

UNITED STATES
SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

FORM 8-K
Current Report

Pursuant to Section 13 or 15(d) of the Securities Exchange Act of 1934

Date of Report (date of earliest event reported): July 2, 2019

IOVANCE BIOTHERAPEUTICS, INC.

(Exact Name of Registrant as Specified in Charter)

Delaware

(State of Incorporation)

001-36860

Commission File Number

75-3254381

(I.R.S. Employer Identification No.)

999 Skyway Road, Suite 150
San Carlos, California

(Address of Principal Executive Offices)

94070

(Zip Code)

(650) 260-7120

(Registrant's Telephone Number, Including Area Code)

Check the appropriate box below if the Form 8-K filing is intended to simultaneously satisfy the filing obligation of the registrant under any of the following provisions:

- Written communications pursuant to Rule 425 under the Securities Act (17 CFR 230.425).
- Soliciting material pursuant to Rule 14a-12 under the Exchange Act (17 CFR 240.14a-12).
- Pre-commencement communications pursuant to Rule 14d-2(b) under the Exchange Act (17 CFR 240.14d-2(b)).
- Pre-commencement communications pursuant to Rule 13e-4(c) under the Exchange Act (17 CFR 240.13e-4(c)).

Indicate by check mark whether the registrant is an emerging growth company as defined in as defined in Rule 405 of the Securities Act of 1933 (§230.405 of this chapter) or Rule 12b-2 of the Securities Exchange Act of 1934 (§240.12b-2 of this chapter). Emerging growth company

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 13(a) of the Exchange Act.

Securities registered pursuant to Section 12(b) of the Act:

Title of each class	Trading Symbol(s)	Name of each exchange on which registered
Common stock, par value \$0.000041666 per share	IOVA	The Nasdaq Stock Market, LLC

Item 8.01. Other Events.

On July 2, 2019, Iovance Biotherapeutics, Inc. (the “Company”) updated its corporate presentation that it uses for presentations at healthcare conferences and to analysts, current stockholders, and others. A copy of the Company’s presentation that it intends to use at such events is attached as Exhibit 99.1 and incorporated herein by reference.

On July 2, 2019, the Company issued a press release announcing an update on regulatory matters following an End of Phase 2 Meeting with the U.S. Food and Drug Administration regarding the Company’s autologous tumor-infiltrating lymphocyte (TIL) therapy candidate LN-145 in advanced cervical cancer. The full text of the press release is attached hereto as Exhibit 99.2 and incorporated herein by reference.

Item 9.01. Financial Statements and Exhibits.

(d) Exhibits.

Exhibit No.	Description
<u>99.1</u>	<u>Iovance Biotherapeutics, Inc., Corporate Presentation - July 2019.</u>
<u>99.2</u>	<u>Press Release dated July 2, 2019.</u>

SIGNATURES

Pursuant to the requirements of the Securities Exchange Act of 1934, the Registrant has duly caused this Report to be signed on its behalf by the undersigned hereunto duly authorized.

Date: July 2, 2019

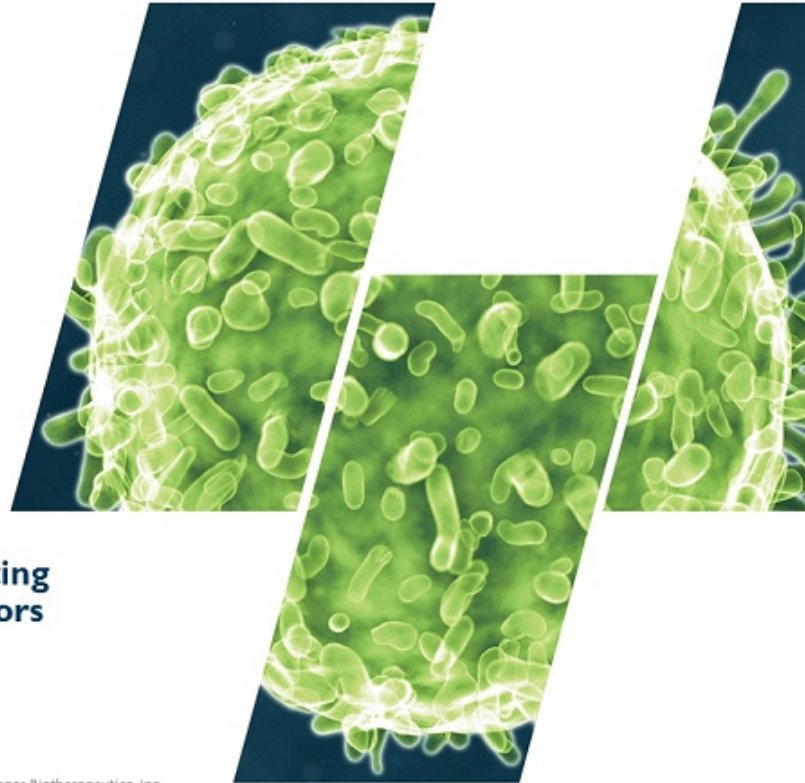
IOVANCE BIOTHERAPEUTICS, INC.

By: /s/ MARIA FARDIS
Maria Fardis, Chief Executive Officer

IOVANCE

BIO THERAPEUTICS

ADVANCING IMMUNO-ONCOLOGY



Investigating the Power of Tumor Infiltrating Lymphocytes for Treatment of Solid Tumors

July 2019

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Forward Looking Statements

This presentation contains “forward-looking statements” of Iovance Biotherapeutics, Inc. (hereinafter referred to as the “Company,” “we,” “us,” or “our”). We may, in some cases, use terms such as “predicts,” “believes,” “potential,” “continue,” “estimates,” “anticipates,” “expects,” “plans,” “intends,” “may,” “could,” “might,” “will,” “should” or other words that convey uncertainty of future events or outcomes to identify these forward-looking statements. The forward-looking statements include, but are not limited to, risks and uncertainties relating to the success, timing, projected enrollment, manufacturing capabilities, and cost of our ongoing clinical trials and anticipated clinical trials for our current product candidates (including both Company-sponsored and collaborator-sponsored trials in the U.S. and Europe), such as statements regarding the timing of initiation and completion of these trials or cohorts within these trials; the timing of, and our ability to, obtain and maintain U.S. Food and Drug Administration (“FDA”) or other regulatory authority approval of, or other action with respect to, our product candidates, including those product candidates that have been granted breakthrough therapy designation (“BTD”) or regenerative medicine advanced therapy designation (“RMAT”) by the FDA; the strength of our product pipeline; the successful implementation of our research and development programs and collaborations; the success of our manufacturing, license or development agreements; the acceptance by the market of the our product candidates, if approved; our ability to obtain tax incentives and credits; and other factors, including general economic conditions and regulatory developments, not within the our control. The factors discussed herein could cause actual results and developments to be materially different from those expressed in or implied by such statements. Actual results may differ from those set forth in this presentation due to the risks and uncertainties inherent in our business, including, without limitation: the FDA may not agree with our interpretation of the results of its clinical trials; later developments with the FDA that may be inconsistent with already completed FDA interactions; preliminary clinical results, including efficacy and safety results, from ongoing clinical trials may not be reflected in the final analyses of these trials, including new cohorts within these trials; the results obtained in our ongoing clinical trials, such as the studies and trials referred to in this presentation, may not be indicative of results obtained in future clinical trials or supportive of product approval; regulatory authorities may potentially delay the timing of FDA or other regulatory authority approval of, or other action with respect to, our product candidates (specifically, our description of FDA interactions are subject to FDA’s interpretation, as well as FDA’s authority to request new or additional information); our ability to address FDA or other regulatory authority requirements relating to its clinical programs and registrational plans, such requirements including, but not limited to, clinical and safety requirements as well as manufacturing and control requirements; risks related to our accelerated FDA review designations, including BTD and RMAT and our ability to benefit from such designations; our ability to obtain and maintain intellectual property rights relating to its product pipeline; and the potential reimbursement of our product candidates by payors, if approved.

