ONCOSEC™

Developing Intratumoral Immunotherapies to Target and Eliminate Cancer
FORWARD LOOKING STATEMENT

Our commentary and responses to your questions may contain forward looking statements, as described in the Private Securities Litigation Reform Act of 1995. These include comments concerning clinical trials and product development programs, evaluation of potential opportunities, the level of corporate expenditures, the assessment of OncoSec’s technology by potential corporate partners, capital market conditions, timing of events, cash consumption and other subjects. Such statements are subject to factors, risks and uncertainties, such as those described in the Company’s periodic SEC filings, that may cause actual results to differ materially from those expressed or implied by such forward looking statements.
KEY POINTS

1. A platform technology for delivering DNA-encoded immunomodulatory molecules to overcome tumor immune tolerance.

2. pIL-12 electroporation may promote conversion of anti-PD-1 non-responders to responders.

3. Expanding the reach of immuno-oncology.
Recent Events and Milestones

- Reported Phase I Positive Long Term Survival Data
- Reported Phase II Positive Final Data
- Announced a combination trial with Merck’s KEYTRUDA®
- Initiation of a Phase II in Head & Neck Cancer and pilot study in Triple Negative Breast Cancer
- Announced a preclinical collaboration with Plexxikon’s CSF-1R inhibitor
- Announced a preclinical collaboration with Heat Biologics
- Entered a Sponsored Research Agreement with the University of Washington to evaluate immunologic mechanisms
- Announced a collaboration with PerkinElmer and the University of California, Los Angeles to develop biomarker tests to evaluate a patient’s immune response to cancer
‘ADAPTIVE RESISTANCE’ PHENOTYPE PREDICTS RESPONSE TO ANTI-PD-1 IN MELANOMA

- pIL-12-induced TIL generation provides rationale for combination with PD-1/PD-L1 mAb
- UCSF Investigators to study combination of intratumoral pIL-12 and pembrolizumab in low TIL patients
### The Unmet Medical Need

<table>
<thead>
<tr>
<th>Tumor Type</th>
<th>Anti-PD1/PDL1 mAb Non-Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>Melanoma</td>
<td>~ 60 - 80%</td>
</tr>
<tr>
<td>Triple Negative Breast (TNBC)</td>
<td>~ 70% - 82%</td>
</tr>
<tr>
<td>Renal Cell Carcinoma (RCC)</td>
<td>~ 71%</td>
</tr>
<tr>
<td>Lung Carcinoma (NSCLC)</td>
<td>~ 79 - 83%</td>
</tr>
<tr>
<td>Head and Neck (H&amp;N)</td>
<td>~ 80%¹</td>
</tr>
<tr>
<td>Bladder</td>
<td>~ 84%²</td>
</tr>
</tbody>
</table>

Anti-PD1 non-responders constitute the majority of patients, even in “immune therapy” tractable tumors like melanoma and RCC

¹ Patients were preselected by Merck PD-L1 IHC assay
² 11% in PD-L1 (Roche) negative: 43% in PD-L1 + population
Overcoming Tumor Immune Tolerance by Intratumoral Immunotherapy

- Immune Stimulatory Molecules
- Block Inhibitory Molecules
- Increase T-Lymphocyte Infiltration
- Decrease Treg Infiltration and/or Function
- Normalize Cell Adhesion & Trafficking
IL-12 IMMUNOPULSE
LOCAL TREATMENT, GLOBAL RESULTS

1. Cancer Cells
2. DNA IL-12 Injected
3. Electroporation
4. DNA IL-12 Enters
5. IL-12 Protein Expression
6. Initiation of Local Pro-Inflammatory Process
7. Targeted Anti-Tumor Immune Response & Lymphocyte Education
8. Systemic Anti-Tumor Immune Response
PHASE II CLINICAL DATA
IL-12 IMMUNOPULSE IN METASTATIC MELANOMA
INTRATUMORAL ELECTROPORATION OF IL-12 IS AN ACTIVE MONOTHERAPY (N=29)

- Best overall response rate: 31%
- Complete response rate: 14%
- Patients with at least one non-treated lesion regress: 50%
- Disease control rate: 48%
COMPLETE RESPONSE TO IL-12 EP
Case #1 (001-003)

