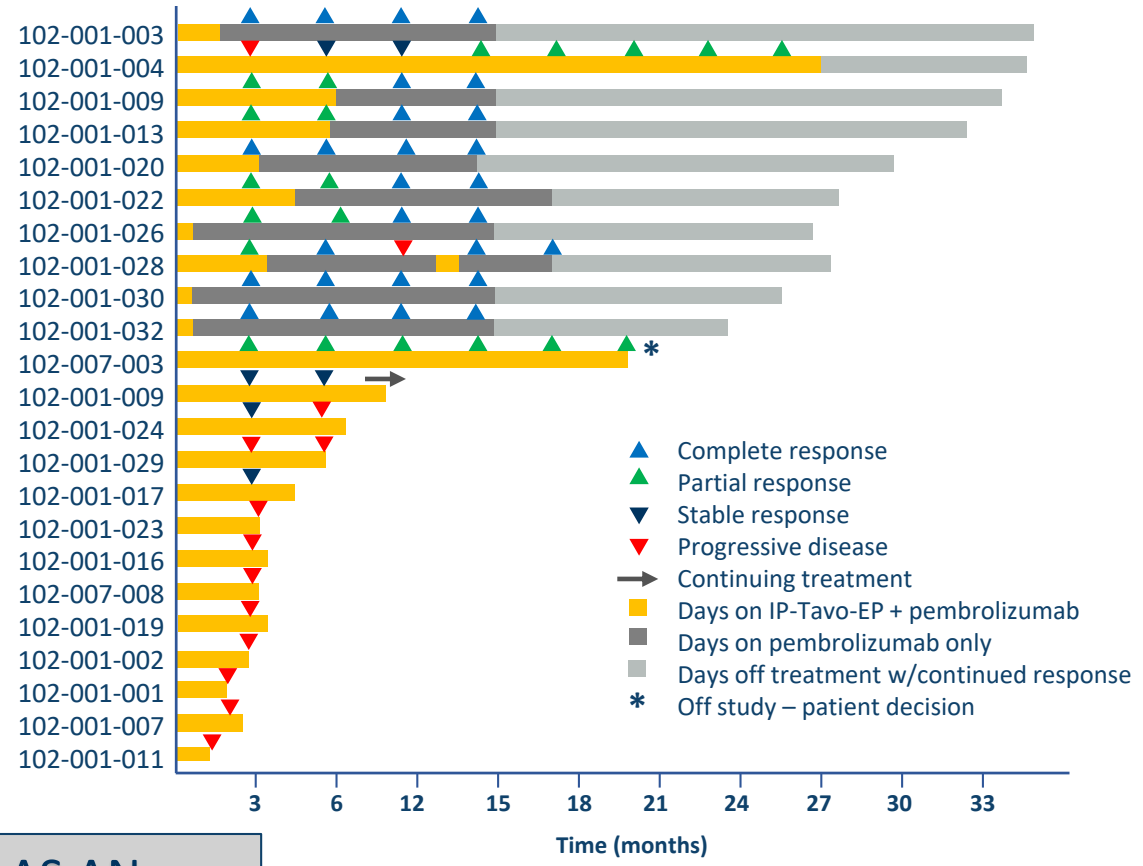
TAVO + PEMBRO DELIVERS DURABLE RESPONSES IN 50% OF PATIENTS (OMS-102)

HEAVILY PRE-TREATED PATIENT POPULATION

DURABLE RESPONSES
Best overall response rate (BORR) of 50% (11/22)
• 43% [9/21] achieved RECIST v1.1 BORR
Complete response (CR) rate of 41% (9/22)
• 38% [8/21] achieved RECIST v1.1 durable CR
Disease control rate (DCR) of 59% (13/22)
• 52% [11/21] achieved RECIST v1.1 DCR
Progression free survival (PFS) of 57% at 15 months
Duration of response (DOR) of 100% (11/11) at >36 months



DATA PRESENTED AS AN ORAL PRESENTATION AT SITC 2017

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KEYNOTE-695: CURRENTLY NO DURABLE RESPONSES IN CHECKPOINT REFRACTORY MELANOMA

THERE IS NO APPROVED THERAPY IN THIS "SALVAGE" SETTING

- ✓ Immune checkpoint inhibitors have become a mainstay in the treatment of melanoma[1] however, response rates of re-treatment in a post-anti-PD-1 setting do not exist (5% among ALL patients is a reasonable approximation)
- ✓ Biased studies highlighting treatment beyond progression or pseudo-progression are not applicable
- ✓ Studies reporting response rates with in the post-anti-PD1 setting with alternative CPI are not applicable
- ✓ High unmet medical need remains in metastatic melanoma
- ✓ Most patients do not respond to immune checkpoint inhibition[2,3]
- ✓ Attempts to potentiate activity by combining ipilimumab and nivolumab has resulted in significant toxicity[4]

There is currently **NO APPROVED THERAPY** in the "salvage" setting for checkpoint inhibitor-refractory metastatic melanoma patient populations[1]

- KOLs consider ~10% response rate clinically meaningful as this is what they could elicit with additional chemotherapy however responses achieved with chemotherapy are not durable
- Tolerability is an important consideration in this heavily pretreated population

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1. NCCN Guidelines. Melanoma. v3.2018; 2. Schachter J, et al. *Lancet.* 2017;390(10105):1853-1862; 3. Weber J, et al. Lancet Oncol . 2016 ; 17(7): 943–955; 4. Shoushtari et al. *JAMA Oncology* 2017;

KEYNOTE-695: REVERSING RESISTANCE TO PD-1 WITH TAVO + KEYTRUDA

COMPLETE ENROLLMENT IN 2019 / POTENTIAL U.S. FILING FOR ACCELERATED APPROVAL IN 2020

ALL PATIENTS ARE DEFINITIVE PD-1 FAILURES TO ENABLE REGULATORY FILING UNDER ACCELERATED APPROVAL

- Pathologically documented unresectable melanoma, Stage III/IV, with histological or cytological confirmed diagnosis of unresectable melanoma with progressive locally advanced or metastatic disease
- All patients must be refractory to anti-PD-1 mAbs (pembrolizumab or nivolumab according to their approved label) and must meet all of the following criteria:
  - Received 4+ doses of anti-PD-1
  - Progressive disease after anti-PD-1 mAb according to RECIST v1.1
  - Documented disease progression ≤24 weeks of the last dose of anti-PD-1
- No intervening therapies permitted in-between anti-PD-1 failure and TAVO/KEYTRUDA combination
- Prior treatment with an approved BRAF inhibitor if BRAF mutation-positive

- Single arm Phase 2b Registration-enabled study
- Primary outcome: ORR based on RECIST v1.1
- ~100 patients at sites in US, Australia & Canada

✓ORPHAN DESIGNATION

✓ FAST TRACK

- Breakthrough
- Accelerated Approval

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KEYNOTE-695: PRELIMINARY RESPONSE RATE DATA AS OF DECEMBER 15, 2018 FOR FIRST 21 PATIENTS

1 CR / 4 PR / 5 SD = IMPORTANT, FIRST OF ITS KIND DATA

- **4 PRs and 1 CR out of 21 evaluated patients (~24% ORR)**
- **Durable responses observed, all responding patients still on study from 6 to 10 months**
- **Responders are patients with bulky disease**
- **Responders demonstrating regression of distant visceral lesions**

- Assessments by blinded independent review or investigator at either Cycle 5 (~3 months) or Cycle 9 (~6 months) based on RECIST v1.1
- Immunological response correlates to clinical response
- Responses observed in treated and untreated lesions
- Only one TAVO related Grade 3 SAE of cellulitis reported and resolved

Patient	Response Assessment
A	CR per Investigator at Cycle 9
B	PR per BIRC at Cycle 5
C	PR per BIRC at Cycle 5
D	PR per Investigator at Cycle 5
E	PR per Investigator at Cycle 9

ORR Tracking at ~24%

Study size of ~100 to enable potential detection of clinically meaningful response rate (>or=20 %) with a 95% confidence interval

2 of the responding patients no longer being treated with TAVO because there are no TAVO accessible lesions

Currently ~33 treated, 21 evaluated and 16 patients on study

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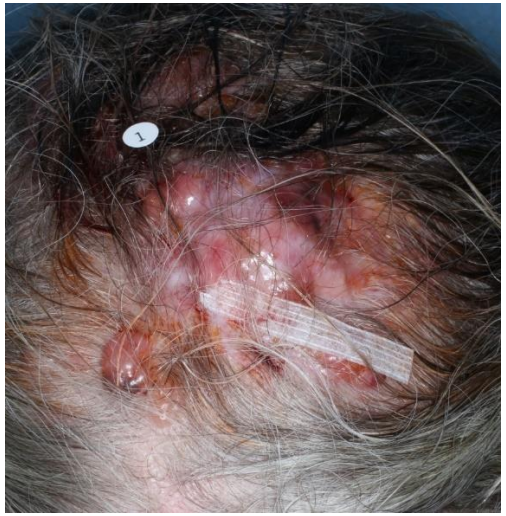
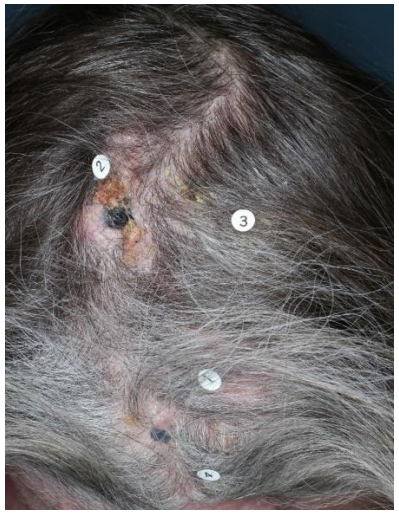
CR, complete response; **PR**, partial response; **SD**, stable disease; **BIRC**, Blinded Independent Review Committee; **PD/DC,** progressive disease/discontinued; **Cycle 5** is ~3 months; **Cycle 9** is ~6 months

KEYNOTE-695: PATIENT A
WHITE FEMALE WITH STAGE IVA MELANOMA
DURABLE COMPLETE RESPONSE: BASELINE VS. 12 AND 24 WEEKS

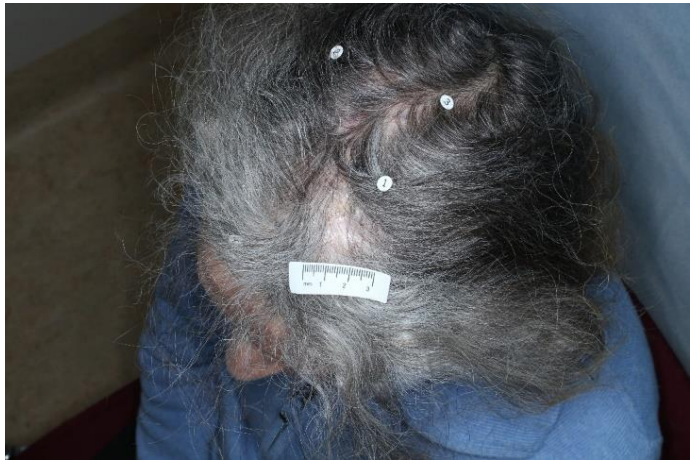
Baseline



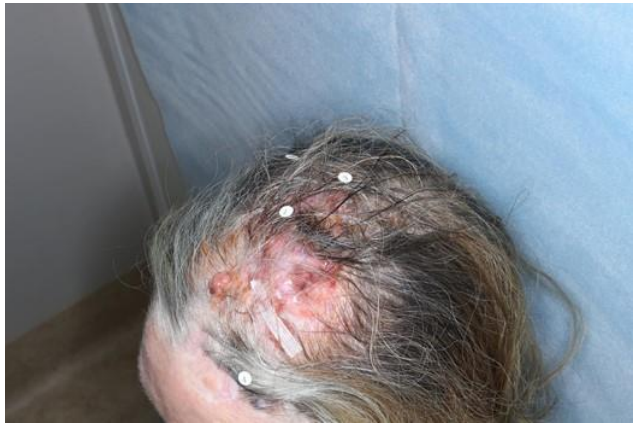
12 Weeks

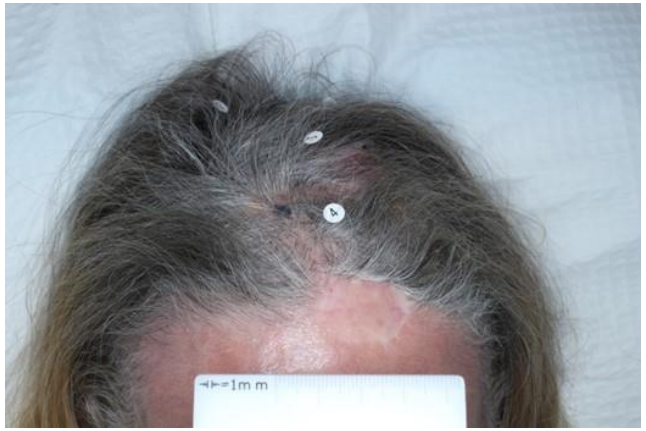


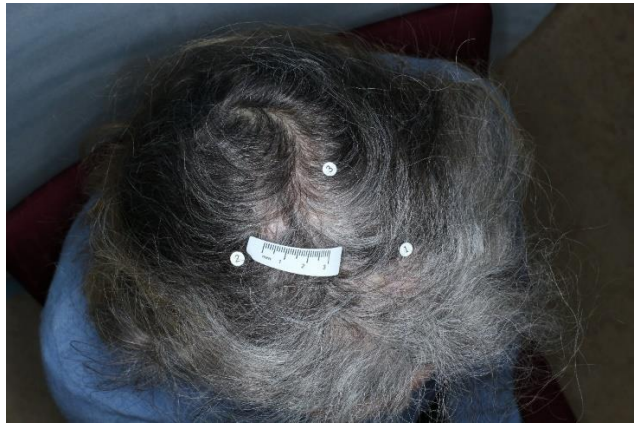
24 Weeks



- Patient no longer treated with TAVO as there are no accessible lesions
- Patient continues maintenance pembrolizumab







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IMAGES OF BASELINE VS. 12 AND 24 WEEKS