For more detailed information about the risks and uncertainties that could cause actual results to differ materially from those implied by, or anticipated in, these forward-looking statements, please refer to the Risk Factors section of the Company’s Annual Report on Form 10-K and subsequent updates that may be contained in the Company’s Quarterly Reports on Form 10-Q and Current Reports on Form 8-K on file with the SEC. Forward-looking statements speak only as to the date they are made. Except as required by law, we do not undertake to update forward-looking statements to reflect circumstances or events that occur after the date the forward looking statements are made. This presentation does not constitute an offer to sell or buy securities, and no offer or sale will be made in any state or jurisdiction in which such offer or sale would be unlawful prior to registration or qualification under the securities laws of any such state or jurisdiction.

Leveraging Tumor Infiltrating Lymphocyte (TIL) to Address Unmet Need



⁽¹⁾ Rosenberg, S. A., et al. *Clinical Cancer Research*, 2011, 17, 4550

⁽²⁾ Goff, S. L. et al. *Journal of Clinical Oncology*, 2016, 34(20), 2389-2397

Leveraging Tumor Infiltrating Lymphocyte (TIL) to Address Unmet Need

Discovery

Key Highlights Pre-clinical, Clinical Program Establishment

Commercialization



¹Rosenberg S, A., et al. *Clinical Cancer Research*, 2011, 17, 4390
²Coff S, L., et al. *Journal of Clinical Oncology*, 2014, 34(20), 2389-2397



Investment Highlights

Leading cell therapy company focused on treatment of solid tumors

Large market opportunity and strong unmet need

Potential to be the first cell therapy approved for solid tumors in melanoma and cervical

Efficient and scalable proprietary manufacturing

Broad platform and wide applications explored through partnerships

- Initial focus in post-checkpoint solid tumors
- Expansion into combinations and earlier lines of therapy
- Four company-sponsored programs in melanoma, cervical, head & neck, basket study in CPI naive

- Accelerated path to approval in melanoma
- First patient dosed in pivotal trial for melanoma and BLA filing expected 2H 2020
- RMAT, Orphan Drug, and Fast Track designations in melanoma
- Breakthrough Therapy, Orphan Drug and Fast Track designation in cervical cancer

- U.S. and E.U. capacity with contract manufacturers
- Building lovance 136,000 sq. ft. manufacturing facility in Philadelphia
- Rapid 22-day Gen 2 manufacturing with >90% success rate
- **100+ patients treated with lovance proprietary process**

- Investigator-led programs to evaluate additional solid tumors or new combinations
- Touch points with institutions including NIH/NCI, Moffitt Cancer Center, MD Anderson, Roswell Park, and Ohio State University

IOVANCE

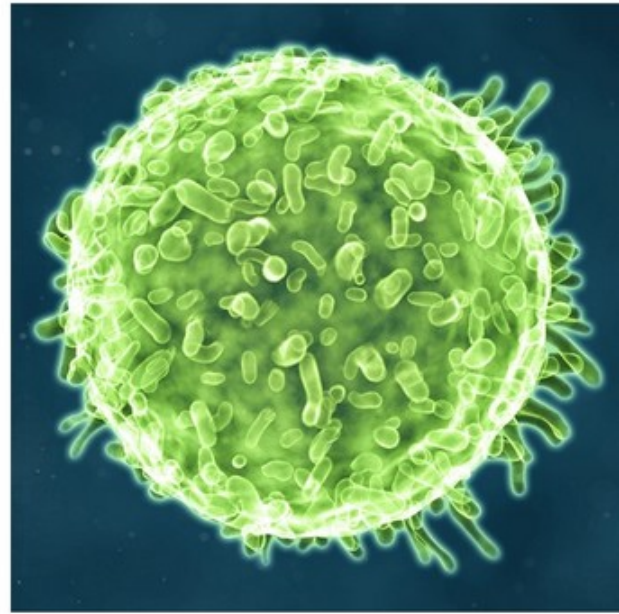
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Highly Individualized, Specific, and Potent Attack Against Cancer

Leverages and enhances the body's natural defense against cancer using a patient's own **Tumor Infiltrating Lymphocytes, or TIL**

- **Polyclonal:** Can recognize multiple neoantigens
 - Effective in solid tumors which are heterogeneous
 - Available data in melanoma, cervical, head & neck, and lung cancers
- **Individualized:** TIL of each patient is specific and private with almost no overlap of uCDR3 between patients⁽¹⁾
- **Persistence:** 100% of patients had TIL persisting at Day 42⁽¹⁾
- **Immunological memory:** Potentially no additional maintenance therapy after infusion
 - Responses seen in both treatment naïve and refractory melanoma patients, including checkpoint refractory
 - Complete responses observed in cervical cancer patients, maintained at 53 and 67 months⁽²⁾



⁽¹⁾ Gontcharova, et al., Persistence of cryopreserved tumor-infiltrating lymphocyte product lifileuceL (LN-144) in C-144-01 study of advanced metastatic melanoma, AACR 2019, Abstract #LB-069

⁽²⁾ Stevanovic, et al., Treatment of Metastatic Human Papillomavirus-Associated Epithelial Cancers with Adoptive Transfer of Tumor-Infiltrating T Cells, ASCO 2018, Abstract #3004

Competitive Advantages of TIL in Solid Tumors

CHECKPOINTS	TCR	CAR-T (LIQUID TUMORS)	TIL (SOLID TUMORS)
Target multiple tumor antigens	Target only single tumor antigen	Mainly target only single/surface tumor antigen	Target multiple tumor antigens
Long maintenance period	One-time treatment	One-time treatment	One-time treatment
Utility in several solid tumors	Few solid tumors treated so far	No examples of successful utility in solid tumors	Available data in: melanoma, cervical, head & neck and lung cancers
Potential long-term irreversible toxicities	Potential on-target, off-tissue effects	Potentially immunogenic: cytokine release syndrome	Minimal chance of unpredicted on-target, off-tissue effects found to date
Off-the-shelf	Autologous	Autologous	Autologous

TIL target a diverse array of cancer antigens; we believe this approach represents a highly differentiated, customized, and targeted immunotherapy

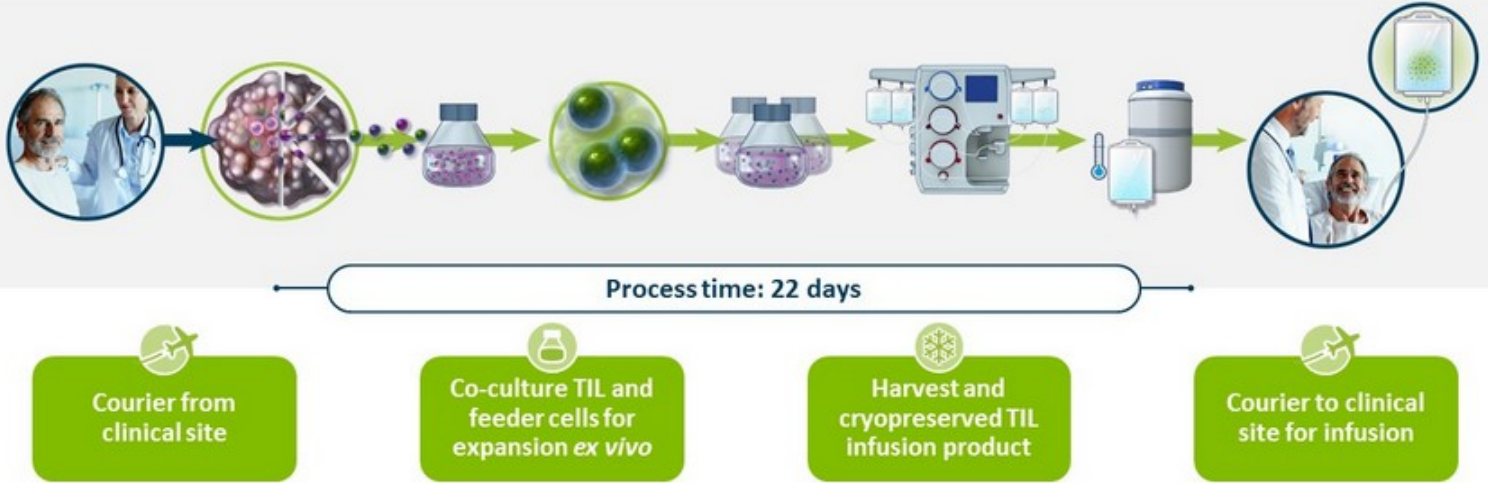
Developed Centralized, Scalable, and Efficient GMP Manufacturing