Pre-Study

Untreated Lesion - Pre

Day 180

Treated Lesion - Day 180
pIL-12 EP MONOTHERAPY DEMONSTRATES ANTI-TUMOR ACTIVITY IN ADVANCED MELANOMA IN PHASE II

CR  PR  SD  PD  N=29

* Patients with Clinical Progression
SAFETY RESULTS

<table>
<thead>
<tr>
<th>Treatment-Related Adverse Event*</th>
<th>Grade 1 / 2</th>
<th>Grade 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pain</td>
<td>26 (87%)</td>
<td>1 (3%)</td>
</tr>
<tr>
<td>Inflammation</td>
<td>5 (17%)</td>
<td>0</td>
</tr>
<tr>
<td>Skin Discoloration</td>
<td>4 (13%)</td>
<td>0</td>
</tr>
<tr>
<td>Fatigue</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ecchymosis</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Edema</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Erythema</td>
<td>3 (10%)</td>
<td></td>
</tr>
<tr>
<td>Pruritus</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rash</td>
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</tbody>
</table>

* By Common Terminology Criteria for Adverse Events (CTCAE)

Intratumoral EP of pIL-12 is Safe and Well-Tolerated Across Multiple Treatment Cycles

No treatment-related Grade 4 or 5 AEs reported | No treatment-related SAEs reported
PHASE II MELANOMA EXTENSION STUDY

IL-12 IMMUNOPULSE IN METASTATIC MELANOMA
PHASE II MELANOMA EXTENSION STUDY

EVALUATING INTENSIFIED, MORE PATIENT FRIENDLY TREATMENT SCHEDULE

Phase II | 1 Cycle = 90 Days

Days 1 5 8 …. 90 1 5 8 …. 180 1 5 8 …. 270 1 5 8 …. 360

Extension Study | 1 Cycle = 42 Days (6 Weeks)

Weeks 1 2 3 …. 6 7 8 9 …. 12 13 14 15 …. 18 19 20 21 …. 24 …. 48

- Enrolling up to 21 patients with stage III-IVA melanoma
- Safety profile warrants evaluation of intensified dosage frequency
PHASE II HEAD & NECK STUDY

IL-12 IMMUNOPULSE IN SQUAMOUS CELL CARCINOMA OF THE HEAD & NECK
**PHASE II HEAD & NECK STUDY**

*IL-12 IMMUNOPULSE IN SQUAMOUS CELL CARCINOMA OF THE HEAD & NECK*

**Rationale:** biological mechanisms at play in metastatic melanoma also have a role in SCCHN

- Non-response to Anti-PD1 ~ 80%

**Patient Population:** treatment-refractory metastatic and unresectable SCCHN

N = 31

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**Dosage Regimen** | 1 Cycle = 42 Days (6 Weeks)

| Weeks | 1 | 2 | 3 | 6 | 7 | 8 | 9 | 12 | 13 | 14 | 15 | 18 | 19 | 20 | 21 | 24 | 48 |
PILOT STUDY: BREAST CANCER
PILOT STUDY: BREAST CANCER

Patient Population: Triple Negative Breast Cancer
- Estrogen-receptor negative
- Progesterone-receptor negative
- HER-2 Negative

More aggressive, fewer treatment options, more likely to recur

Phase I Studies
- KEYTRUDA® = 18.5% response rate (n=27)
- PD-L1 (MPDL3280A) = 33% response rate (n=9)

Pilot study to assess increase in immunogenicity and TIL infiltration following treatment with IL-12 ImmunoPulse

Dosage Regimen | 1 Cycle Only | Biomarker Endpoint

Pre to Biopsy 1 2 3 . . . . Day 28, Post to Biopsy
### CLINICAL PIPELINE

<table>
<thead>
<tr>
<th></th>
<th>Phase I</th>
<th>Phase II</th>
<th>Phase III</th>
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</thead>
<tbody>
<tr>
<td><strong>Metastatic Melanoma</strong></td>
<td><img src="image1" alt="Progress" /></td>
<td><img src="image2" alt="Progress" /></td>
<td><img src="image3" alt="Progress" /></td>
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<tr>
<td><strong>Melanoma Combination study</strong></td>
<td><img src="image4" alt="Progress" /></td>
<td><img src="image5" alt="Progress" /></td>
<td><img src="image6" alt="Progress" /></td>
</tr>
<tr>
<td>- IL12 + Anti-PD1 (KEYTRUDA®)</td>
<td><img src="image7" alt="Progress" /></td>
<td><img src="image8" alt="Progress" /></td>
<td><img src="image9" alt="Progress" /></td>
</tr>
<tr>
<td><strong>Head &amp; Neck Cancer</strong></td>
<td><img src="image10" alt="Progress" /></td>
<td><img src="image11" alt="Progress" /></td>
<td><img src="image12" alt="Progress" /></td>
</tr>
<tr>
<td><strong>Triple Negative Breast Cancer</strong></td>
<td><img src="image13" alt="Progress" /></td>
<td><img src="image14" alt="Progress" /></td>
<td><img src="image15" alt="Progress" /></td>
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*Orange = Monotherapy with IL-12 | Green = Combination Therapy*
## Preclinical Activities