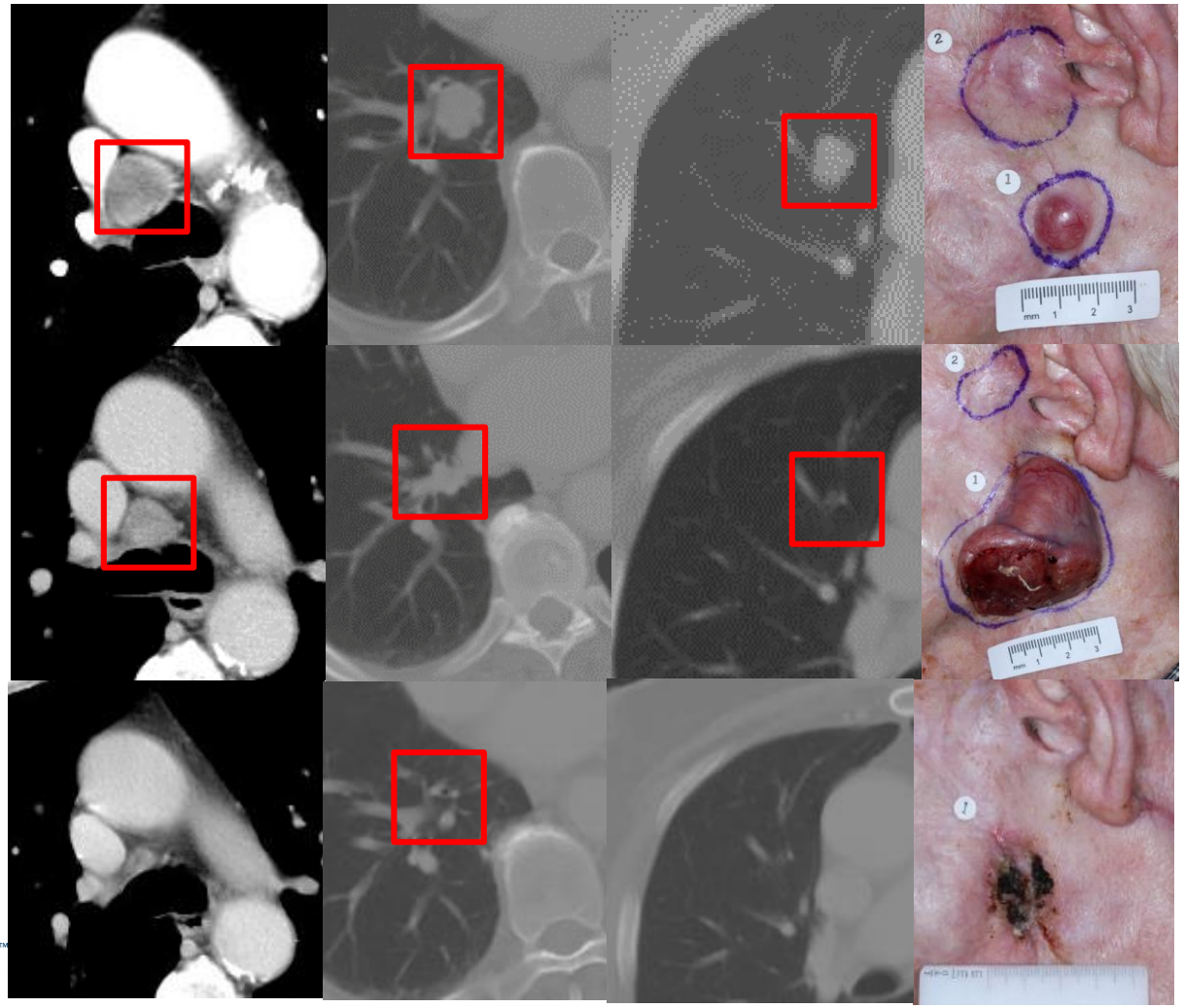
KEYNOTE-695: PATIENT E
WHITE MALE WITH STAGE IVB MELANOMA
DEEP, DURABLE PARTIAL RESPONSE

IMAGES OF BASELINE VS. 12 WEEKS AND 24 WEEKS

Baseline

12 weeks

24 weeks



TUMOR FLARE, NECROSIS, AND RESPONSE

Regression of mediastinal node and parenchymal lung metastases

- Patient no longer treated with TAVO as there are no accessible lesions
- Patient continues maintenance pembrolizumab

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KEYNOTE-695: NEAR TERM REGULATORY APPROVALS IN US AND EU

POTENTIALLY FILE FOR ACCELERATED APPROVAL IN US IN 2020 & IN EU IN 2020

Potential US Regulatory Timeline	
Late 2019	Pre-BLA Meeting at FDA
Early 2020	Submission of BLA for Accelerated Approval
Late 2020 / Early 2021	FDA Accelerated Approval of TAVO for Metastatic Melanoma

TAVO IS U.S. ORPHAN DESIGNATED &
KEYNOTE-695 IS FAST TRACKED
ONCOSEC WILL SEEK ACCELERATED APPROVAL

Potential EU Regulatory Timeline	
Early 2019	Obtain Advanced Therapy Medicinal Product (ATMP) Designation
Mid 2019	Obtain CE Mark for to-be-marketed GenPulse Device
Early 2020	Meetings with EU Rapporteurs
Late 2020	File MAA for Conditional Approval in EU File Device Application in EU
Late 2021	EMA Conditional Approval of TAVO for Metastatic Melanoma

EU SMALL-MEDIUM ENTERPRISE (SME) & ATMP DESIGNATIONS BY EMA'S COMMITTEE ON ADVANCED THERAPEUTICS (CAT) ANTICIPATED 1H 2019

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TAVO POTENTIAL IN CERVICAL CANCER: A HIGH UNMET MEDICAL NEED

OMS-150: REGISTRATION-ENABLED PHASE 2 TAVO + KEYTRUDA

GOG FOUNDATION, INC.

OMS-150

- Single-arm Phase 2b study
- Primary endpoint - ORR by BIRC based on RECIST v1.1
- Patients with histologically confirmed diagnosis of metastatic cervical cancer
- 80 patients
- 3 week treatment cycles with commercially available KEYTRUDA administered as a 30-minute IV infusion day 1 of every cycle (flat dose of 200 mg) and treated with TAVO on days 1, 5 and 8 every 6 weeks

REGULATORY
Orphan designation
Fast Track
Breakthrough
Accelerated Approval

511K New Cases WW each year(1)

247K Deaths WW each year(1)

13K Diagnoses in U.S. each year(2)

4K Deaths in U.S. each year(2)

KEYTRUDA® ACCELERATED APPROVAL HISTORY AND TAVO + KEYTRUDA RATIONAL

- June, 2018, KEYTRUDA received Accelerated Approval for the treatment of advanced cervical cancer with disease progression during or after chemotherapy
- Accelerated Approval was based on a single-arm 98 patient study demonstrating a 14% overall response rate (ORR)
- The goal of the study is to improve upon KEYTRUDA'S 14% response rate, with the addition of TAVO, to ~25% ORR and file for Accelerated Approval with OMS-150
- Underserved patient population and high medical need: KEYTRUDA is only the second drug in 30 years to be approved for the treatment of cervical cancer

Available care: Chemo-therapy as first line option

For PD-L1 + patients, post-chemo receiving KEYTRUDA(3) ORR 14.3%

TAVO + KEYTRUDA to achieve a ORR greater than KEYTRUDA alone (14%)

"Conducting research that can lead to promising new therapies for women facing cervical cancer and other gynecological malignancies is central to our mission, and this collaboration is an exciting opportunity to bring our esteemed network and expertise in quality scientific research to the table. We're grateful to play a role in the TAVO trial and look forward to advancing this therapy through the clinic."

Larry J. Copeland, MD, Gynecologic Oncology Group Foundation President and Professor of Medical Oncology at The Ohio State University

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(1) Global Burden of Disease Cancer Collaboration, Global, Regional, and National Cancer Incidence, Mortality, Years of Life Lost, Years Lived With Disability, and Disability-Adjusted Life-years for 29 Cancer Groups, 1990 to 2016: A Systematic Analysis for the Global Burden of Disease Study. JAMA Oncol. 2018 Nov 1;4(11):1553-1568. doi: 10.1001/jamaoncol.2018.2706
(2) https://seer.cancer.gov/
(3) https://www.merck.com/product/usa/pi_circulars/k/keytruda/keytruda_pi.pdf
(4) Stevanovic, et al., Treatment of Metastatic Human Papiliomavirus-Associated Epithelial Cancers with Adoptive Transfer of Tumor-Infiltrating T Cells, ASCO 2018, Abstract #3004

TAVO IN METASTATIC TNBC: HIGH UNMET MEDICAL NEED

COMPLETED: OMS-140 TAVO AS A MONOTHERAPY, SINGLE-CYCLE

ONGOING: KEYNOTE-890: TAVO + KEYTRUDA

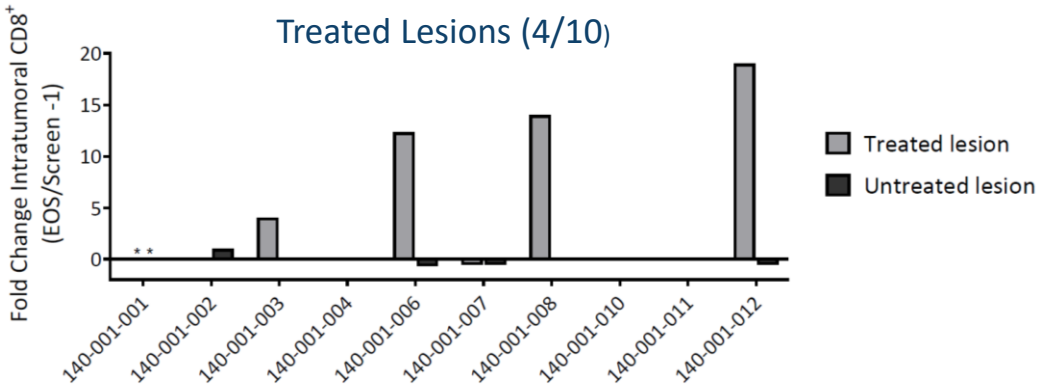
REGULATORY
Orphan designation
Fast Track
Breakthrough
Accelerated Approval

OMS-140: COMPLETED & PRESENTED AT SAN ANTONIO BREAST CANCER CONFERENCE '18

- **SINCLE** cycle TAVO **MONOTHERAPY**
- Patients Enrollment completed (N=10)

Chromogenic IHC

Treatment-Related Increase in Intratumoral CD8+ TIL in Treated Lesions (4/10)

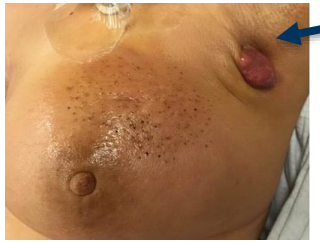


*140-001-001: Value at Screen = 0%

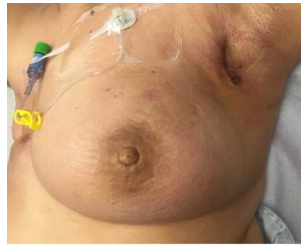
KEYNOTE-890

- ONGOING: Single arm Phase 2 study
- Primary endpoint - ORR based on RECIST v1.1
- 6 patients enrolled to date
- Patients with histologically confirmed diagnosis of inoperable locally advanced or metastatic TNBC and at least 1 prior line of approved systemic chemotherapy or immunotherapy
- 25 patients
- 3 week treatment cycles with pembrolizumab administered as a 30-minute IV infusion day 1 of every cycle (flat dose of 200 mg) and treated with TAVO on days 1, 5, 8 every 6 weeks

Treated right chest wall and left breast disease



Untreated exophytic left axillary skin nodule



KEYNOTE-890
Preliminary Data 2H 2019

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MERCK

Tumor reduction observed in patients who received off-protocol nivolumab

FINANCIAL SUMMARY & ANTICIPATED MILESTONES

FINANCIAL SUMMARY

- $33.3M cash as of Dec. 6, 2018
- 64.5M shares of common stock outstanding as of Dec. 14, 2018
- Cash runway is > 12 months
- No debt

ANTICIPATED MILESTONES

Melanoma KEYNOTE-695	TAVO Receive ATMP Classification	1H 2019
	Initiate European Sites	2019
	Complete Enrollment	2H 2019
	Accelerated Approval Filing in US	1H 2020
Cervical OMS-150	First Patient Dosed	1H 2019
	Complete Enrollment	2020
TNBC KEYNOTE-890	Preliminary Data Update	2H 2019
Next Generation Product Candidate	Announce Next Gen Product	1H 2019
	IND Filing	2H 2019
	Initiate Phase 1	2020

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LEADERSHIP AND BOARD OF DIRECTORS

ESTABLISHED BIOTECH LEADERS WITH TRACK RECORDS OF SUCCESS

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Christopher G. Twitty, PhD
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Kellie Malloy Foerter
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Senior Vice President, Regulatory

Keir Lolacono, JD
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Chief Compliance Officer

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

Avtar Dhillon, M.D.
Co-Founder/Chairman

Punit Dhillon
Co-Founder/Director

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Director

Gregory T. Mayes, JD
Director

Robert E. Ward
Director

Joon Kim, JD
Director

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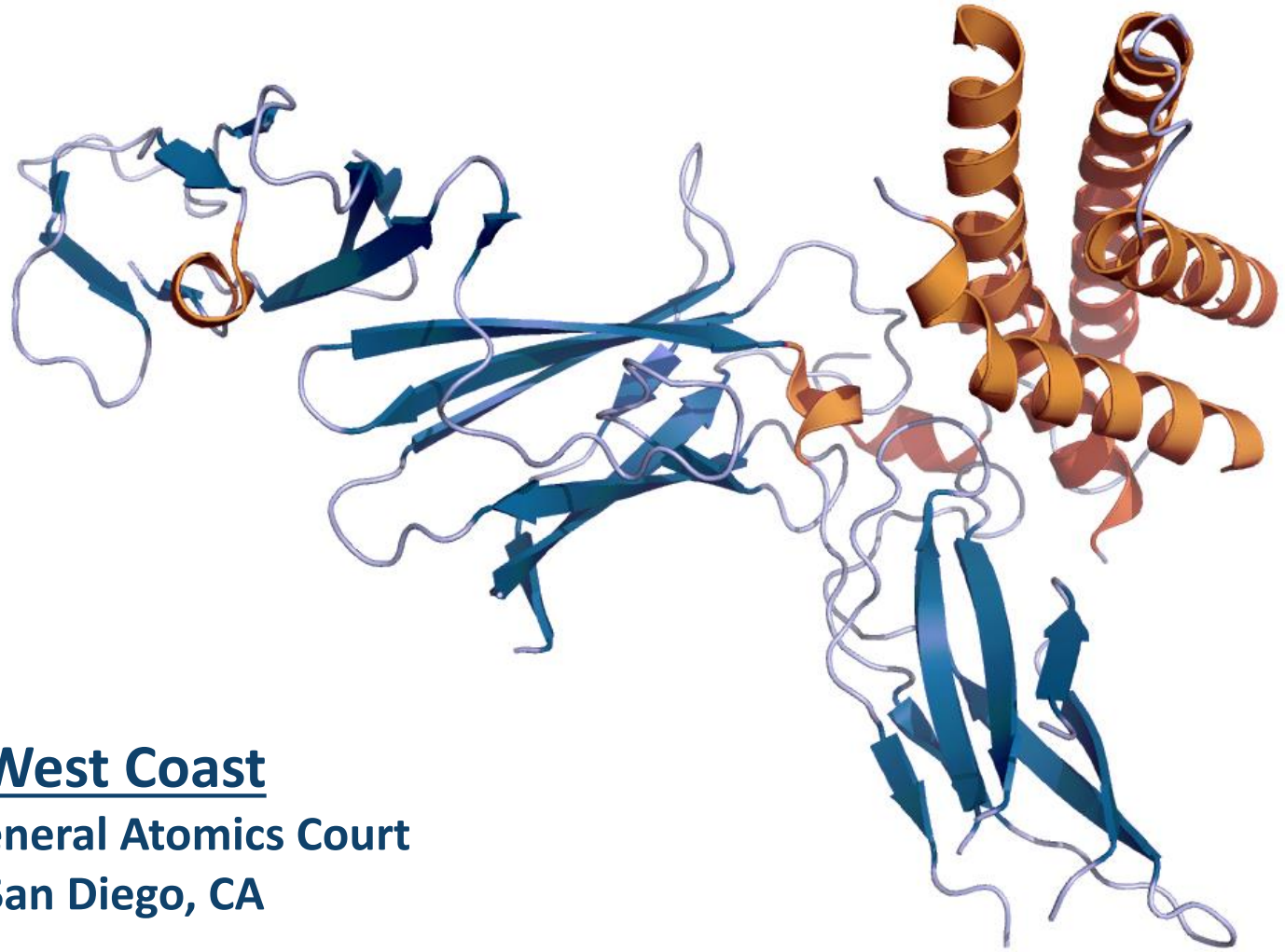
THANK YOU