EXCISE: Patient's tumor is removed via surgical resection of a lesion

EXTRACT: Tumor is fragmented and placed in media for TIL to leave the tumor and enter media

EXPAND: TIL expanded via IL-2 + OKT3 exponentially *ex vivo* to yield $10^9 - 10^{11}$ TIL

PREPARE & INFUSE: Patient receives non-myeloablative lymphodepletion and is infused with their expanded TIL and IL-2



Broad, Iovance-Owned IP Around TIL Therapy

Manufacturing

Multiple layers of patent applications filed for Gen 2 TIL products

- Iovance is pursuing claims covering cryopreserved TIL products, manufacturing processes and methods of treatment
- Includes three recently granted U.S. patents for methods of treatment in a broad range of cancers, including combinations with PD-1 antibodies and three additional patents relating to Gen 2 recently allowed
 - U.S. Patent No. 10,166,257
 - U.S. Patent No. 10,130,659
 - U.S. Patent No. 10,272,113

Advanced technologies

Patent applications filed for a wide range of TIL technologies including

- Marrow infiltrating and peripheral blood lymphocyte therapies
- Use of costimulatory molecules in TIL therapy
- Stable and transient genetically-modified TIL therapies
- Patient subpopulations for TIL therapies

Iovance Commercial Manufacturing Facility



- Build-to-suit custom facility located in the Navy Yard, Philadelphia, PA
- ~136,000 sq. feet
- GMP production is expected to commence in 2022
- IOVA investing \$75M over 3 years
- Significant reduction in COGS expected

Rendering by O'Dell

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Significant Market Potential in Solid Tumors

90%
of all cancer cases
are solid tumors

1.6M
New cases of solid
tumors in the U.S. ⁽¹⁾

⁽¹⁾ <https://seer.cancer.gov>



Move into earlier line of therapy →

Solid Tumor Indication	Deaths ⁽¹⁾	New Cases ⁽¹⁾
Melanoma	9,320	91,270
Cervix Uteri	4,170	13,240
Oral Cavity, Pharynx & Larynx	13,740	64,690
Lung & Bronchus	154,050	234,030
Bladder	17,240	81,190
Breast	41,400	268,670
Pancreatic	44,330	55,440
Brain & Other Nervous System	16,830	23,880
	Potential to address unmet need in late lines of treatment	Potential market for early lines in combo with standard of care

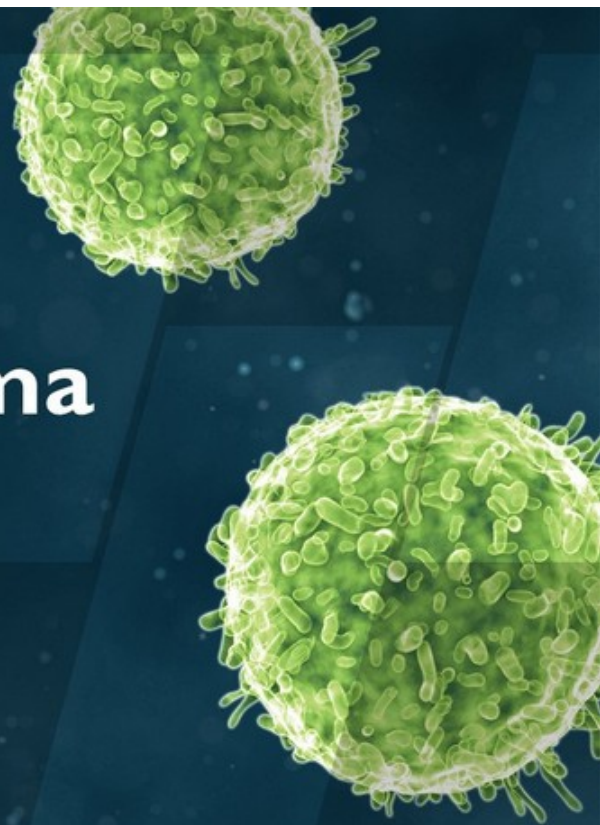
Expand into other indications ↓

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Metastatic Melanoma

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Potential Market for Metastatic Melanoma

- **Estimated 9,320** U.S. patients deaths due to melanoma in 2018⁽¹⁾
- **Limited options** after progression on checkpoint and BRAF/MEK inhibitors:
 - **6,282** U.S. patients are on 2nd line therapy⁽²⁾
 - **4,950** U.S. patients are on 3rd and 4th line of therapy⁽²⁾
 - **TIL is available as a 2nd line** for those who are BRAF WT (3rd line if BRAF mutant)



Metastatic Melanoma Facts

282k New Cases WW each year ⁽⁴⁾	62k Deaths WW each year ⁽⁴⁾
91k Diagnoses in U.S. each year ⁽¹⁾	9k Deaths in U.S. each year ⁽¹⁾
Available care: immuno-therapy as first line option	BRAF positive patients treated with BRAF/MEK inhibitors
	ORR 4-10% Retreatment with checkpoint inhibitors or chemotherapy post progression on anti-PD1 and BRAF/MEK ⁽³⁾

⁽¹⁾ <https://seer.cancer.gov>

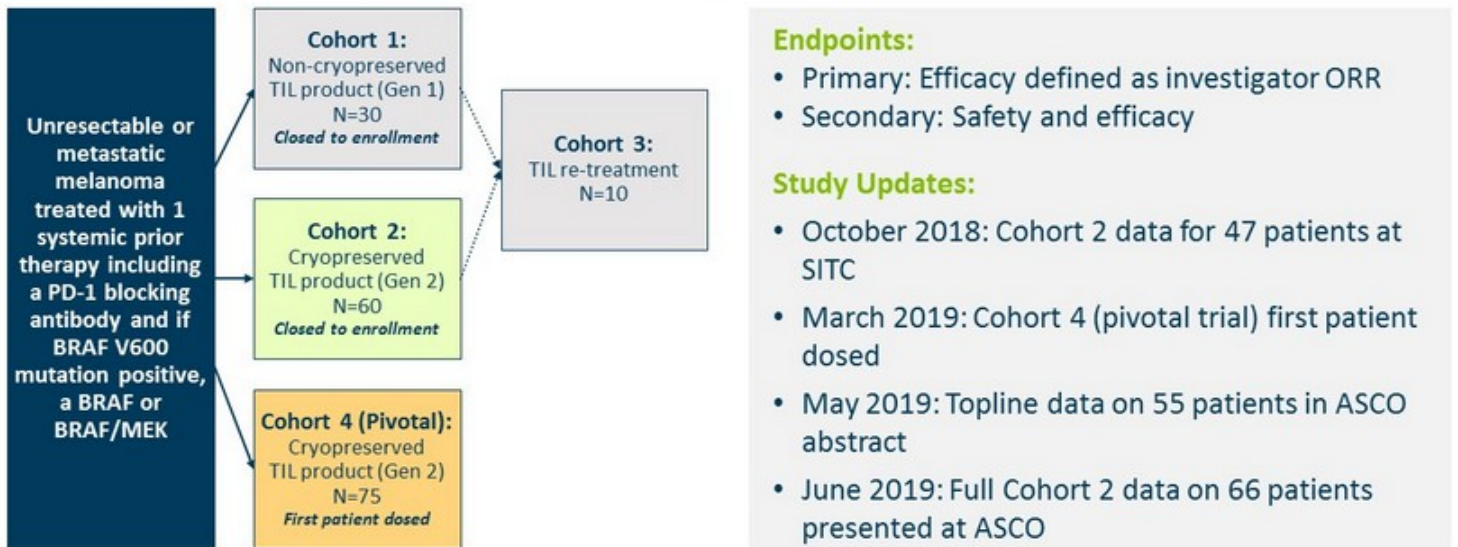
⁽²⁾ Decision Resources Group – Disease Landscape and Forecast for Malignant Melanoma- Reprinted with permission. © 2018 DR/Decision Resources, LLC