<table>
<thead>
<tr>
<th></th>
<th>Discovery</th>
<th>Preclinical</th>
<th>Pre-IND</th>
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<tbody>
<tr>
<td>Heat Biologics (ImPACT Platform)</td>
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<tr>
<td>Plexxikon (CSF-1R Inhibitor)</td>
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<tr>
<td>Co-Stimulatory Molecules</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Pro-Inflammatory Cytokines</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Cell Trafficking Molecules</td>
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</table>
UPCOMING MILESTONES

- First Patient Enrolled: Melanoma Combination Study
- First Patient Enrolled: Head & Neck Study
- First Patient Enrolled: Triple Negative Breast Cancer
- Melanoma interim data read out
- Head & Neck interim data read out
- Triple Negative Breast Cancer interim data read out
- Continued Expansion of R&D Pipeline
WHO WE ARE

Senior Management

- Punit Dhillon | Chief Executive Officer
- Veronica Vallejo, CPA | Chief Financial Officer
- Robert H. Pierce, MD | Chief Scientific Officer
- Mai H. Le, MD | Chief Medical Officer
- Sheela Mohan-Peterson, JD, MS | General Counsel

Board of Directors

- Avtar Dhillon, M.D. | Chairman
- Punit Dhillon
- James M DeMesa, M.D.
- Anthony E. Maida, Ph.D.

Scientific Advisory Board

- Soldano Ferrone, M.D., Ph.D.
- Richard Heller, Ph.D.
- Holbrook Kohrt, M.D., Ph.D.
- Jacob Mathiesen, Ph.D.

Melanoma Advisory Board

- Adil Daud, M.D. | Chair
- Axel Hauschild, M.D., Ph.D.
- Vernon Sondak, M.D.
- Sanjiv Agarwala, M.D.
- Kim Margolin, M.D.

Headquartered in San Diego | Three Operating Locations | 43 employees
WHO WE WORK WITH

MERIC

Plexxikon

PerkinElmer

Heat Biologics

Penn University

Stanford University

UCSF

UCLA

Lakeland Regional Medical Center

Seattle Cancer Care Alliance

St. Luke's University Health Network
# Financial Background

**As of March 6, 2015**

<table>
<thead>
<tr>
<th>Category</th>
<th>Value</th>
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<tbody>
<tr>
<td>Shares Outstanding</td>
<td>247,002,282</td>
</tr>
<tr>
<td>Market Cap</td>
<td>$92 M</td>
</tr>
<tr>
<td>Trading Volume (Avg. 3 months)</td>
<td>1.0 M</td>
</tr>
<tr>
<td>Cash, Cash Equivalents and Short-Term Investments</td>
<td>$30.7 M</td>
</tr>
<tr>
<td>Cash Runway</td>
<td>Q2 2016</td>
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<tr>
<td>Debt</td>
<td>$0</td>
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<tr>
<td>Analyst Coverage Reni Benjamin</td>
<td>H.C. Wainwright</td>
</tr>
<tr>
<td>Analyst Coverage Jason Kolbert</td>
<td>Maxim Group</td>
</tr>
<tr>
<td>Analyst Coverage Rahul Jasuja</td>
<td>Noble Life Science Partners</td>
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</tbody>
</table>
THANK YOU

SCAN THE CODE
to download our complete Investor Overview

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San Diego, California  |  92121
ANTI-TUMOR EFFICACY DEMONSTRATED IN PHASE I

- **76%** of Lesions Showed >20% Necrosis
- **42%** Disease Control Rate* of Patients Showed Complete Remission
- **13%** of Patients Showed Complete Remission

* includes stable disease, partial response and complete response

- **49.1 MONTHS** Median Overall Survival for Patients with Stable Disease or Better (n=10)
- **10.9 MONTHS** Overall Survival in Patients with Disease Progression that did not respond to therapy (n=14)
- **23.9 MONTHS** Median Overall Survival for All Patients (n=24)
COMPLETE RESPONSE AND DISTANT LESION REGRESSION OBSERVED AFTER 1 CYCLE OF LOCAL TREATMENT

Numbered lesions on the chest were treated

No lesions on the back were injected or electroporated
INTRATUMORAL pIL-12 EP CAN LEAD TO DURABLE CLINICAL RESPONSES AND DISEASE STABILIZATION
RATIONALE FOR INTRATUMORAL IL-12 AS A PERSONALIZED ANTI-TUMOR IMMUNOTHERAPY
REFERENCES