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Stern Investor Relations
212.698.8694
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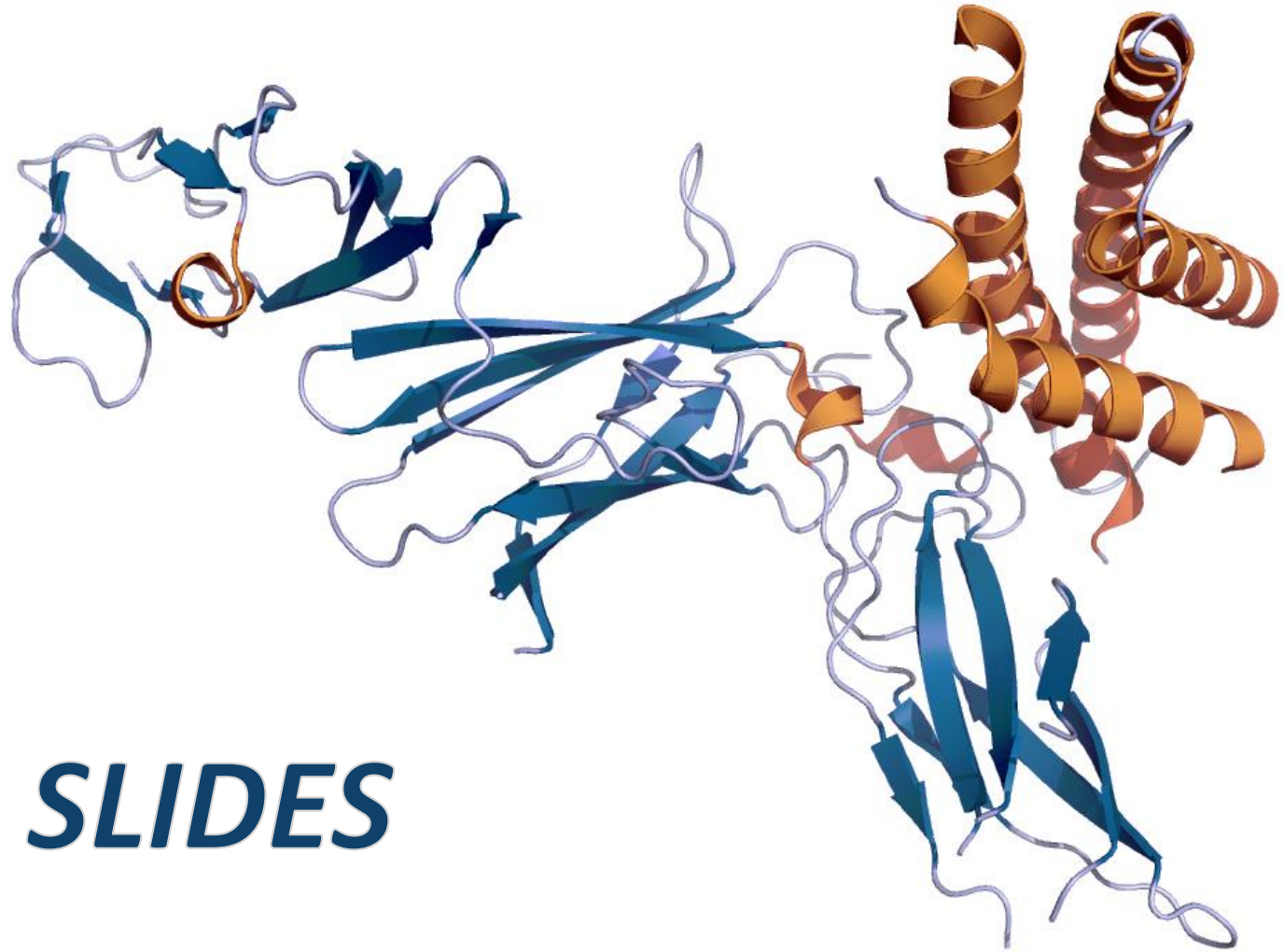

SUPPLEMENTAL SLIDES

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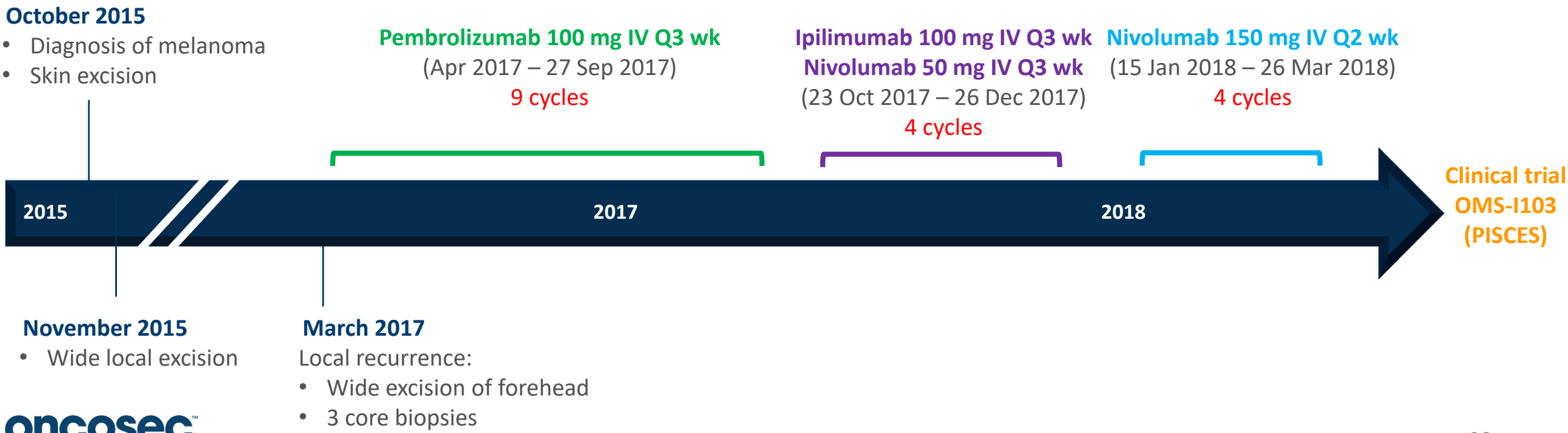
MEDICAL HISTORY: PATIENT A
WHITE FEMALE WITH STAGE IVA MELANOMA
DURABLE COMPLETE RESPONSE

- Female 71 years
- Stage IVA, multiple basal cell carcinomas & squamous cell carcinomas
- Metastatic disease in LNs (distant), lung and subcutaneous
- Hypothyroidism, vaginal prolapse, BCC, and SCC

Medical History

- Prior surgery on skin excisions, wide excisions
- No radiotherapy
- Constipation, insomnia, anxiety, and night sweats

Melanoma History



IV, intravenous; **Q2 wk**, every 2 weeks; **Q3 wk**, every 3 weeks.

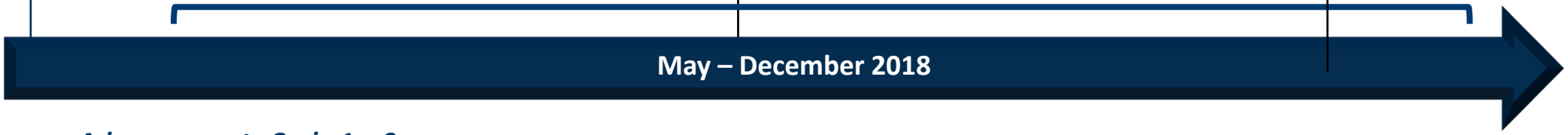
KEYNOTE-695 HISTORY: PATIENT A
24 MAY 2018 – 26 NOVEMBER 2018

Treatment as per protocol cycle 1 – 9
- IT-tavo-EP: Days 1, 5, 8 every other cycle (each 6 weeks)
- Pembrolizumab (200 mg IV): Day 1 of each 3-week cycle

10 May 2018:
Screening
- Melanoma, stage IVA, with skin lesions
- ECOG PS: 0

14 August 2018 (cycle 5, day 1):
Tumor response at 12 weeks
- **Partial Response / BIRC First at Timepoint Assessment**

26 November 2018 (cycle 9, day 1):
Tumor response at 24 weeks
- **Complete Response / Investigator Assessed**



Adverse events Cycle 1 – 9
- Grade 1 pruritus: related to pembrolizumab; not related to tavo or EP
- Grade 1 night sweats: not related to any of the treatments or EP
- Grade 2 diarrhea: related to pembrolizumab and tavo; not related to EP
- Grade 2 overactive bladder: not related to any of the treatments or EP

No longer treated with TAVO as there are no TAVO accessible lesions
Continue maintenance pembrolizumab

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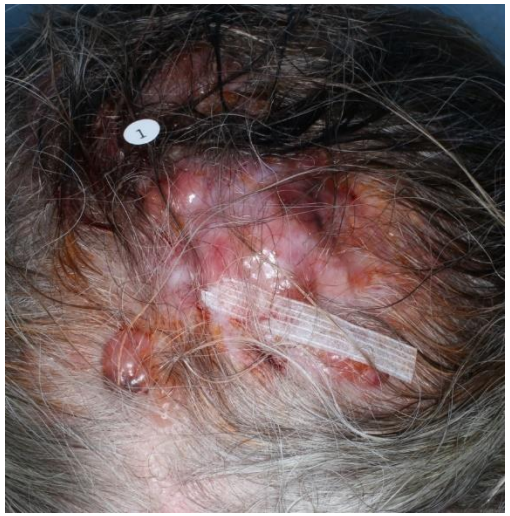
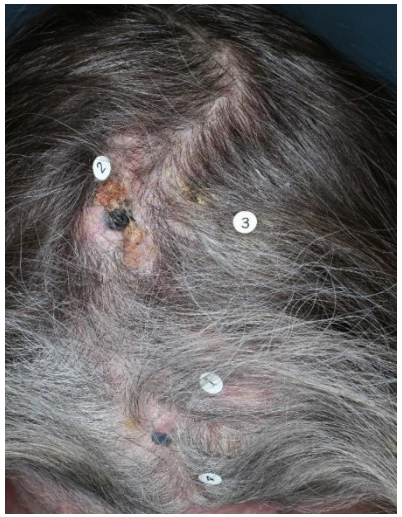
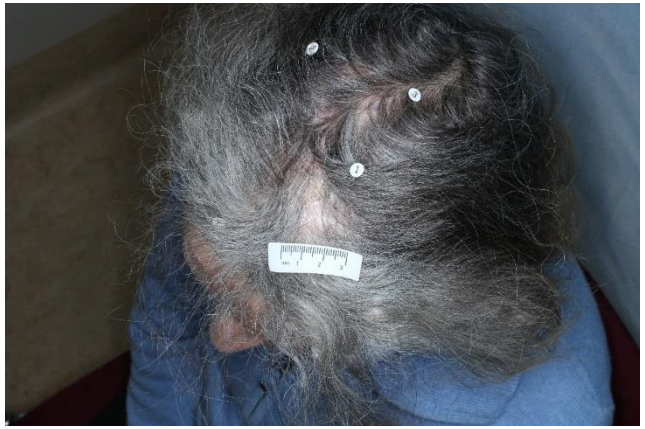
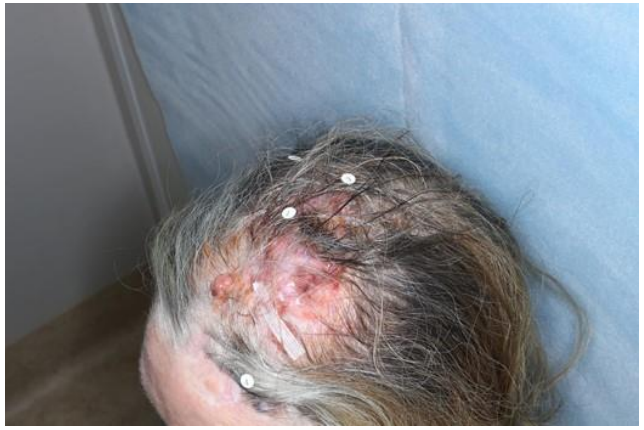
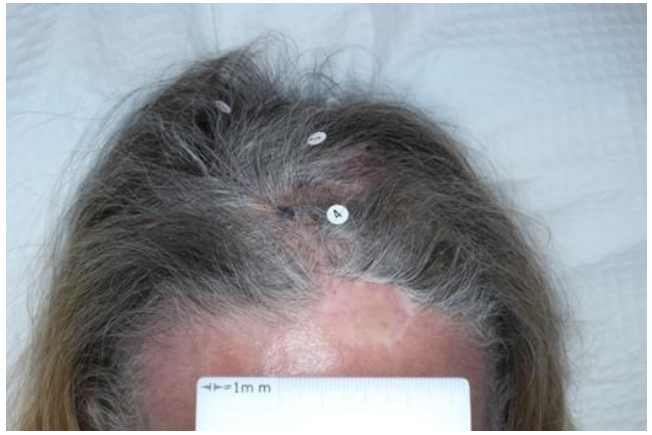
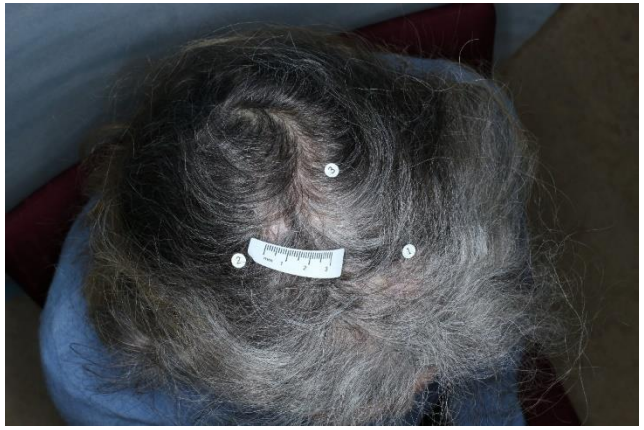
CR, complete response; **ECOG**, Eastern Cooperative Oncology Group; **EP**, electroporation; **IT-tavo-EP**, intratumoral injection of tavo with electroporation; **IV**, intravenous; **LN**, lymph node; **PR**, partial response; **PS**, performance status; **tavo**, plasmid interleukin-12.