⁽³⁾ Keynote-37 Trial Results

⁽⁴⁾ 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

InnovaTIL-01: Phase 2 Study Design

Phase 2, multicenter study to assess the efficacy and safety of autologous **Tumor Infiltrating Lymphocytes (lifileucel)** for treatment of patients with **metastatic melanoma** (NCT02360579)



InnovaTIL-01: Cohort 2 Update at ASCO 2019

COHORT 2

Key inclusion criteria:

- Measurable metastatic melanoma and ≥ 1 lesion resectable for TIL generation
- Progression on at least one prior line of systemic therapy including immune checkpoint inhibitor or a BRAF or BRAF/MEK
- Age ≥ 18
- ECOG PS 0-1

Endpoints:

- Primary: efficacy defined as ORR by investigator per RECIST 1.1
- Secondary: safety and efficacy

Study updates:

- Cohort 2 fully enrolled
- Data readout on 47 patients at SITC
- Data readout on 66 patients at ASCO

Baseline Demographics N=66 (%)

Baseline Demographics		N=66 (%)
Prior therapies		
Mean # prior therapies		3.3
Anti-PD-1		66 (100)
Anti-CTLA-4		53 (80)
BRAF/MEK		15 (23)
Target lesions sum of diameter (mm)		
Mean (SD)		106 (71)
Min, Max		11, 343
Baseline LDH (U/L)		
Median		244
1-2 times ULN		19 (29)
> 2 times ULN		8 (12)
Number of target & non-target lesions (at baseline)		
>3		51 (77)
Mean		6

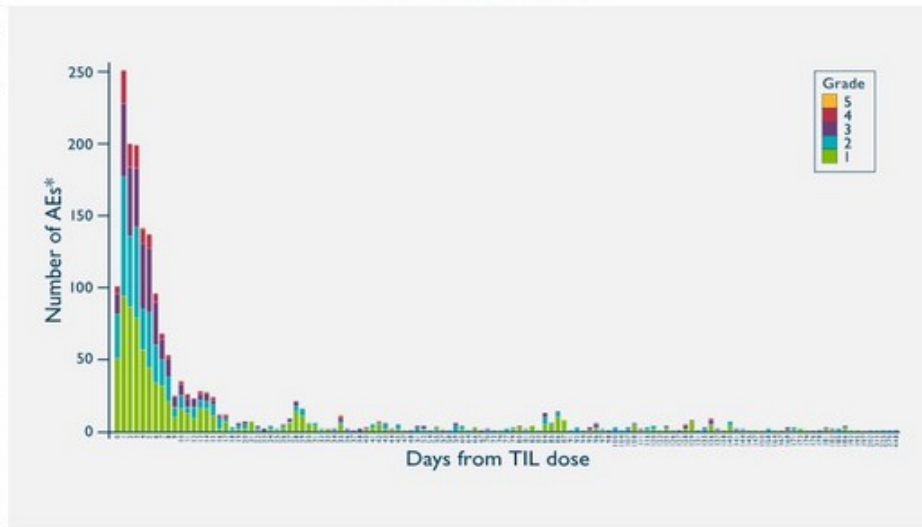
Adverse Events Tend to be Early and Transient

Frequency of AEs over time is reflective of potential benefit of one time treatment with lifileucel

Lifileucel Treatment-Emergent Adverse Events (≥ 30%)

PREFERRED TERM	Cohort 2, N=66		
	Any Grade, n (%)	Grade 3/4, n (%)	Grade 5, n (%)
Number of patients reporting at least one Treatment-Emergent AE**	65 (98.5)	63 (95.5)	2 (3.0)
Thrombocytopenia	59 (89.4)	53 (80.3)	0
Chills	52 (78.8)	4 (6.1)	0
Anemia	44 (66.7)	36 (54.5)	0
Pyrexia	39 (59.1)	11 (16.7)	0
Febrile neutropenia	36 (54.5)	35 (53.0)	0
Neutropenia	36 (54.5)	25 (37.9)	0
Hypophosphatemia	29 (43.9)	22 (33.3)	0
Fatigue	27 (40.9)	1 (1.5)	0
Leukopenia	27 (40.9)	22 (33.3)	0
Hypotension	23 (34.8)	7 (10.6)	0
Tachycardia	22 (33.3)	1 (1.5)	0
Lymphopenia	21 (31.8)	19 (28.8)	0

Adverse Events Over Time



**Treatment-Emergent Adverse Events refer to all AEs starting on or after the first dose date of TIL up to 30 days. Patients with multiple events for a given preferred term are counted only once using the maximum grade under each preferred term. Safety terms which describe the same medical condition were combined.

*The number of AEs is cumulative and represent the total number of patients dosed

Potentially Efficacious Treatment for Patients with Limited Options

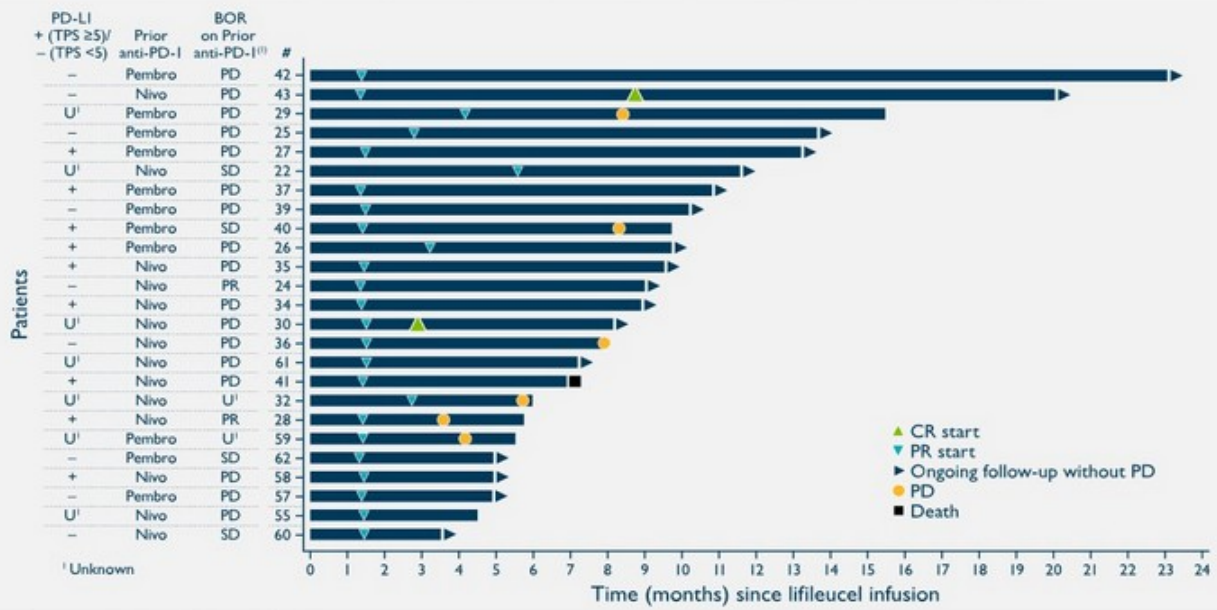
COHORT 2

- In heavily pretreated metastatic melanoma patients (3.3 mean prior therapies)
 - **ORR 38%**
 - **DCR 80%**
 - **Median DOR has not been reached**
 - Median follow-up 8.8 months
 - Patients with PD-L1 negative status (TPS<5%) were among responders
 - Mean TIL cells infused: **27.3 x 10⁹**
 - Median number of IL-2 doses: 5.5

Responses	N=66 (%)
Objective Response Rate	25 (38%)
Complete Response	2 (3%)
Partial Response	23 (35%)
Stable Disease	28 (42%)
Progressive Disease	9 (14%)
Non-Evaluable	4 (6%)
Disease Control Rate	53 (80%)

