Targeting the Tumor Locally
Cautionary Note Regarding 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.
OncoSec  
A Near-Term Investment Opportunity

• ImmunoPulse® IL-12 for stage III/IV relapsed/refractory melanoma positioned for accelerated approval
  ➢ Initial data mid-2018, seek feedback on accelerated approval
  ➢ Potential approval in 2019 via accelerated pathway
  ➢ Global PISCES trial in melanoma

• ImmunoPulse IL-12 + checkpoint inhibitor in low-TIL (cold) at 50% BORR
  ➢ Opportunity to expand 1st line anti-PD-1 response beyond 30-35%

• ImmunoPulse IL-12 converts checkpoint inhibitor non-responders to responders
  ➢ 60-70% of melanoma patients do not respond to checkpoint inhibitors 1st line
~70-90% of Anti-PD-1 Patients Have No Response
Significant Patient Population

### Checkpoint Inhibitors Dramatically Increase Survival in Patients with HOT Tumors
Largely Ineffective in COLD Tumors

<table>
<thead>
<tr>
<th>Tumor Type</th>
<th>% Non-Responders</th>
</tr>
</thead>
<tbody>
<tr>
<td>Melanoma</td>
<td>~60-80%</td>
</tr>
<tr>
<td>Triple Negative Breast</td>
<td>~95%¹</td>
</tr>
<tr>
<td>Renal Cell Carcinoma</td>
<td>~71%²</td>
</tr>
<tr>
<td>Lung Carcinoma</td>
<td>~79-83%²</td>
</tr>
<tr>
<td>Head and Neck</td>
<td>~68-86%³,⁴</td>
</tr>
<tr>
<td>Bladder</td>
<td>~85%⁵</td>
</tr>
<tr>
<td>Gastric</td>
<td>~80%⁶</td>
</tr>
</tbody>
</table>

Interleukin-12 (IL-12): Local Administration Potent and Safe

Tavokinogene telsaplastmid encodes IL-12

- Potent, well-characterized proinflammatory cytokine
- Shown to make the tumor micro-environment immunogenic
- Targets the tumor to signal and traffic immunomodulatory molecules locally while enhancing presentation of tumor antigens to the immune system
- Safer local delivery with “systemic” benefits
- Local immune activation without observed systemic IL-12 tox
Plasmid IL-12 + Electroporation Significantly Reduces Tumor Volume vs Plasmid or Protein IL-12 in a Mouse Model of Melanoma

Tavokinogene telseplasmid (plasmid IL-12) injected into B16.F10 melanoma tumor followed by electroporation results in improved tumor regression over IL-12 protein injection alone.

Tavokinogene telseplasmid (plasmid IL-12) injected into B16.F10 tumor followed by electroporation results in improved tumor regression over tavokinogene telseplasmid without electroporation.

Source: OncoSec Data
ImmunoPulse® IL-12 Phase 2 Monotherapy Data Delivers CRs in Metastatic Melanoma

Data from our multi-center Phase 2 trial of ImmunoPulse® IL-12 (treated on a 90-day cycle, on Days 1,5 and 8) demonstrated encouraging single-agent activity in 29 patients with metastatic melanoma.

Best Overall Response: 35%
Complete Response: 19%
Disease Control Rate: 69%
Complete Regression in at Least One Lesion: 50%

Source: Le, Melanoma Bridge 2014
ImmunoPulse® IL-12 Phase 2 Monotherapy Addendum Data Demonstrated Similar Disease Control Rates and Equivalent Safety

<table>
<thead>
<tr>
<th>BORR</th>
<th>OMS-I100 Tavo D 1,5,8 @90d monotherapy N=26</th>
<th>OMS-I100 Tavo D 1,8,15 @ 6 weeks monotherapy N=20</th>
<th>OMS-I102* Tavo + pembro Combination in predicted αPD-1 non responders N=22</th>
</tr>
</thead>
<tbody>
<tr>
<td>BORR (CR + PR)*</td>
<td>9 (34.6%)</td>
<td>5 (25%)</td>
<td>11 (50%)</td>
</tr>
<tr>
<td>DCR (CR + PR +SD)*</td>
<td>18 (69.2%)</td>
<td>13 (65.0%)</td>
<td>13 (59.0%)</td>
</tr>
<tr>
<td>CR</td>
<td>5 (19.2%)</td>
<td>0</td>
<td>9 (41.0%)</td>
</tr>
<tr>
<td>PR</td>
<td>4 (15.4%)</td>
<td>5 (25.0%)</td>
<td>2 (9.0%)</td>
</tr>
<tr>
<td>SD</td>
<td>9 (34.6%)</td>
<td>8 (40.0%)</td>
<td>2 (9.0%)</td>
</tr>
<tr>
<td>PD</td>
<td>8 (30.8%)</td>
<td>7 (35.0%)</td>
<td>9 (41.0%)</td>
</tr>
</tbody>
</table>