PATIENT A
IMAGES OF BASELINE VS. 12 AND 24 WEEKS

Baseline	12 weeks	24 weeks
		
		

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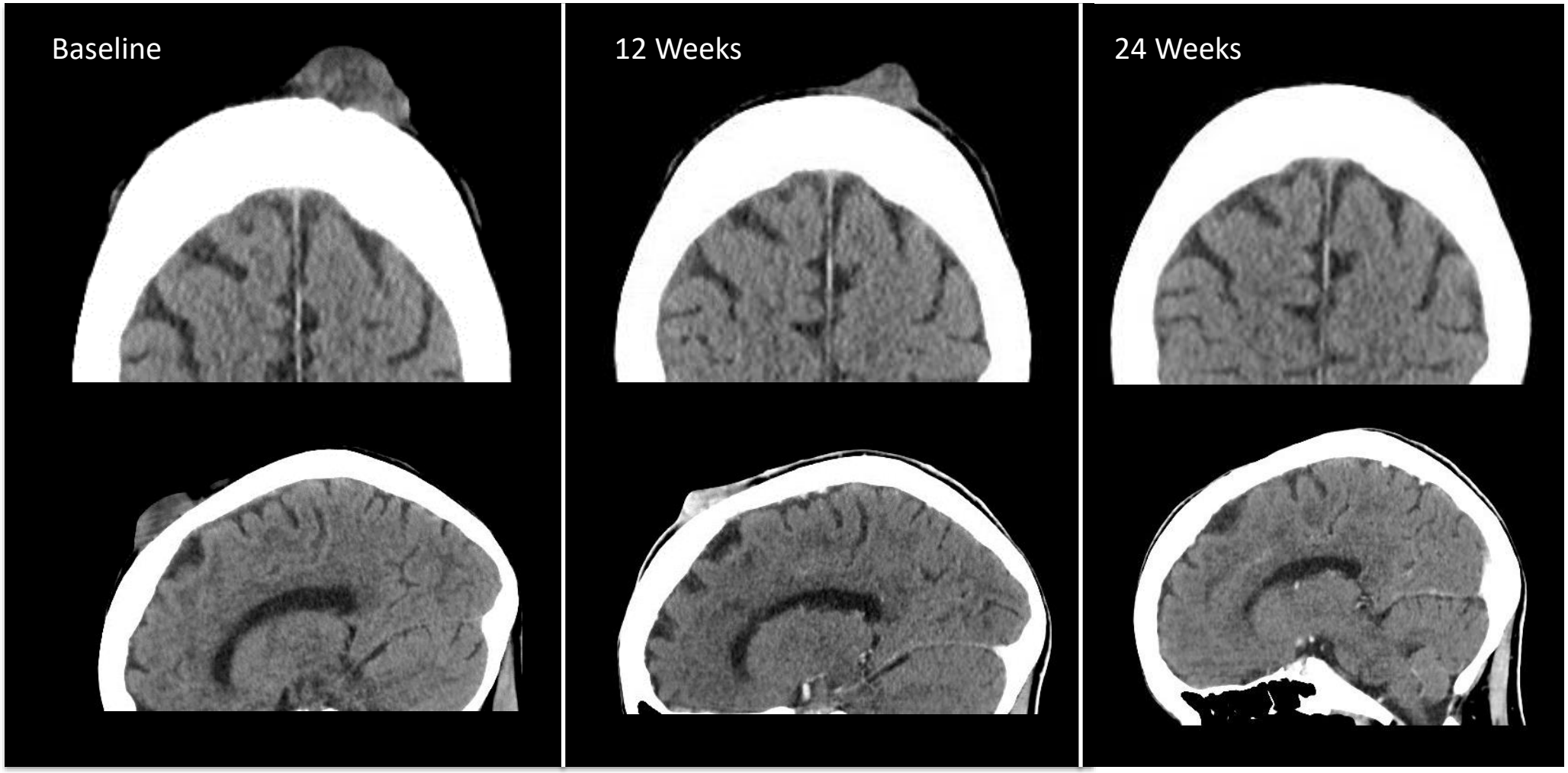
PATIENT A
CT IMAGES OF BASELINE VS. 12 AND 24 WEEKS



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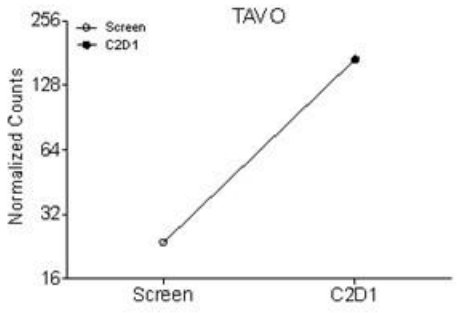
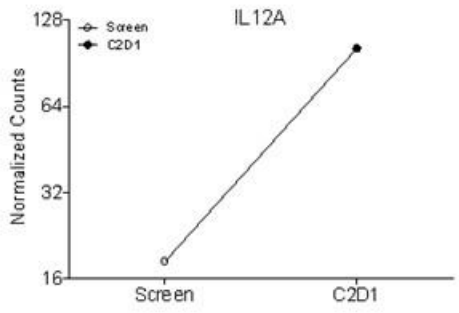
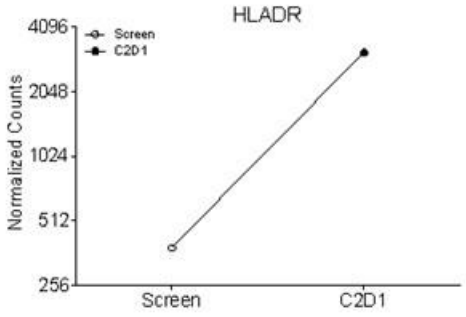
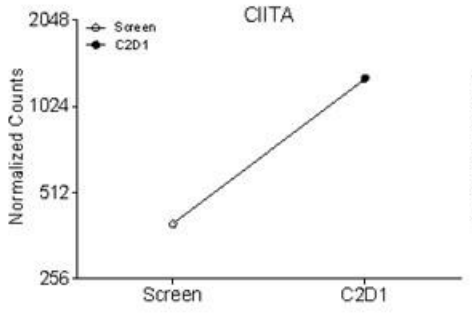
IMMUNOTHERAPIES

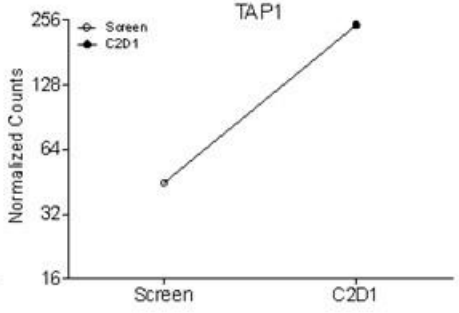
PATIENT A
INTRATUMORAL GENE EXPRESSION
INCREASED ANTIGEN PRESENTATION AND T CELL ACTIVATION/TRAFFICKING

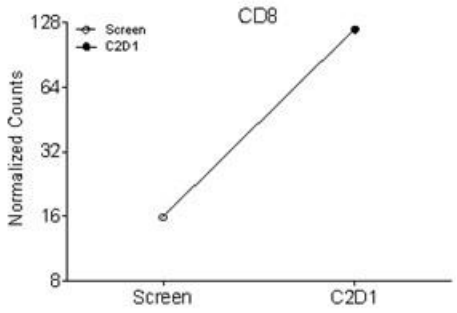


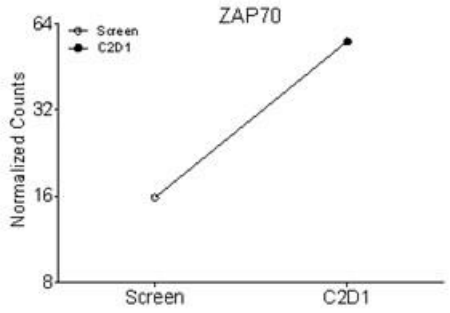


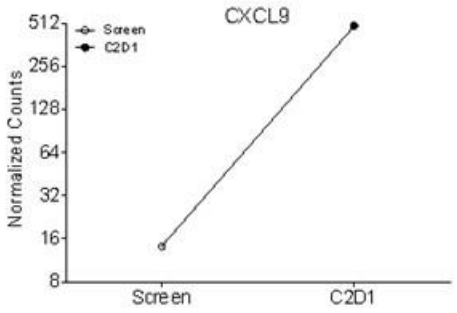


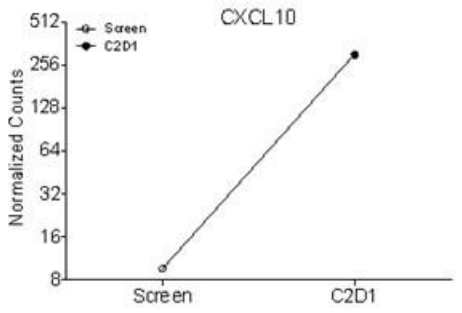


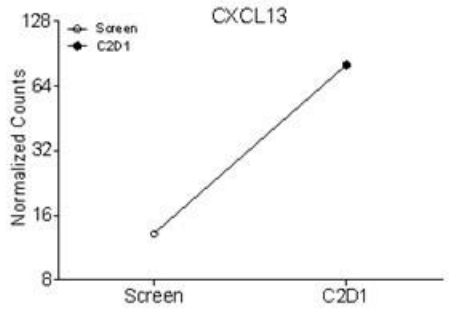






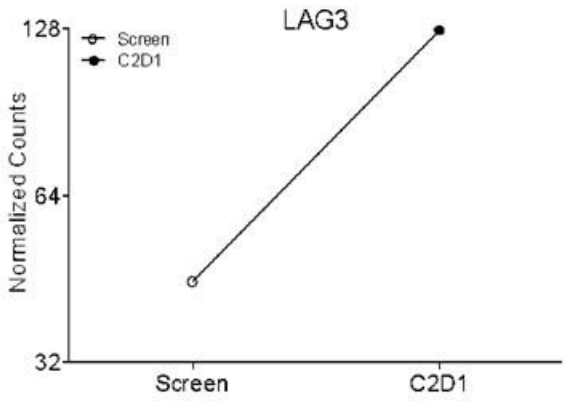


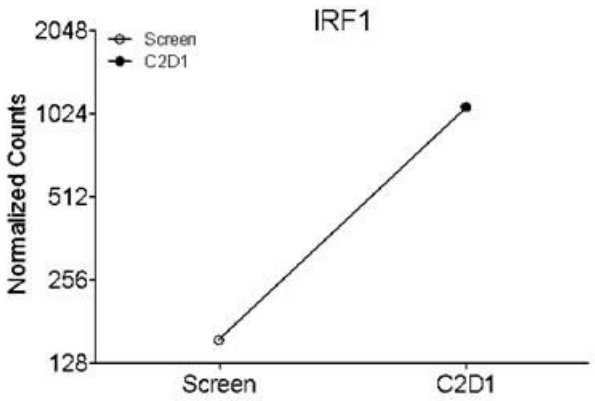


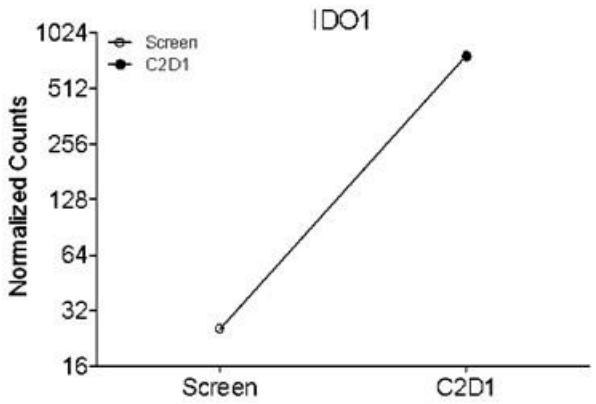


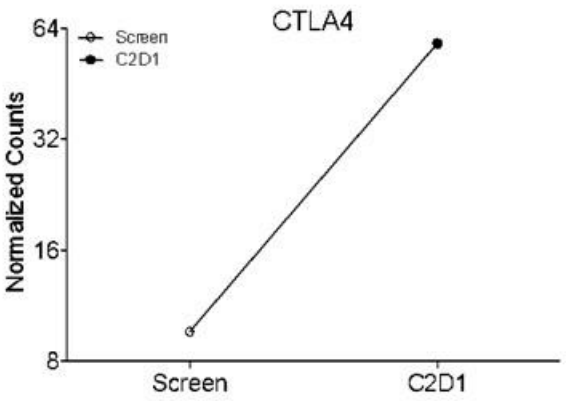
PR, partial response.

PATIENT A
INTRATUMORAL GENE EXPRESSION
TREATMENT-RELATED INCREASE IN ADAPTIVE RESISTANCE









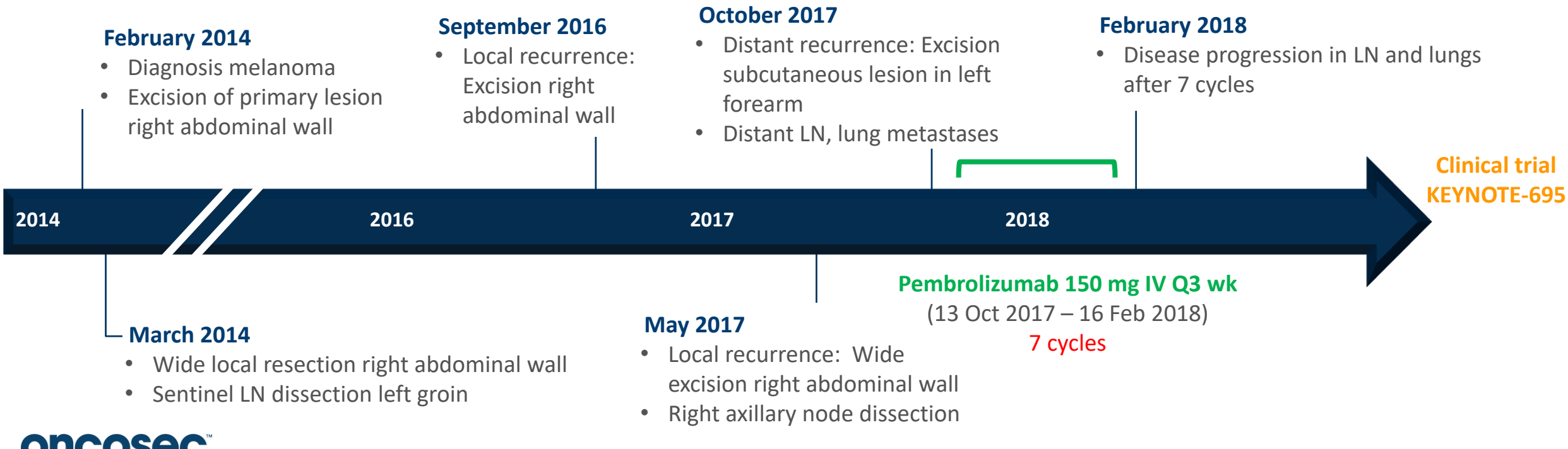
CR, complete response; **ECOG**, Eastern Cooperative Oncology Group; **EP**, electroporation; **IT-tavo-EP**, intratumoral injection of tavo with electroporation; **IV**, intravenous; **LN**, lymph node; **PR**, partial response; **PS**, performance status; **tavo**, plasmid interleukin-12.

MEDICAL HISTORY: PATIENT B
WHITE MALE WITH STAGE IVB MELANOMA

Medical History

- Male 65yrs / Stage IV
- Metastatic disease in LNs (distant), lung, and subcutaneous
- Osteoarthritis with bilateral hip replacements, benign prostatic hyperplasia, basal cell carcinoma removal on neck, pontaneous pneumothorax
- Prior surgery on lesion on abdominal wall, dissection left groin, sentinel and right axillary LN. No radiotherapy

Melanoma History



IV, intravenous; **LN**, lymph node; **Q3 wk**, every 3 weeks.