Responders Previously Progressed on Checkpoint Inhibitors

Lifileucel time to response and current duration of for evaluable patients (partial response or better)



COHORT 2

BOR is best overall response on prior anti-PD-1 immunotherapy



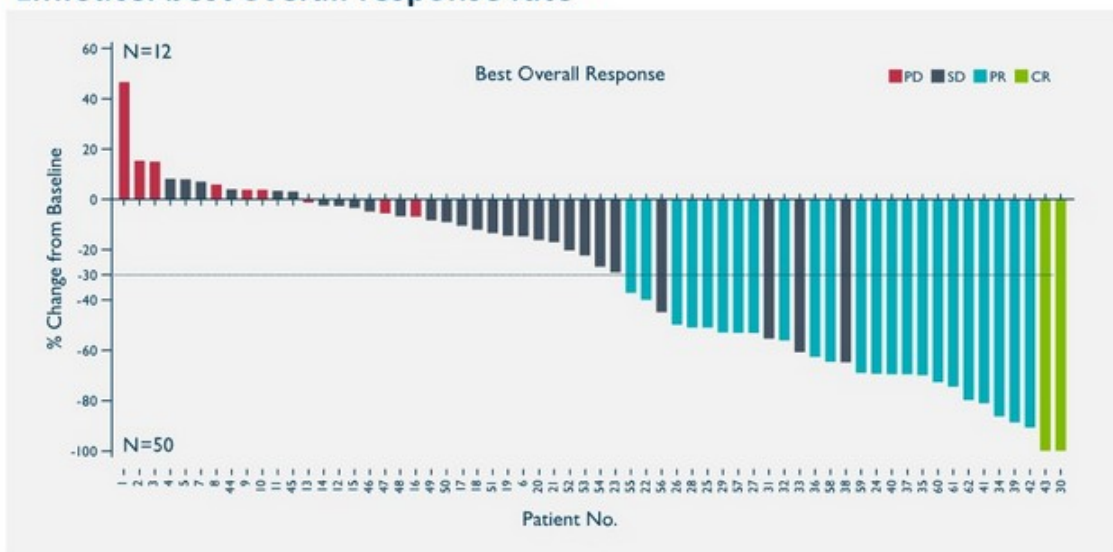
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TIL Therapy Provides Deep Responses

COHORT 2

- 81% of patients had a reduction in tumor burden
- Mean Time to response 1.9 months (range 1.3-5.6)
- All assessments are by RECIST 1.1
- Responses are deep – nearly all responders are greater than 30%

Lifileucel best overall response rate⁽¹⁾



Cohort 4 is a Pivotal Single-Arm Registrational Trial

COHORT 4

Key inclusion criteria:

- Measurable metastatic melanoma and ≥ 1 lesion resectable for TIL generation
- Progression on at least one prior line of systemic therapy including immune checkpoint inhibitor and if BRAF V600 mutation positive, BRAF or BRAF/MEK targeted therapy

Endpoints:

- Primary: efficacy defined as ORR by BIRC
- Secondary: safety and efficacy

Study updates:

- Confirmed with FDA that a randomized Phase 3 study is not feasible in advanced melanoma post-CPI
- FDA has acknowledged acceptability of single-arm data for registration
- March 2019: **First patient dosed**

Cohort 4 (Pivotal):

Cryopreserved TIL
product (Gen 2)
N=75

Per FDA interaction

Late Stage (2L/3L) Melanoma Treatment Development Efforts

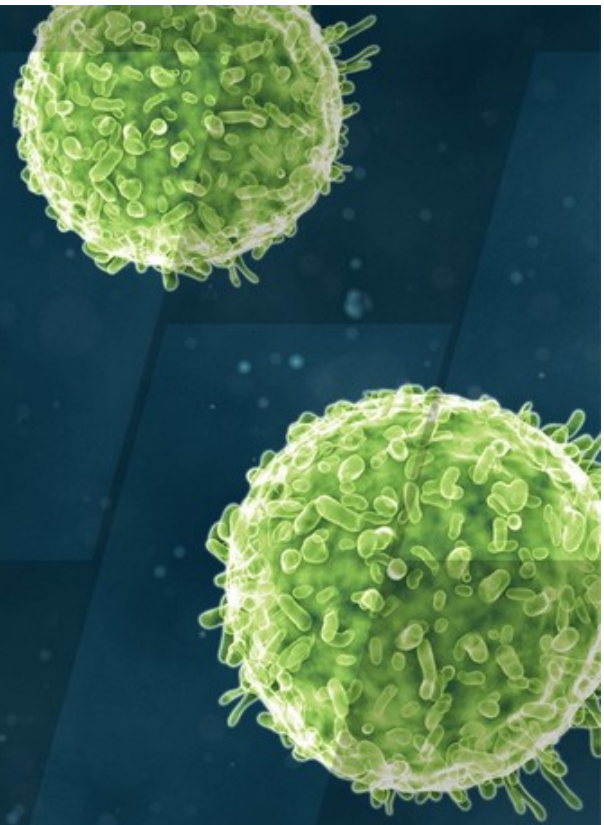
2L/3L melanoma treatment has no current standard of care

	Agent	ORR % (N)	Current Development Status	Prior Lines of Tx	Patient Characteristics
Combination with anti-PD-1	Checkpoints				
	LAG-3 +nivo (BMS)	12% (N=61) ⁽¹⁾	Multiple 1L studies	1+	All comers, ECOG ≤2 • LAG-3 expression ≥1% (N=33) ORR=18%; • LAG-3 expression <1% (N=22) ORR=5%
	TLR9 agonists, HDAC				
	IMO-2125 (Idera) + ipi	29% (N=34) ⁽²⁾	Phase 3, post-PD-1 melanoma ILLUMINATE 204	1-3	ECOG ≤1, intratumoral injection
	CMP-001 (CheckMate) + pembro	22% (N=69) ⁽³⁾	Phase 1b	1+	ECOG ≤1, intratumoral injection
	SD-101 (Dynavax) + pembro	21% (N=29) ⁽⁴⁾	Phase 1b/2 (abandoned) ⁽⁷⁾	1+	ECOG ≤1 intratumoral injection
Entinostat (Syndax) + pembro	19% (N=53) ⁽⁵⁾	ENCORE 601	1+	ECOG ≤1	
Single Agent	Checkpoints				
	TIGIT, TIM-3	Unknown	Phase 1/2		
	Cytokines				
	HD IL-2	8% (N=9) ⁽⁶⁾		1+	HD IL-2 post PD-1
Other					
	TIL	38% (N=66)	Phase 2, continuing to enroll pivotal trial	3.3	All post-anti-PD1

Cervical Cancer

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Potential Market for Cervical Cancer

“TIL immunotherapy with LN-145 is literally redefining what is treatable and potentially curable in advanced metastatic chemo-refractory cervical cancer. Patients who only two years ago would be facing hospice as their only alternative now have access to this potentially life extending new treatment. This is the most exciting news in this field in decades.”

Amir Jazaeri, M.D.