* OMS-I100 was modified skin RECIST and OMS-I102 RECIST with one pseudo progression. RECISTv1.1 BORR was 42.9%

# OMS-I102 patients were selected based on biomarker data, thus the PISCES /Keynote 695 trial to address the patient populations

Source: Algazi SMR Presentation 2017
ImmunoPulse® IL-12 Resensitizes Melanoma Tumors to Anti-PD-1
Converting “cold” tumors to “hot”

- Patients who respond to anti-PD-1 agents will generally have a “hot” or “inflamed” tumor, defined by key biomarkers:
  - High expression of PD-L1 on the tumor cell surface
  - High density of tumor-infiltrating lymphocytes (TIL)
- Presence of biomarkers allows patient selection for response

“Cold” Tumor
“Hot” Tumor

Combination strategies have enhanced patient outcomes, clinical benefit and quality of life

Source: Algazi, SITC 2016
ImmunoPulse® IL-12 Converts “Cold” to “Hot” in Other Solid Tumor Types

Merkel Cell Carcinoma

- **Pre-ImmunoPulse® IL-12 “Low TIL”**
- **Post-ImmunoPulse® IL-12 “High TIL”**

- CD8 – Green
- PD-L1 – Red
- CD68 – Yellow
- Foxp3 – White
- Sox-10/CK20 – Blue

Source: Bhatia, ESMO 2015

Head & Neck Cancer

- **Pre-ImmunoPulse® IL-12 “Low TIL”**
- **Post-ImmunoPulse® IL-12 “High TIL”**

- FoxP3 – Green
- PD-L1 – Red
- CD8 – Yellow
- CD3 – Pink
- DAPI – Blue
- CD163 – Orange

Source: Pierce, Eurogin 2016
ImmunoPulse® IL-12 Phase 2 Combo Data in Low TIL: Best Response in Anti-PD-1 Cold Tumors to Date

- **50% BORR** at 48 weeks + **38.1% CR** (RESIST v1.1) with ImmunoPulse IL-12 + anti-PD-1 in patients unlikely to respond to anti-PD-1 monotherapy*
  - ~10% response expected with anti-PD-1

- Subset of patients previously treated with checkpoint inhibitors demonstrate **33% BORR**

- Analysis of pre- and post-tumor samples demonstrate conversion of “COLD” to “HOT” tumors

- Data suggest differential immunologic response with responders vs non-responders

*Data presented at 2017 ASCO-SITC
**Data presented at 2017 SMR

Source: Algazi, SITC 2016
PISCES: Clinical Trial Collaboration with Merck & Co.

Collaboration Highlights

- Access to key clinical and development expertise
- Provide Keytruda® throughout the study
- Joint development committee

A leading biotechnology company developing DNA-based intratumoral immunotherapies

Global leader in development and commercialization of innovative therapeutics for cancer
**Anti-PD-1 IL-12 Stage III/IV Combination Electroporation Study**

- **Single Arm Phase 2/3 study**, Simon 2 stage minimax design
  - 4 responders out of 23 in the first stage → additional 25 patients
- **Primary outcome**: BORR based on RECIST v1.1
- **Secondary outcomes**: DOR, PFS and OS
- **Eligible patients**: anti-PD-1 non-responders with stage III/IV melanoma
  - Received 4+ doses of anti-PD-1
  - Progressive disease according to RECIST v1.1
  - Documented disease progression ≤ 24 weeks of the last dose of anti-PD-1

- **Enrollment initiated**
- **Primary completion by 2H 2018**
- **Up to 48 patients**
- **Min 12 sites across US & Australia**
- **Orphan designation**
- **Fast Track**
- **Accelerated pathway**
- **Breakthrough status**

**P** = Pembrolizumab treatment
### Favorable PISCES Data Could Unlock ~10K Stage III/IV Melanoma Anti-PD-1 Failure Patients (US Only)

- Combo therapy with checkpoint inhibitors rapidly becoming SOC in cancer
- Checkpoint products becoming backbone therapy for ~60% or more of all treatable cancers
- Anti-PD-1 an effective and durable 1\textsuperscript{st} line Tx for responders
- ImmunoPulse\textsuperscript{®} IL-12 offers a potentially innovative therapeutic intervention for non-responders