KEYNOTE-695 HISTORY: PATIENT B
16 APRIL 2018 – 18 OCTOBER 2018

Treatment as per protocol cycle 1 – 9 (27 weeks)
- IT-tavo-EP: Days 1, 5, 8 every other cycle (each 6 weeks)
- Pembrolizumab (200 mg IV): Day 1 of each 3-week cycle

9 April 2018:
Screening
- Melanoma, Stage IVB, with subcutaneous lesions, lung and LN involvement
- ECOG PS: 0

9 July 2018 (cycle 5, day 1):
Tumor response at 12 weeks
- **Partial Response / BIRC First at Timepoint Assessment**

28 September 2018 (cycle 9, day 1):
Tumor response at 24 weeks
- **Partial Response / Investigator Assessed**

Adverse events cycle 1 – 9
- Grade 1 injection site pain: not related to pembrolizumab or tavo; related to EP

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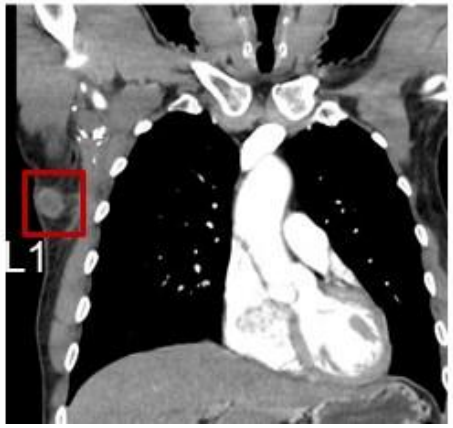
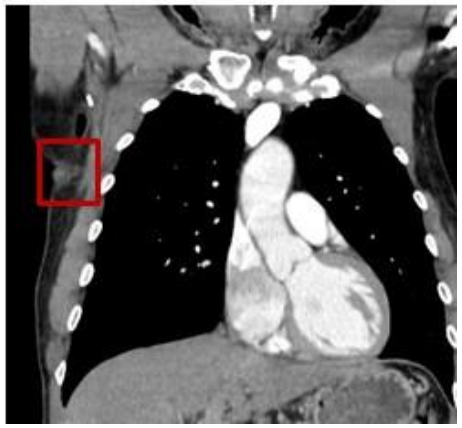
ECOG, Eastern Cooperative Oncology Group; **EP**, electroporation; **IT-tavo-EP**, intratumoral injection of tavo with electroporation; **IV**, intravenous; **LN**, lymph node; **PR**, partial response; **PS**, performance status; **tavo**, plasmid interleukin-12.

PATIENT B
CT IMAGES OF BASELINE VS. 12 WEEKS

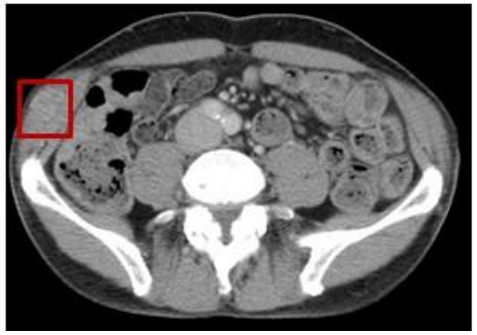
Baseline **12 weeks**

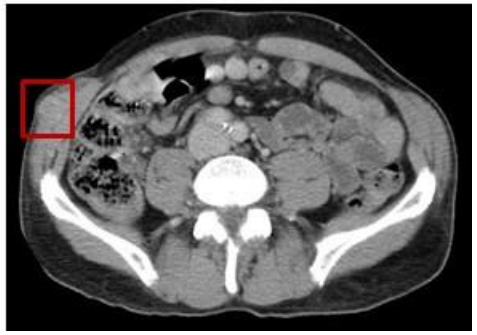
TL1





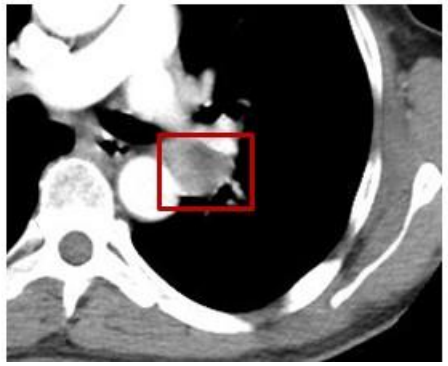
TL2

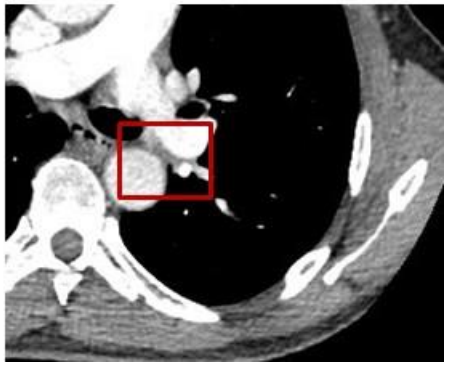




Baseline **12 weeks**

TL3
(untreated)





Regression of distant, untreated hilar node lesion
Response confirmed at 24 weeks

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TL, target lesion.

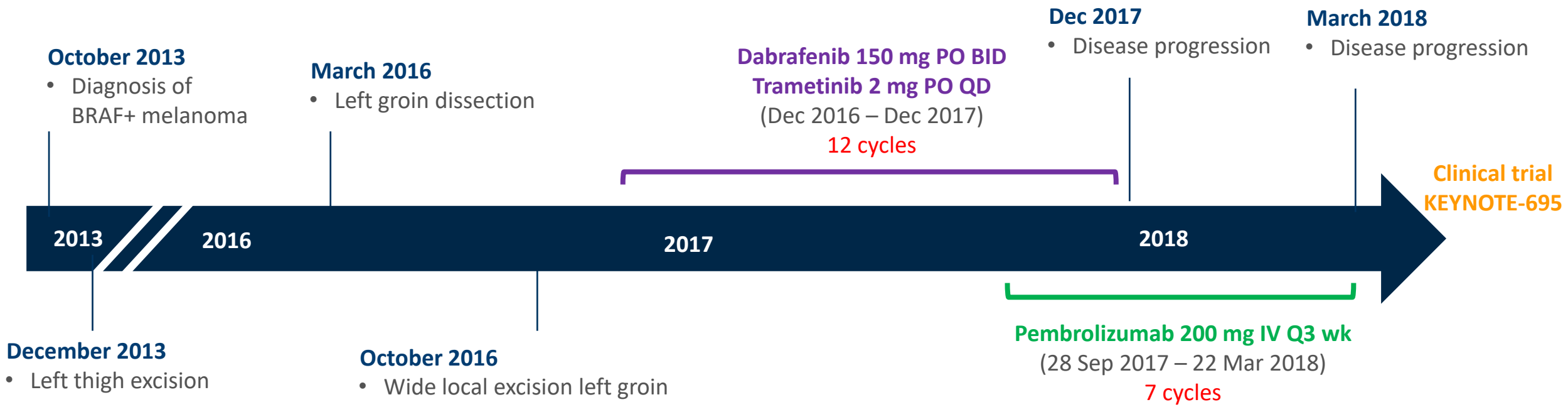
MEDICAL HISTORY: PATIENT C
WHITE MALE WITH STAGE IVA MELANOMA
SIGNIFICANT PARTIAL RESPONSE

- Male 71 yrs / Stage IVA
- Metastatic disease in LNs (distant) and skin

Medical History

- Left thigh excision, left groin dissection, wide local excision of left groin. No radiotherapy
- Constipation

Melanoma History



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BID, twice-daily; IV, intravenous; PO, oral; **QD**, once-daily; **Q3 wk**, every 3 weeks.

KEYNOTE-695 HISTORY: PATIENT C
26 APRIL 2018 – 30 OCTOBER 2018

Treatment as per protocol cycle 1 – 9 (27 weeks)
- IT-tavo-EP: Days 1, 5, 8 every other cycle (each 6 weeks)
- Pembrolizumab (200 mg IV): Day 1 of each 3-week cycle

12 April 2018:
Screening
- Melanoma, stage IVA, with subcutaneous lesions and distant LN involvement
- ECOG PS: 0

17 July 2018 (cycle 5, day 1):
Tumor response at 12 weeks
- **Partial Response / BIRC First at Timepoint Assessment**

11 October 2018 (cycle 9, day 1):
Tumor response at 24 weeks
- **Partial Response / Investigator assessed of target lesions**

April – October 2018

Continue on study

Adverse events cycle 1 – 9
- Grade 1 hematoma: not related to pembrolizumab; related to TAVO or EP
- Grade 3 intramedullary rod insertion: SAE; not related to any of the treatments or EP
- Grade 1 headache: not related to any of the treatments or EP
- Grade 1 joint swelling: not related to any of the treatments or EP
- Grade 1 hemoserous ooze: not related to pembrolizumab; related to TAVO or EP

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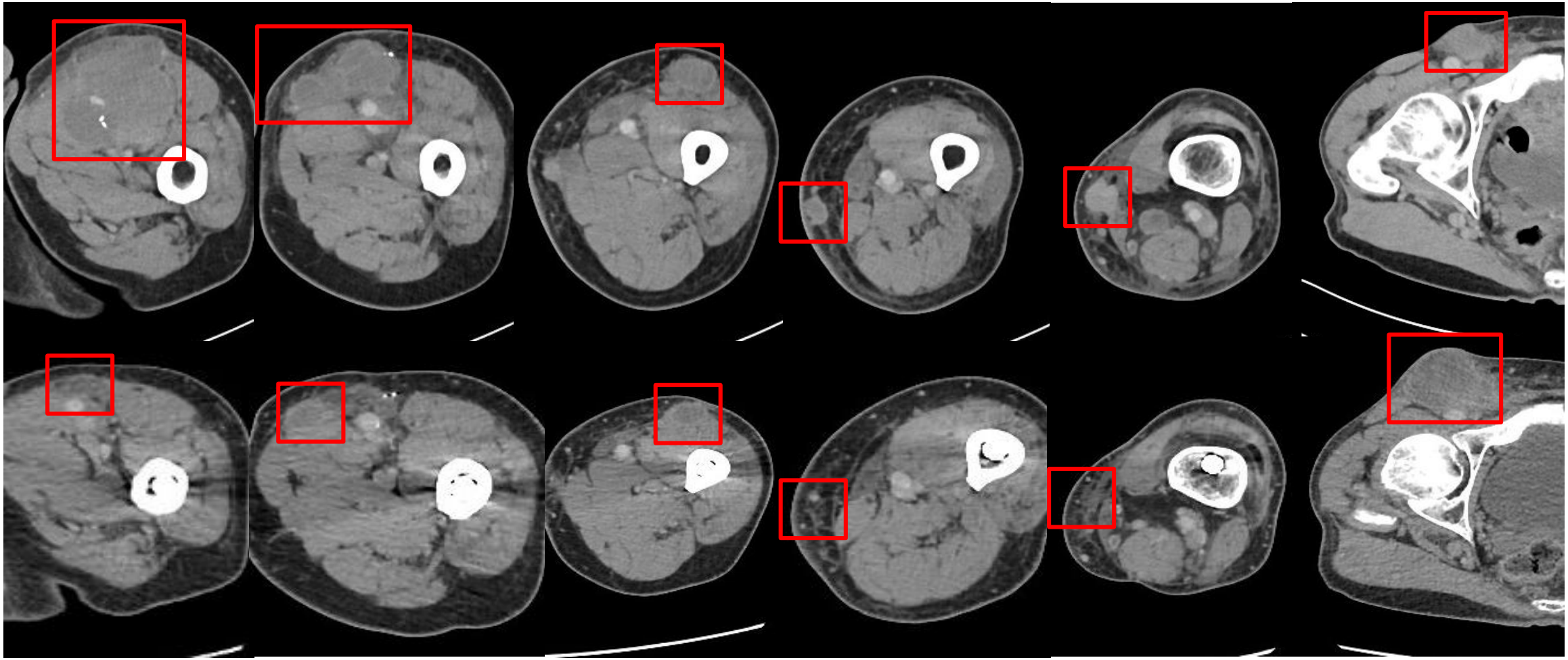
ECOG, Eastern Cooperative Oncology Group; **EP**, electroporation **IT-tavo-EP**, intratumoral injection of tavo with electroporation; **IV**, intravenous; **LN**, lymph node; **PD**, progressive disease; **PR**, partial response; **SD**, stable disease; **tavo**, plasmid interleukin-12.