Director of the Gynecologic Cancer Immunotherapy Program in the Department of Gynecologic Oncology and Reproductive Medicine at MD Anderson



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Cervical Cancer Facts

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⁾

Available care:
Chemo-therapy
as first line option

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

Available Care for chemotherapy in 2L metastatic cervical patients
4.5-13%⁽⁴⁾⁽⁵⁾

⁽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/>

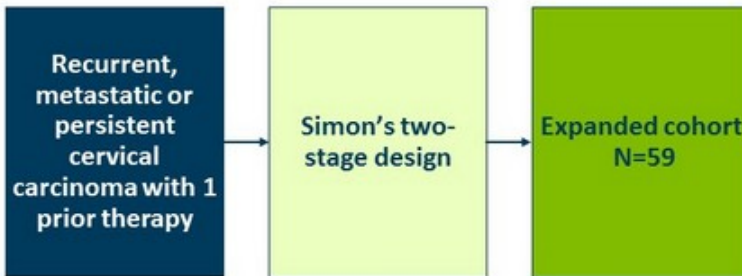
⁽³⁾ https://www.merck.com/product/usa/pi_circulars/k/keytruda/keytruda_pi.pdf

⁽⁴⁾ Schilder et al., *Gynecologic Oncology* 2005

⁽⁵⁾ Weiss, et al., A phase II trial of carboplatin for recurrent or metastatic squamous carcinoma of the uterine cervix: A Southwest Oncology Group Study

InnovaTIL-04: Phase 2 Trial in Cervical Cancer

Phase 2, multicenter study to evaluate the efficacy and safety of autologous **Tumor Infiltrating Lymphocytes (LN-145)** in patients with **recurrent, metastatic or persistent cervical carcinoma** (NCT03108495)



Endpoints:

- Primary: ORR as determined by BIRC
- Secondary: safety and efficacy

Study updates:

- March 2019: Protocol amended to 59 total patients and ORR determined by BIRC
- March 2019: Fast Track designation
- May 2019: Topline ASCO abstract update on Gen 2 patients
- May 2019: Breakthrough Therapy designation
- June 2019: Longer follow-up presented at ASCO

InnovaTIL-04: LN-145 in Cervical Cancer Interim Update at ASCO 2019

Key inclusion criteria:

- Recurrent, metastatic or persistent cervical carcinoma with 1 prior therapy
- Age \geq 18

Endpoints:

- Primary: efficacy defined as ORR by investigator per RECIST 1.1
- Secondary: safety and efficacy

Study updates:

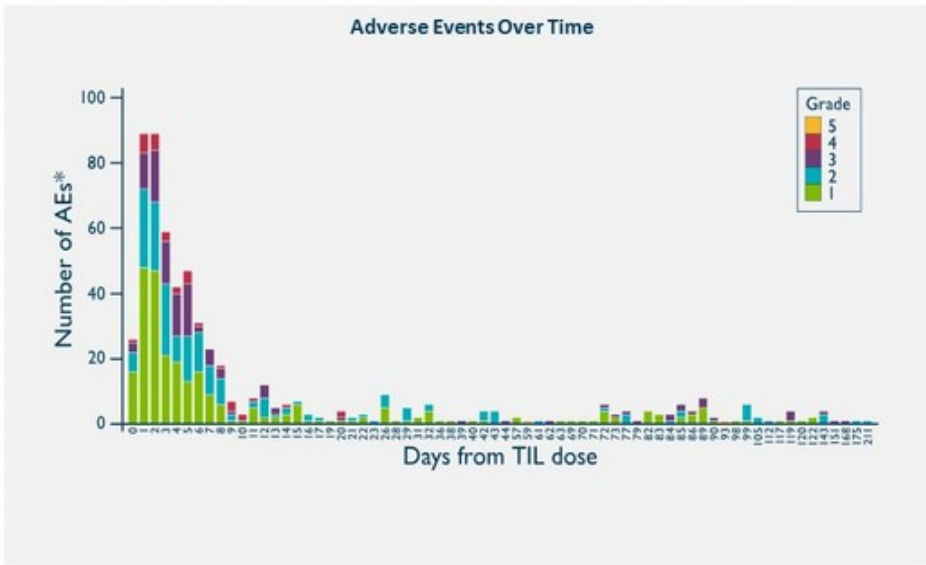
- Protocol amended to increase total to 59 patients, and ORR as determined by Blinded Independent Review Committee (BIRC)
- Fast Track and Breakthrough Therapy designation received

Baseline	
Demographics	N=27 (%)
Prior therapies	
Mean # prior therapies	2.4
Platinum-based	27 (100)
Taxane	26 (96)
Anti-VEGF	22 (82)
PD-1/PD-L1	4 (15%)
Target lesions sum of diameter (mm)	
Mean (SD)	61 (38)
Min, Max	10, 165
Histologic Cell Type, n (%)	
Squamous Cell Carcinoma	12 (44)
Adenocarcinoma	12 (44)
Adenosquamous Carcinoma	3 (11)
Number of target & non-target lesions (at baseline)	
>3	17 (63)
Mean (min,max)	4 (1,9)

Adverse Events Tend to be Early and Transient

Frequency of AEs over time is reflective of potential benefit of one time treatment with TIL (LN-145)

PREFERRED TERM	N=27		
	Any Grade, n (%)	Grade 3/4, n (%)	Grade 5, n (%)
Number of patients reporting at least one Treatment-Emergent AE**	27 (100)	26 (96.3)	0
Chills	21 (77.8)	0	0
Anemia	15 (55.6)	15 (55.6)	0
Diarrhea	14 (51.9)	2 (7.4)	0
Pyrexia	14 (51.9)	1 (3.7)	0
Thrombocytopenia	14 (51.9)	12 (44.4)	0
Neutropenia	11 (40.7)	8 (29.6)	0
Vomiting	11 (40.7)	1 (3.7)	0
Hypotension	10 (37.0)	4 (14.8)	0
Dyspnea	9 (33.3)	1 (3.7)	0
Febrile neutropenia	9 (33.3)	8 (29.6)	0
Hypoxia	9 (33.3)	3 (11.1)	0
Leukopenia	9 (33.3)	6 (22.2)	0
Hypomagnesemia	8 (29.6)	0	0
Sinus tachycardia	8 (29.6)	0	0



**Treatment-Emergent Adverse Events refer to all AEs starting on or after the first dose date of TIL up to 30 days. Patients with multiple events for a given preferred term are counted only once using the maximum grade under each preferred term. Safety terms which describe the same medical condition were combined.
*The number of AEs is cumulative and represent the total number of patients dosed

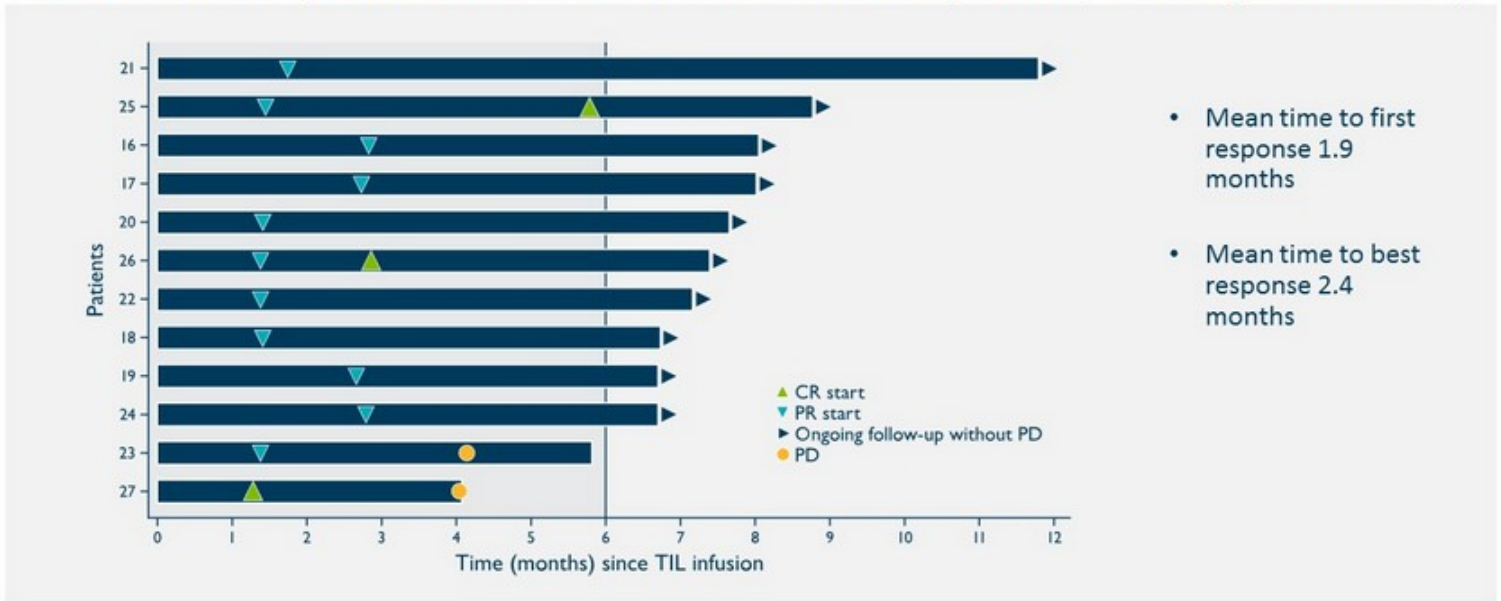
Significant Response Observed in Patients with Limited Options