<table>
<thead>
<tr>
<th>Line</th>
<th>Patients</th>
</tr>
</thead>
<tbody>
<tr>
<td>1\textsuperscript{st}</td>
<td>9.9K</td>
</tr>
<tr>
<td>2\textsuperscript{nd}</td>
<td>4.0K</td>
</tr>
<tr>
<td>3\textsuperscript{rd}</td>
<td>1.8K</td>
</tr>
</tbody>
</table>

- Non-Responders \(\rightarrow\) ~10K Patients
  - 1\textsuperscript{st} Line: 6.4K
  - 2\textsuperscript{nd} Line: 2.6K
  - 3\textsuperscript{rd} Line: 1.2K

Source: DataMonitor Melanoma Forecast & Epidemiology Datapacks, April 2016
## ImmunoPulse® IL-12 Target Product Profile Potentially Superior to Other Agents Under Development

### Intratumoral Delivery

- **Cytokine**
  - Delivery of plasmid DNA using proprietary device
  - Fast-track and orphan designation
  - Phase 2 POC data demonstrating safety, efficacy and MOA in combination with KEYTRUDA®
  - Targets both intrinsic/extrinsic tumor resistance
  - 50%, n=22

- **Non-Cytokine**
  - Delivery of TLR-9 using CpGs
  - Early phase 1/2 data in PD-1 experienced patients in combination with KEYTRUDA
  - Lack of MOA data demonstrating combination rationale
  - Targets intrinsic tumor resistance
  - 12%, n=12

### Systemic Delivery

- **Cytokine**
  - Isolated TIL from patients tumor
  - Fast-track designation
  - Phase 2 data in heavily pre-treated patients in combination with IL-2
  - Manufacturing plan to be determined
  - 29% ORR, n=13

- **Non-Cytokine**
  - Small molecule selective HDAC inhibitor
  - Early phase 1/2 data in PD-1 experienced patients in combination with KEYTRUDA
  - Multiple combination approaches
  - Targets potential epigenetic factors via tumor microenvironment, blockage of MDSCs and Tregs
  - 31% ORR, n=13
ImmunoPulse® IL-12: the Next Innovation for Oncology

<table>
<thead>
<tr>
<th>Safety</th>
<th>ImmunoPulse IL-12 demonstrated good safety and tolerability; no additive or new AE/SAE in combination trials to date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Efficacy</td>
<td>ImmunoPulse IL-12 has shown local and systemic response in PD-I predicted non responders</td>
</tr>
<tr>
<td>Response</td>
<td>“Cold” tumors are converted to “Hot” tumors that respond to anti-PD-1 therapies</td>
</tr>
</tbody>
</table>
OncoSec ImmunoPulse® Electroporation Platform

- **ImmunoPulse®** designed to boost the immune system to recognize and attack tumors
- **DNA plasmids** coded to produce immune modulatory proteins are injected directly into tumor
- **Electric pulses** increase permeability of cell membrane, facilitating improved uptake of DNA plasmids
- **Product expression** cells produce proteins to enhance immunomodulatory molecules to ensure local and systemic immune activation

Platform accommodates flexibility and tunability of multiple genes to enable combinations with numerous immune modulators
Protecting and Enabling Next Generation Technology to Address Interior Tumors

**IP and FTO**
- Issued patents on plasmid/electroporation combination to treat cancer, including melanoma
- Pending applications on additional methods of use, biomarkers, proprietary devices
- Building new IP across DNA constructs, next gen devices, new multi-gene combinations, formulations & manufacturing

**OncoSec GENESIS™ + TRACE™**
- Tissue-Based Real-Time Adaptive Control Electroporation
- Electrochemical properties of tissues sensed in real time
- Utilizes mathematical models to maximize delivery
- Higher and more consistent gene expression across tissues
Executing on Key Milestones

NEAR-TERM VALUE CREATING MILESTONES

- Initiate global Ph 2 PISCES trial
- Early efficacy in Ph 2 trial
- Fast Track & Orphan Designation in melanoma
- SITC/SMR clinical data presentations
- Expanded BOD with industry experts

- PISCES stage 1 enrollment complete
- PISCES initial BORR data mid-2018
- EOP2 with FDA; seek feedback on AA
- Multiple scientific/clinical presentations

2017 2018
Multiple near-term clinical milestones

Addressing important unmet medical need

Highly experienced team; enhanced BOD

28M outstanding shares

$11.4M cash as of June 30, 2017
Thank you

October 2017

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