PATIENT C
CT IMAGES OF BASELINE VS. 24 WEEKS

Baseline

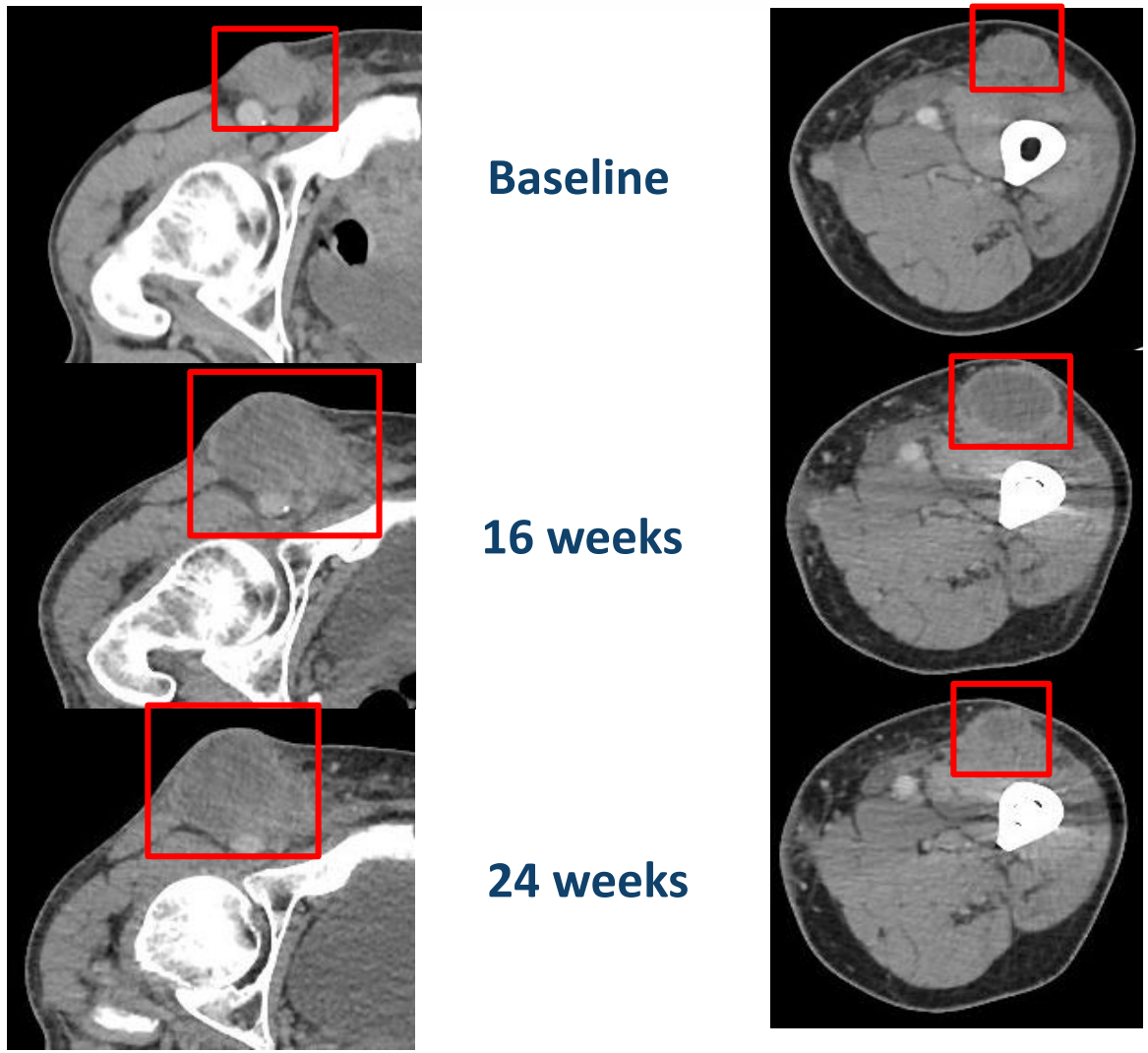
24 Weeks



oncosec IMMUNOTHERAPIES

Net radiographic response

PATIENT C
TUMOR FLARE, NECROSIS, AND RESPONSE



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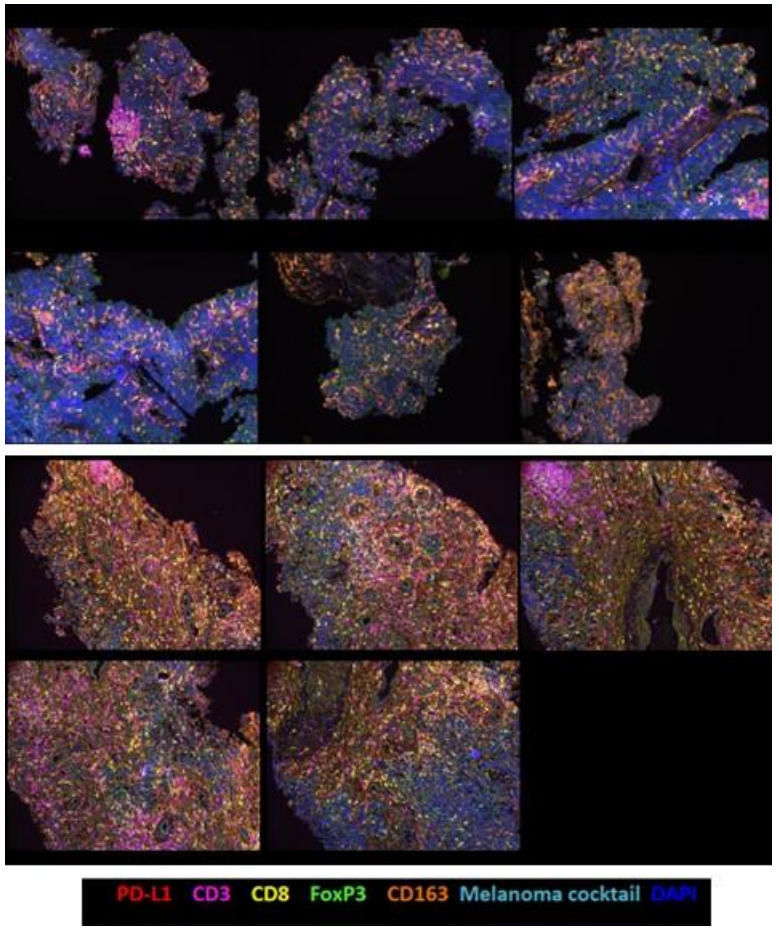
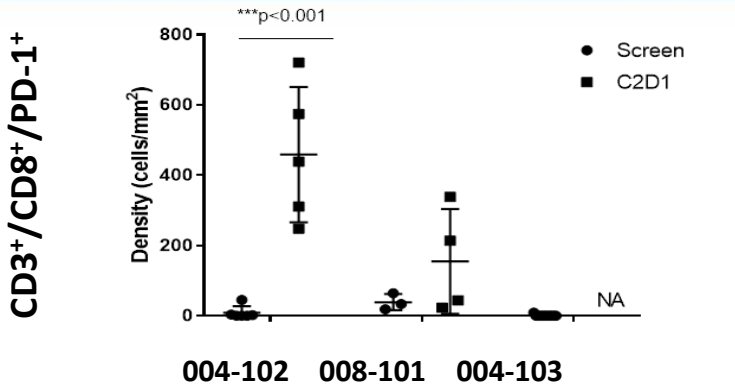
IMMUNOTHERAPIES

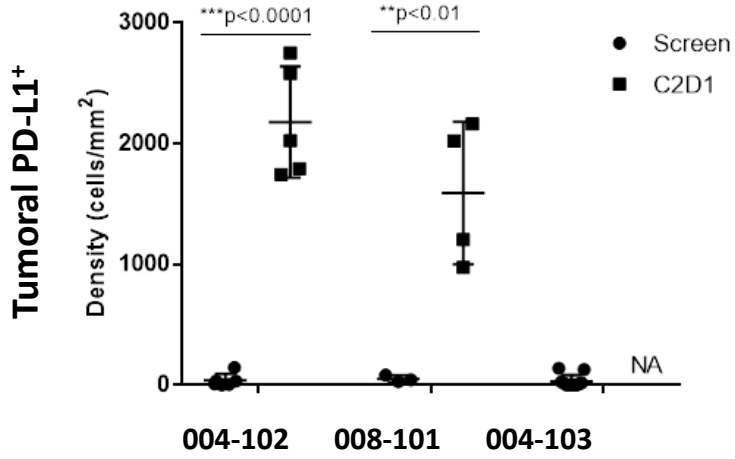
PATIENT C
IMMUNOLOGIC IMPACT VIA MIHC
A POWERFUL TREATMENT-RELATED INCREASE IN TIL DENSITY WITH 1 CYCLE OF TAVO + PEMBRO IN AN IMMUNOLOGICALLY COLD LESION

61-004-102
Screen

61-004-102
C2D1







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MEDICAL HISTORY: PATIENT D
WHITE FEMALE WITH STAGE IVA MELANOMA

Medical History

- Female 52 years / Stage IVA
- Metastatic disease in LNs (local/regional)
- Decreased hearing, memory loss, back/joint pain, lymphedema, anemia, fatigue, night sweats, obstructive sleep apnea, nerve damage on the back, peripheral neuropathy, hot flashes, chronic headaches, itchy skin, dilation and curettage, hypothyroid, polypectomy
- Left thigh biopsy, left thigh wide local excision, left thigh wide local excision with sentinel LN biopsy,left thigh shave biopsy
- No radiotherapy

Melanoma History

IV, intravenous; **LN**, lymph node; **Q3 wk**, every 3 weeks.

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KEYNOTE-695 HISTORY: PATIENT D
16 JULY 2018 – 5 OCTOBER 2018

25 June 2018:
Screening
- Melanoma, stage IVA, with skin lesions
- ECOG PS: 0

Treatment as per protocol cycle 1 – 5 (12 weeks)
- IT-tavo-EP: Days 1, 5, 8 every other cycle (each 6 weeks)
- Pembrolizumab (200 mg IV): Day 1 of each 3-week cycle

5 October (cycle 5, day 1):
Tumor response at 12 weeks
- **Partial Response / Investigator Assessed**

Adverse events cycle 1 – 5
- Grade 1 injection site pain, injection site bruise, injection site soreness: not related to pembrolizumab or TAVO; related to EP
- Grade 1 muscle ache: not related to pembrolizumab or TAVO; related to EP
- Grade 1 sinus infection: not related to any of the treatments or EP
- Grade 1 epidermal hyperplasia: not related to any of the treatments or EP
- Grade 1 macules: not related to any of the treatments or EP
- Grade 1 nausea: not related to any of the treatments or EP
- Grade 1 emesis: not related to any of the treatments or EP
- Grade 1 and 2 diarrhea: related to pembrolizumab; not related to TAVO or EP

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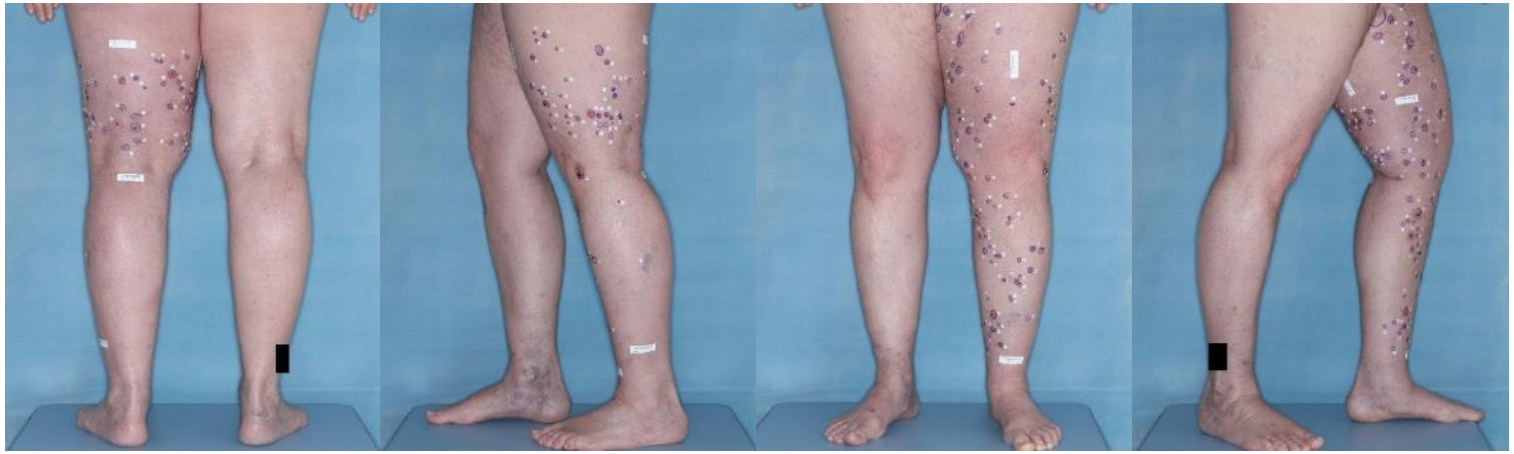
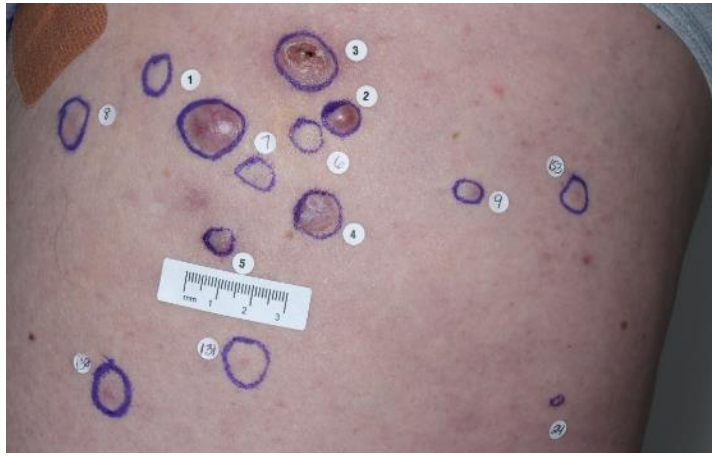
CR, complete response; **ECOG**, Eastern Cooperative Oncology Group; **EP**, electroporation; **IT-tavo-EP**, intratumoral injection of tavo with electroporation; **IV**, intravenous; **PD**, progressive disease; **PR**, partial response; **PS**, performance status; **tavo**, plasmid interleukin-12.

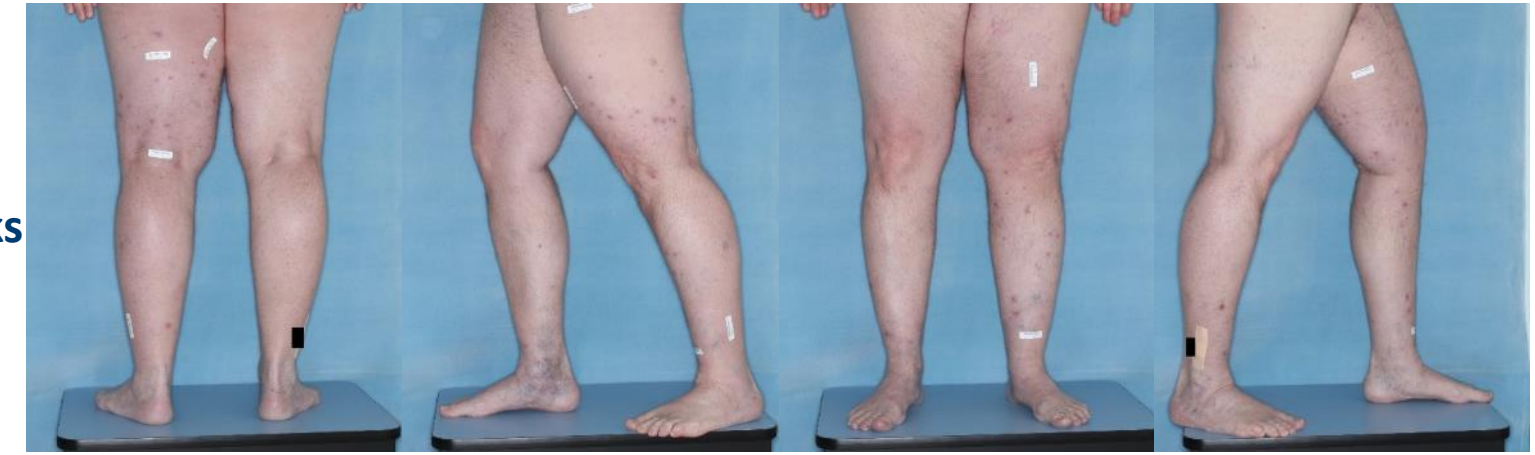
PATIENT D
IMAGES OF BASELINE VS. 12 WEEKS
~40 OF 160 (25%) LESIONS WERE TREATED → GLOBAL RESPONSE

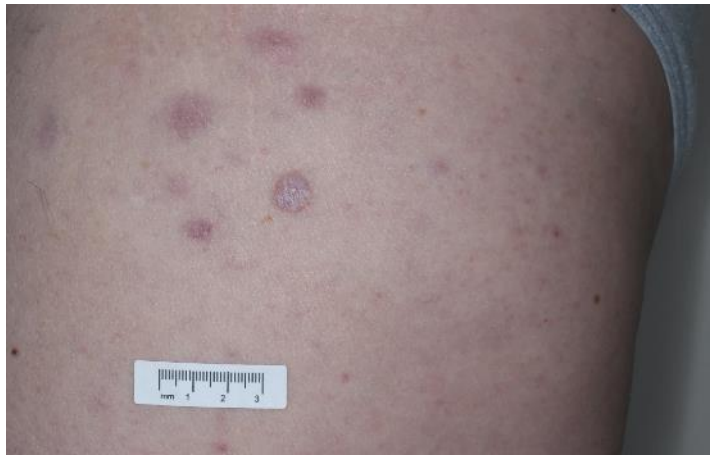
Baseline





12 weeks





ONLY 25% OF 160 (~40 LESIONS) LESIONS WERE TREATED → GLOBAL RESPONSE

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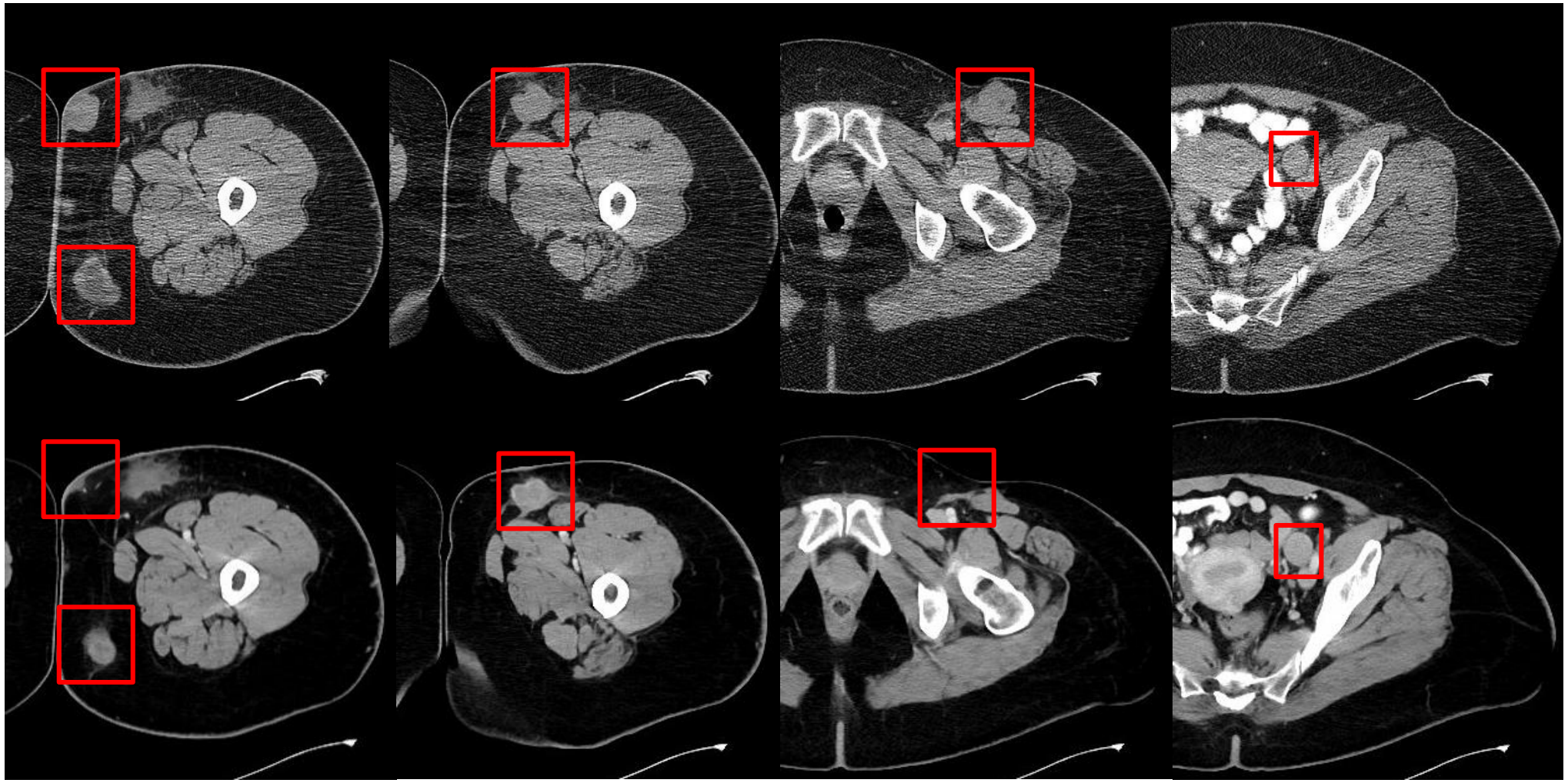
PATIENT D
CT IMAGES OF BASELINE VS. 24 WEEKS