- In heavily pretreated cervical cancer patients (2.4 mean prior therapies)
 - **CR 11%**
 - **ORR 44%**
 - **DCR 85%**
 - **Median DOR has not been reached**
 - Median follow-up 7.4 months
 - Mean TIL cells infused: **28 x 10⁹**
 - Median number of IL-2 doses: 6.0

Responses	N=27 (%)
Objective Response Rate	12 (44%)
Complete Response	3 (11%)
Partial Response	9 (33%)
Stable Disease	11 (41%)
Progressive Disease	4 (15%)
Non-Evaluable	0
Disease Control Rate	23 (85%)

Responses Observed Early On and Consistent with Melanoma

LN-145 time to response and current duration of for evaluable patients (partial response or better)

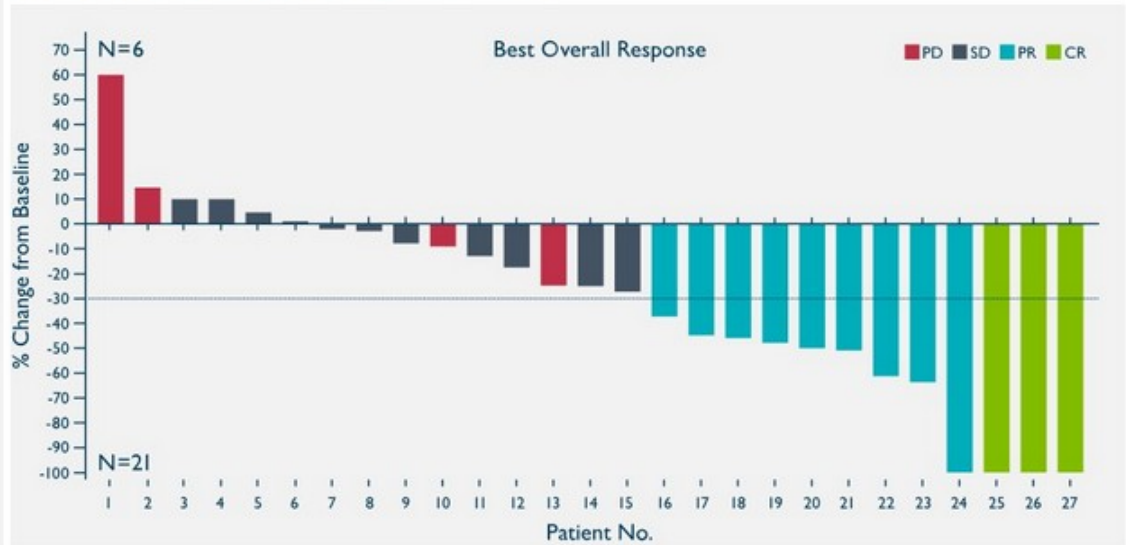


- Mean time to first response 1.9 months
- Mean time to best response 2.4 months

Three Complete Responses Observed with LN-145

- 78% of patients had a reduction in tumor burden
- Mean Time to response 1.9 months
- All assessments are by RECIST 1.1
- Responses are deep – majority of responders are over 30%

LN-145 best overall response rate



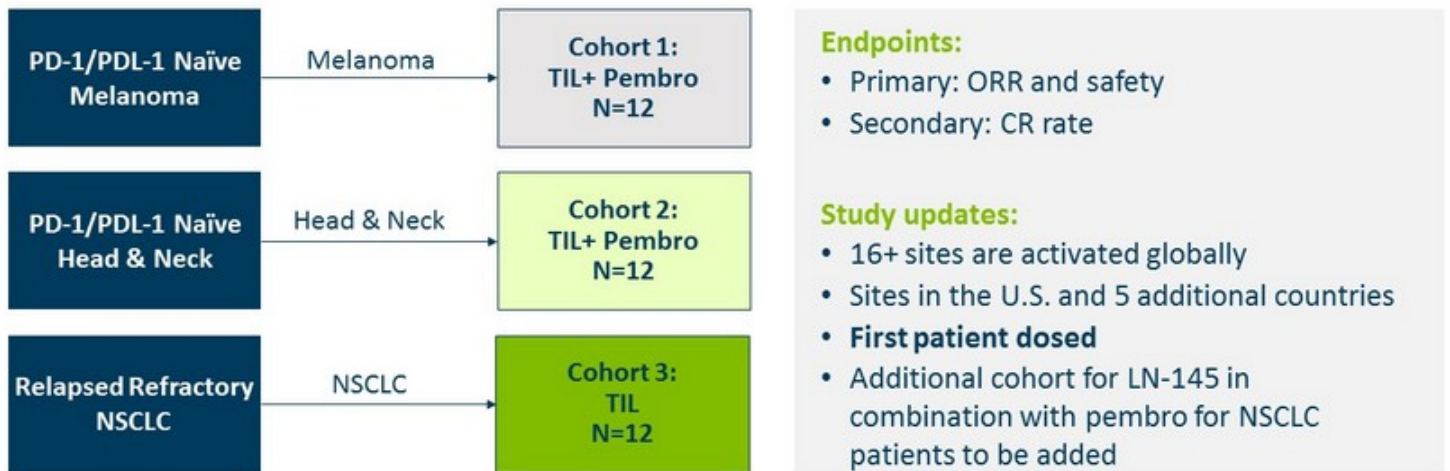
Development Efforts in Recurrent, Metastatic or Persistent Cervical Carcinoma

Recurrent, metastatic or persistent cervical carcinoma has no current standard of care

Agent	ORR % (N)	Current Dev Status	Prior Line of Tx	Patient Characteristics
Antibody-drug conjugate				
tisotumab vedotin (TV) (Genmab/Seattle Genetics)	22% (N=55) ⁽¹⁾	Phase 2	1+	Recurrent or metastatic cervical cancer that progressed on standard therapy (most had received at least two prior therapies), median DOR= 6 months
Anti-PD-1				
AGEN2034 (Agenus)	11% (N=9) ⁽²⁾	Phase 2	1+	Patients must have relapsed after a platinum-containing doublet administered for treatment of advanced disease
cemiplimab (Regeneron)	10% (N=10) ⁽³⁾	Phase 3	2+	Recurrent or metastatic cervical cancer resistant to, or intolerant of, platinum therapy
TKI				
neratinib (Puma Biotechnology)	27% (N=11) ⁽⁴⁾	Phase 2	2	Metastatic HER2-positive cervical cancer (percentage of HER2+ in cervical cancer is ~3.9%) ⁽⁵⁾
Cell therapies				
TIL (LN-145)	44% (N=27)	Phase 2	2.4 (mean)	All patients progressed on or after chemotherapy