Baseline

24 weeks



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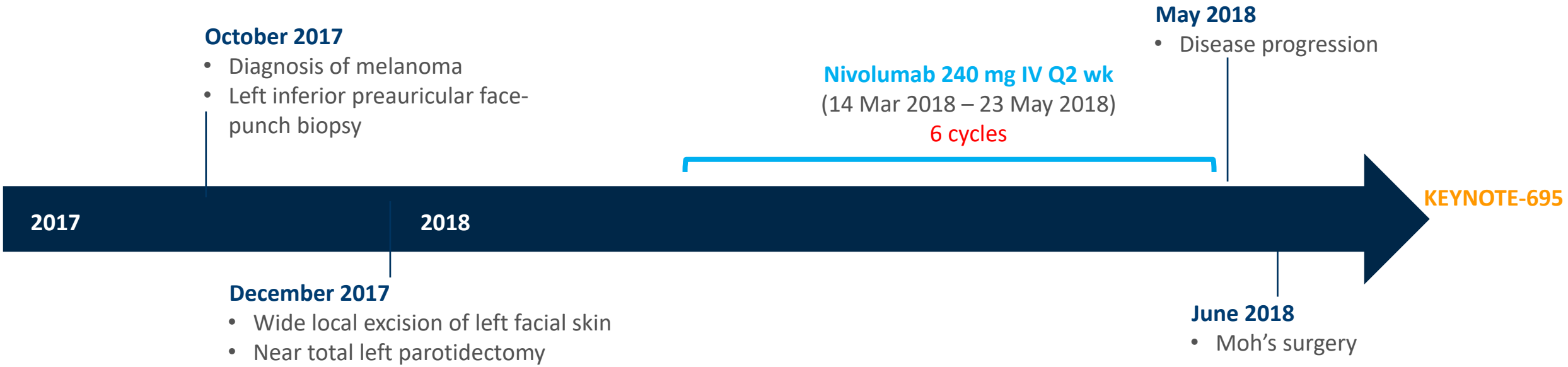
Net radiographic response

MEDICAL HISTORY: PATIENT E
WHITE MALE WITH STAGE IVB MELANOMA

Medical History

- Male 81 years / Stage IVB
- Metastatic disease in lung and LNs (distant)
- BCC, SCC, keratoses, hiatal hernia, hypertriglyceridemia, knee replacement, back pain, artery surgery, thyroid nodule, GERD, type II DM, sinus bradycardia, hypertension, and constipation
- Preauricular biopsy, facial skin wide local excision, parotidectomy, auriculectomy, mastoidectomy, and Moh's surgery
- No radiotherapy

Melanoma History



DM, diabetes mellitus; **GERD**, gastroesophageal reflux disease; **IV**, intravenous; **Q2 wk**, every 2 weeks.

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KEYNOTE-695 HISTORY: PATIENT E
27 JUNE 2018 – 19 DECEMBER 2018

Treatment as per protocol cycle 1 – 5 (12 weeks)
- IT-tavo-EP: Days 1, 5, 8 every other cycle (each 6 weeks)
- Pembrolizumab (200 mg IV): Day 1 of each 3-week cycle

20 June 2018:
Screening
- Melanoma, stage IVB, with skin lesions and lung and distant LN involvement
- ECOG PS: 1

19 September (cycle 5, day 1):
Tumor response at 12 weeks
- **Partial Response / Investigator Assessed**

12 December (cycle 9, day 1):
Tumor response at 26 weeks
- **Partial Response / Investigator Assessed**

Adverse events cycle 1 – 5
- Grade 1 fatigue: not related to any of the treatments or EP
- Grade 1 weight loss: possibly related to pembrolizumab; not related to TAVO or EP
- Grade 2 body odor: not related to pembrolizumab; related to TAVO and EP
- Grade 1 pruritus: possibly related to pembrolizumab; not related to TAVO or EP

No longer treated with TAVO as there are no TAVO accessible lesions
Continue maintenance pembrolizumab

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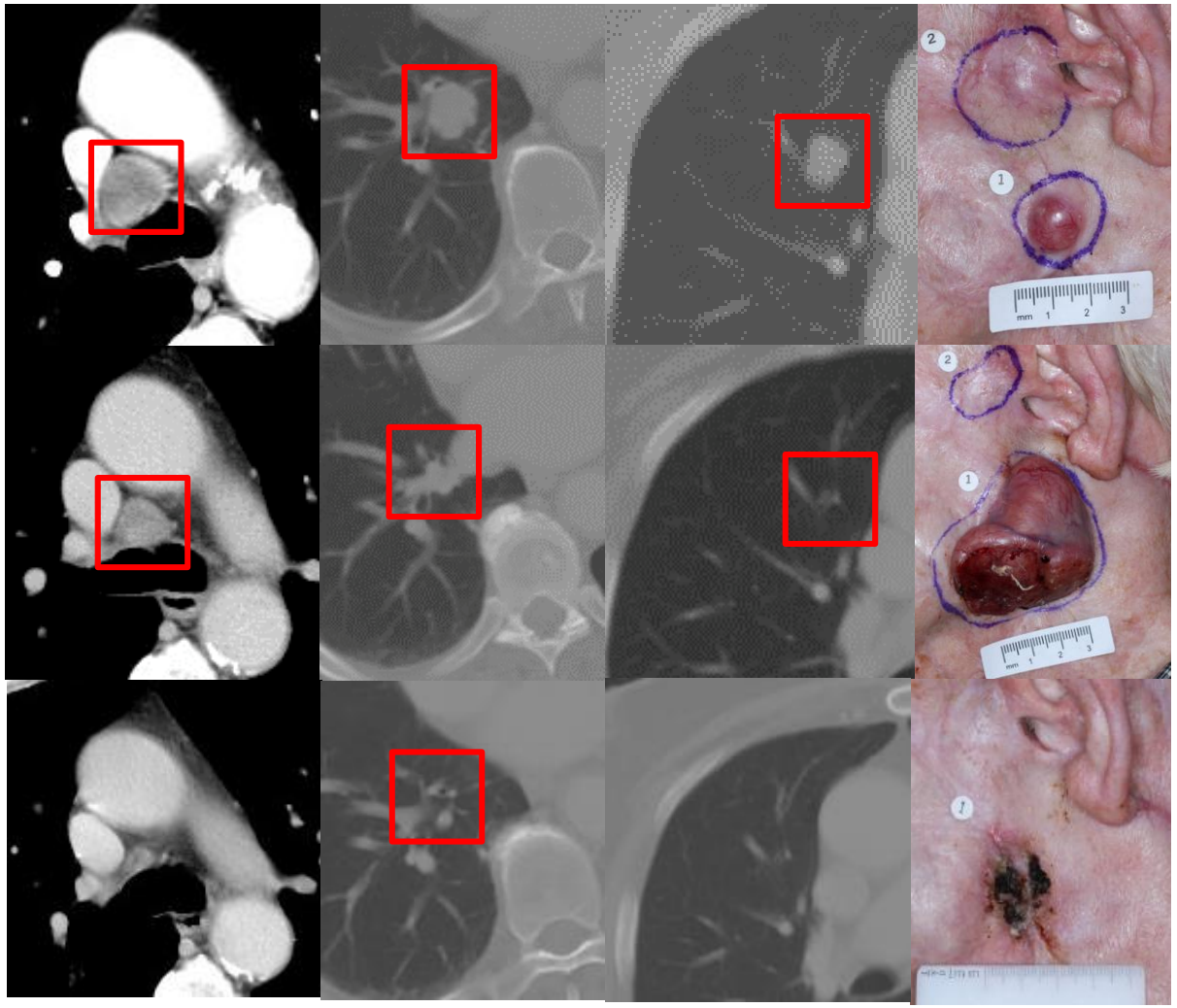
CR, complete response; **ECOG**, Eastern Cooperative Oncology Group; **EP**, electroporation **IT-tavo-EP**, intratumoral injection of tavo with electroporation; **IV**, intravenous; **LN**, lymph node; **PD**, progressive disease; **PR**, partial response; **PS**, performance status; **tavo**, plasmid interleukin-12.

PATIENT E
IMAGES OF BASELINE VS. 12 AND 24 WEEKS

Baseline

12 weeks

24 weeks



Regression of mediastinal node and parenchymal lung metastases

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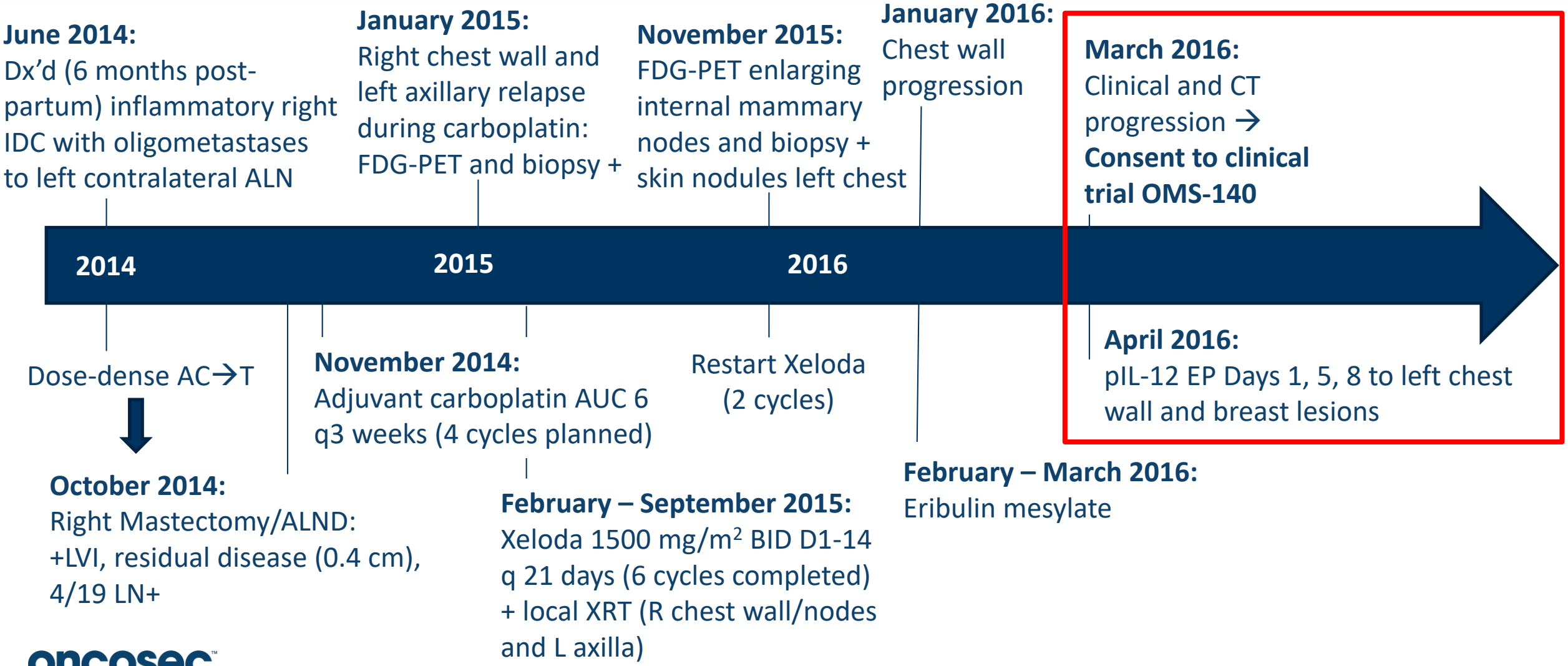
OMS-140 TNBC PATIENT 1 MEDICAL HISTORY



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OMS-140 TNBC PATIENT 1
PROTOCOL AND POST-PROTOCOL TREATMENT

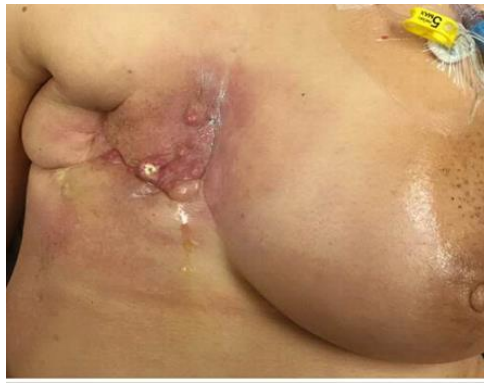
April 4, 2016 – May 2, 2016:
Cycle 1, Day 1 – Day 28 (post Bx)
Patient received all 3 per-protocol injections
- Left axillary nodule (control) - UNTREATED
- Right chest wall and Left breast - TREATED

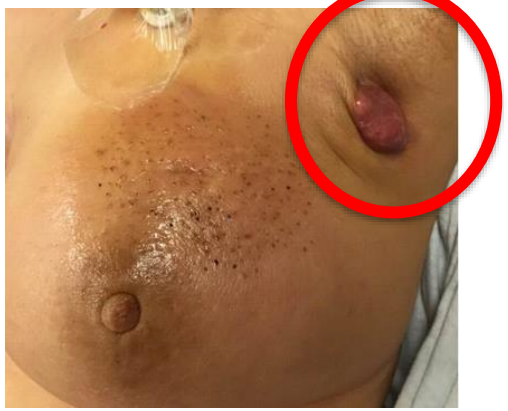
May 5, 2016:
Off-protocol (compassionate use)
Nivolumab IV q 2 weeks
Rapid clinical response
Completed 10 cycles

October, 2016:
Disease progression (PD) in mediastinal nodes, but no PD at sites present at time of pIL 12 EP

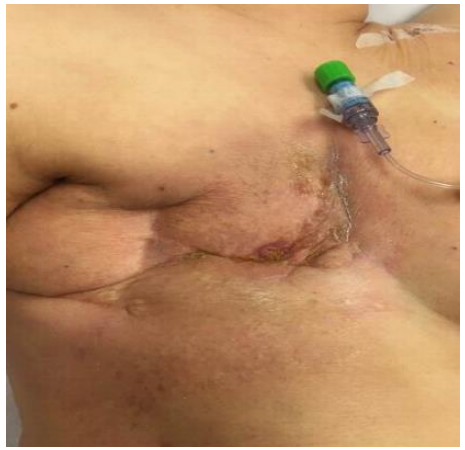
Untreated exophytic left axillary skin nodule

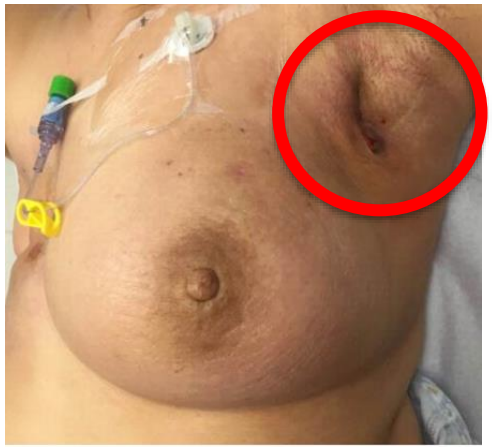
May 5, 2016:





August 24, 2016:





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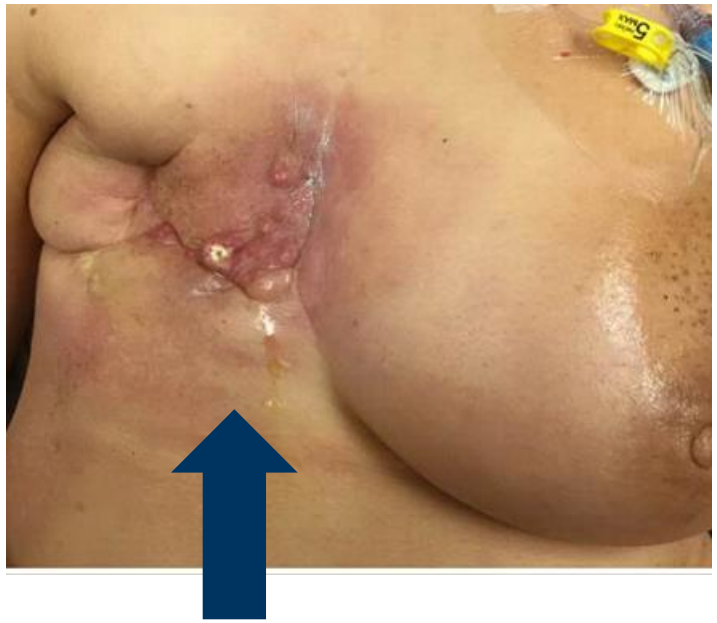
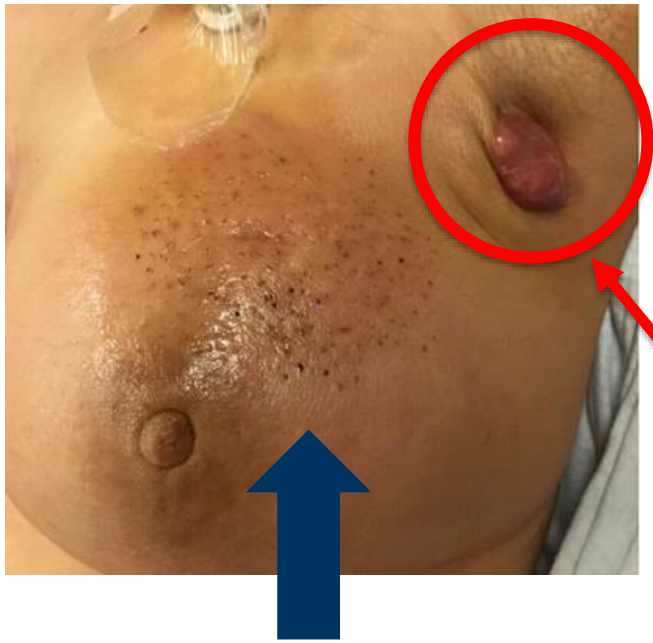
OMS-140 TNBC PATIENT 1
REPRESENTATIVE POST-TREATMENT IMAGES

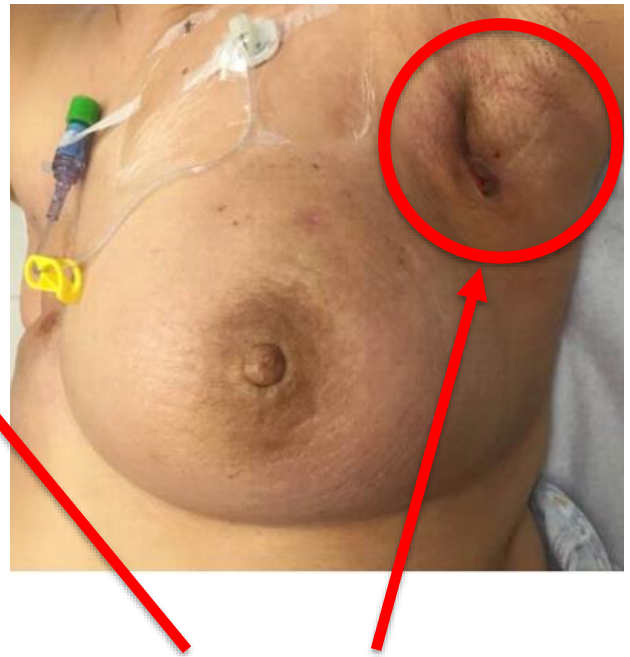
- Representative post-treatment images of a patient with primary refractory inflammatory right breast TNBC



Treated right
chest wall disease



Treated left
breast disease



Untreated
exophytic left
axillary skin
nodule

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TNBC, triple negative breast cancer.

OMS-140 TNBC PATIENT 2 (T2N0M0)
MEDICAL HISTORY
PATIENT PREVIOUSLY RECEIVED ATEZOLIZUMAB

May 2014:
Dx'd clinical stage IIA metaplastic TNBC of the right breast

October 2015:
CT shows multiple spiculated pulmonary nodes and single lesion at T10 (Bx -)

December 2015:
CT-guided lung biopsy +

February 2017:
Palliative XRT to right hip/femur

July 2017:
Clinical PD – enlarging right breast nodule and non-healing scalp metastases
Consent to clinical trial OMS-140

Preoperative Dose-dense AC (no response) → GT (minimal response)

October 2014:
Right lumpectomy with residual disease (2 cm)

January 2015:
Whole breast XRT

January 2016:
Clinical trial of nab-paclitaxel + atezolizumab

Best response: SD

October 2016:
D/C nab-paclitaxel for fatigue

July 2017:
Cycle 20 atezolizumab

August 2017:
TAVO Days 1, 5, 8 to right breast lesion

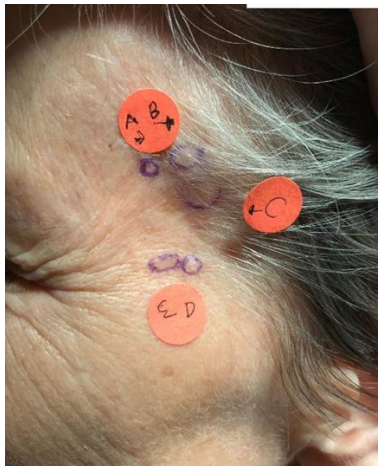
OMS-140 TNBC PATIENT 2
PROTOCOL AND POST-PROTOCOL TREATMENT

August 14, 2017 – September 14, 2017:
Cycle 1, Day 1 – Day 28 (post Bx)
Patient received all 3 per-protocol injections
- Left scalp skin mets (control)-UNTREATED
- Right breast lesion-TREATED

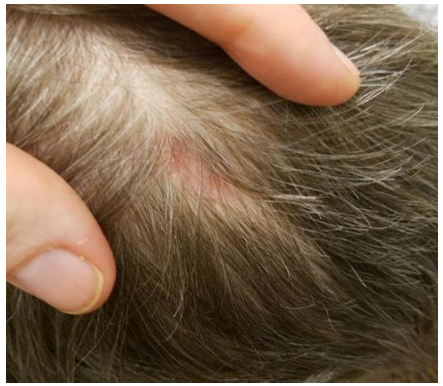
September 21, 2017:
Off-protocol nivolumab IV q 2 weeks
Rapid clinical and imaging response (decreased size of breast nodule, pulmonary nodules and sclerosis of osseous metastases; resolution of scalp metastases)

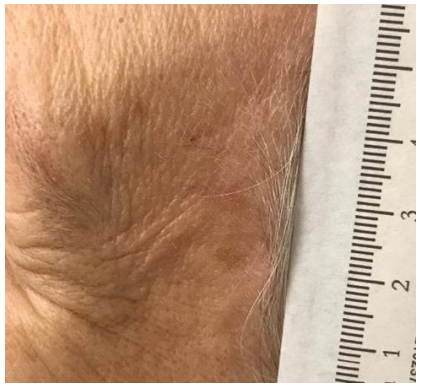
June 2018:
Surgery on right sacral tumor
Continuing TAVO treatment under special patient protocol

August 14, 2017:



December 14, 2017:





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TAVO MONOTHERAPY FOLLOWED BY PD-1 CHECKPOINT *CLINICALLY MEANINGFUL RESPONSES OBSERVED*

January 18, 2018

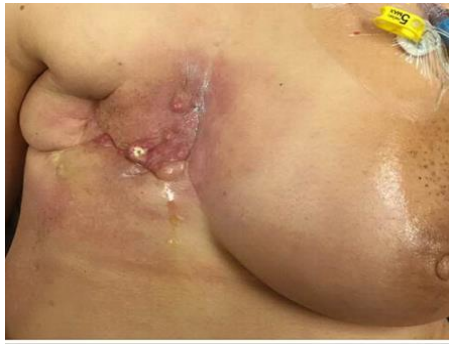
ONCOSEC PROVIDES ENCOURAGING CLINICAL OBSERVATION RELATED TO TRIPLE NEGATIVE BREAST CANCER STUDY

March 15, 2018

OncoSec's Intratumoral IL-12 In Metastatic Triple Negative Breast Cancer (TNBC) Selected For Poster Presentation At The American Association For Cancer Research (AACR) Annual Meeting 2018

Results: "Two patients with treatment refractory TNBC received nivolumab as their immediate next therapy and experienced clinically meaningful objective responses"

AACR 2018 Abstract

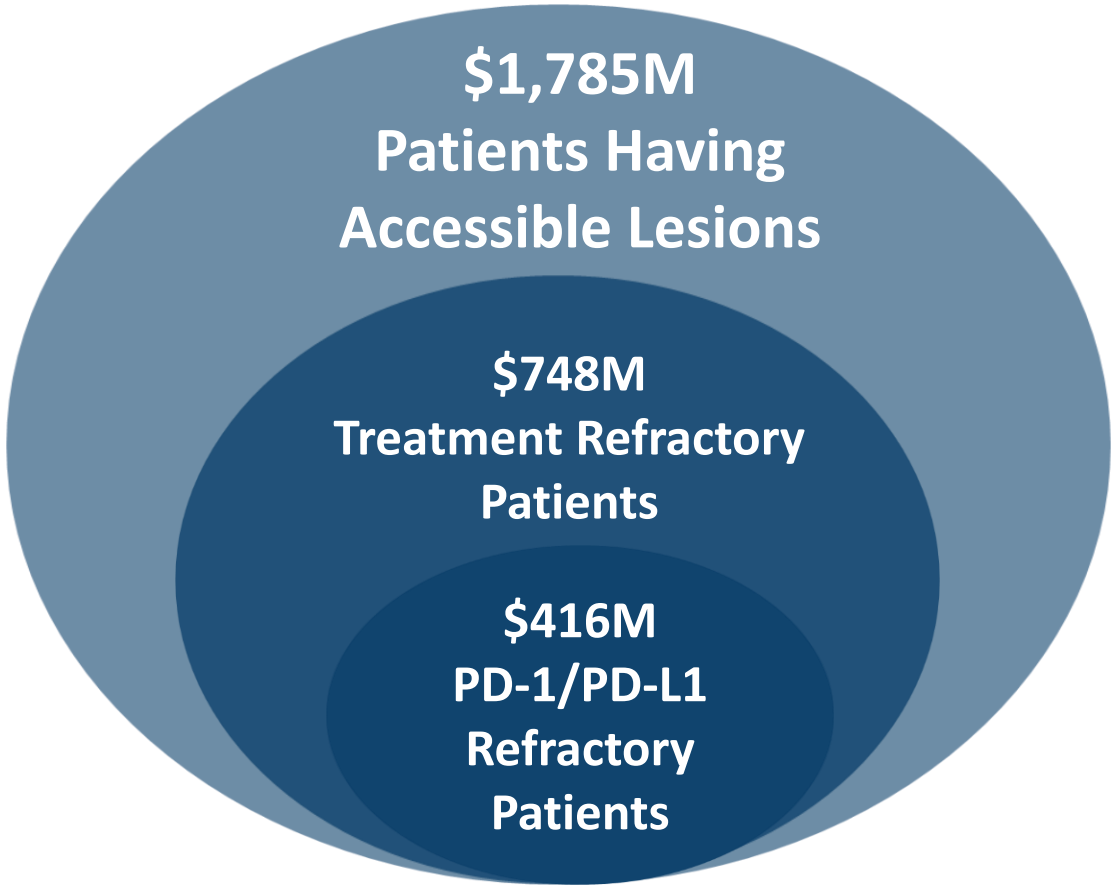


Results: At the time of abstract submission, 5 patients have completed all study-related procedures and have complete correlative data available. Tavo dose delivered per patient per day ranged from 1.36 to 20 mL. Reported treatment-related adverse events included transient pain associated with electroporation (grade 1) and fatigue (grade 1). Max pain scores (range 0-10) were recorded as an average of 1, with a single patient reporting a 5 at 5 min post-treatment. Treatment-related increase in CD8+ TIL density was observed by intratumoral chromogenic staining (3% at baseline, 11% on day 28 in treated tumors and 5% on day 28 in untreated tumors). Two patients with treatment refractory TNBC received nivolumab as their immediate next therapy and experienced clinically meaningful objective responses. Updated data will be presented.

Conclusions: The present study suggests IT-tavo-EP is a safe and tolerable TIL stimulating therapy of skin and subcutaneous triple-negative tumors. Further study of this therapy in combination with anti-PD-1/PD-L1 antibody therapy is warranted.

AACR 2018 Abstract & Poster

ACCESSIBLE LESIONS US ONLY MARKET OPPORTUNITY



- TAVO used in *combination* with *PD-1/PD-L1* treatments, the US market opportunity is *$748 million*
- As a *monotherapy* in *PD-1/PD-L1 refractory* patients, assuming treatment costs total $100,000, TAVO represents a *$416 million* US market opportunity
- Treatment costs were assumed to total $260,000 ($160,000 for PD-1/PD-L1 treatments; $100,000 for TAVO)
- Expanding TAVO use to *all patients* having *accessible lesions* results in a *$1.785 billion* US market opportunity

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Source: GlobalData; EvaluatePharma; Press Releases; Product Labels; Primary Research; ClearView Analysis on file