TIL in Earlier Lines of Therapy in Combination with SOC

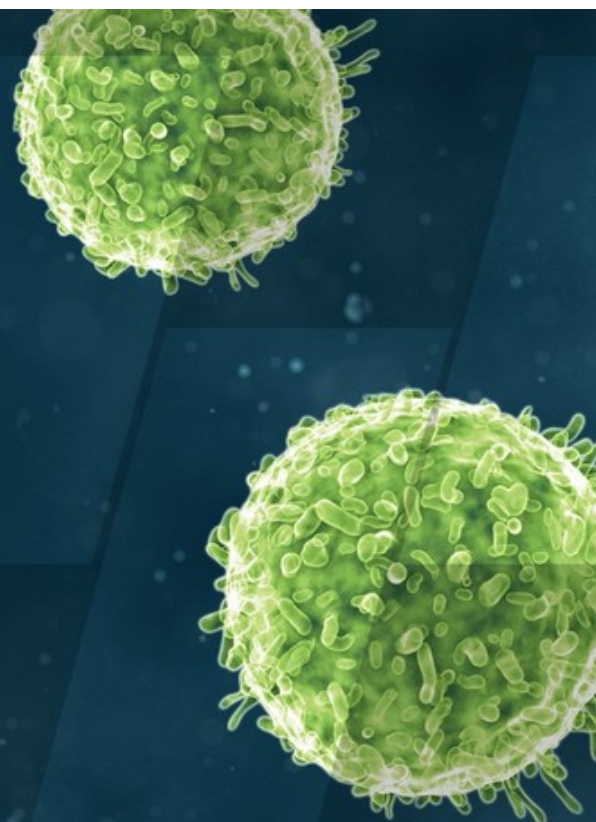
A Phase 2, Multicenter Study of Autologous **Tumor Infiltrating Lymphocytes (Ifileucel or LN-145)** in Patients with **Solid Tumors** (NCT03645928)



Hematologic Malignancies

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Peripheral Blood Lymphocytes (PBL) for Hematological Indications

Expand the TIL platform into new indications

- IOV-2001 for post-ibrutinib CLL patients
- IOV-2001 is a non-genetically modified, polyclonal T cell product
- IOV-2001 shows cytotoxicity against autologous tumor cells in leukemia
- Ibrutinib has known to improve proliferative and effector functions of T cells
- Iovance has generated PBL from 50 mL blood of ibrutinib-treated patients with CLL
- A 9 day manufacturing process is optimized and is being transferred to a CMO
- IND filing is planned for 2019



Karyapudi et al., EHA 2019, PF 447

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Research Focus into Next Generation TIL



Expand the TIL platform into new indications

- Bladder cancer (Roswell Park Cancer Institute)
- IND for PBL in CLL (OSU collaboration)



Prepare or select more potent TIL

- Use anti-4-1BB, anti-OX40, or other co-stimulants in cocktails in *ex vivo* growth of TIL
 - License to uses of 4-1BB agonists obtained from Moffitt Cancer Center
- Select more potent TIL



Genetically modify to make a more tumor-reactive TIL

- Collectis TALEN® collaboration
- Phio RNAi collaboration



Identify biomarkers to find a better TIL product or better patient population

- Genocea ATLAS™ collaboration

Iovance Biotherapeutics Global Reach and Scale

Iovance Biotherapeutics has ~120 employees

- Headquartered in San Carlos, CA
- 4 additional offices
- Iovance commercial manufacturing facility in Philadelphia, PA (under construction)



Well Capitalized in Pursuit of TIL Commercialization

March 31, 2019	In millions
Common shares outstanding	123
Preferred shares	6 ⁽¹⁾
Options	9
Cash, cash equivalents, short-term investments	\$440
Debt	0

⁽¹⁾ Preferred shares are shown on an as-converted basis.

Achieved and Upcoming Milestones

2018

- Demonstrate consistent, scalable, rapid proprietary manufacturing method
- Secure new IP around TIL technology and manufacturing
- Secure adequate financing providing 3 years of runway
- Demonstrate activity in melanoma post-checkpoint inhibitor (difficult to treat patients)
- Align on registration pathway for melanoma with FDA
- Demonstrate activity in post-CPI cervical, head & neck tumors

2019

- First patient dosed in Cohort 4 for lfileucel in support of registration
- Present updated data in Cohort 2 for melanoma at ASCO
- Present data from Gen 2 of cervical study at ASCO
- Initiate building lovance manufacturing facility
- Define regulatory path for LN-145 in cervical cancer with FDA
- Explore therapeutic potential of TIL in other indications
- File new IND for new manufacturing process and/or new indications

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BIO THERAPEUTICS

ADVANCING IMMUNO-ONCOLOGY



Thank you

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Iovance Biotherapeutics Provides Cervical Cancer Program Updates Following End of Phase 2 Meeting with U.S. Food and Drug Administration (FDA)

FDA agreed that the ongoing single-arm Phase 2 innovaTIL-04 study may be sufficient to support registration of LN-145 in advanced cervical cancer

SAN CARLOS, Calif., July 2, 2019 -- Iovance Biotherapeutics, Inc. (NASDAQ: IOVA), a late-stage biotechnology company developing novel cancer immunotherapies based on tumor-infiltrating lymphocyte (TIL) technology, today provided an update on the regulatory path for LN-145 in advanced cervical cancer. Based on an End of Phase 2 meeting held with the U.S. Food and Drug Administration (FDA), the FDA has acknowledged that the ongoing innovaTIL-04 study of TIL therapy LN-145 may be sufficient to support registration in the treatment of patients with advanced cervical cancer. The study is being enrolled with a prospective definition of objective response rate (ORR) read out by a Blinded Independent Review Committee (BIRC) as the primary endpoint. In accordance with the FDA's recommendation, the new version of the protocol will further define the patient population. Iovance plans to include in the Biologics License Application (BLA), patients who have progressed following initial systemic therapy for recurrent or metastatic disease, which constitutes almost all of the more advanced patients enrolled to date. In addition, the company announced that the innovaTIL-04 study is expected to enroll a total of 75 to 100 patients in order to support a BLA submission.

"The FDA's agreement to consider acceptability of the ongoing study in patients with cervical cancer significantly accelerates our path to BLA submission for LN-145," said Maria Fardis, Ph.D., president and chief executive officer of Iovance Biotherapeutics. "This feedback is encouraging. The ability to use the current study, as well as the Breakthrough Therapy designation recently granted to LN-145, allows us to plan on a path to BLA submission in the second half of 2020."

About Iovance Biotherapeutics, Inc.

Iovance Biotherapeutics intends to commercialize autologous cell therapy products that amplify the body's own immune response to eradicate solid tumors or attack blood cancers. The company is currently conducting the pivotal study innovaTIL-01 in patients with metastatic melanoma. In addition, the company's tumor infiltrating lymphocyte (TIL) therapies are being investigated for the treatment of patients with locally advanced, recurrent or metastatic cancers including cervical, head and neck, and non-small cell lung cancer. For more information, please visit www.iovance.com.

Forward-Looking Statements

Certain matters discussed in this press release are "forward-looking statements" of Iovance Biotherapeutics, Inc. (hereinafter referred to as the "Company," "we," "us," or "our"). We may, in some cases, use terms such as "predicts," "believes," "potential," "continue," "estimates," "anticipates," "expects," "plans," "intends," "may," "could," "might," "will," "should" or other words that convey uncertainty of future events or outcomes to identify these forward-looking statements. The forward-looking statements include, but are not limited to, risks and uncertainties relating to the success, timing, projected enrollment, manufacturing and production capabilities, and cost of our ongoing clinical trials and anticipated clinical trials for our current product candidates (including both Company-sponsored

and collaborator-sponsored trials in both the U.S. and Europe), such as statements regarding the timing of initiation and completion of these trials; the timing of and our ability to obtain and maintain FDA or other regulatory authority approval of, or other action with respect to, our product candidates, including those product candidates that have been granted breakthrough therapy designation (“BTD”) or regenerative medicine advanced therapy designation (“RMAT”) by the FDA; the strength of the Company’s product pipeline; the successful implementation of the Company’s research and development programs and collaborations; the Company’s ability to obtain tax incentives and credits; the success of the Company’s manufacturing, license or development agreements; the acceptance by the market of the Company’s product candidates, if approved; and other factors, including general economic conditions and regulatory developments, not within the Company’s control. The factors discussed herein could cause actual results and developments to be materially different from those expressed in or implied by such statements. Actual results may differ from those set forth in this press release due to the risks and uncertainties inherent in the Company’s business, including, without limitation: the preliminary clinical results, which may include efficacy and safety results, from ongoing Phase 2 studies may not be reflected in the final analyses of these trials; the rate of enrollment may impact the Company’s clinical trial timelines; enrollment may need to be adjusted for the Company’s trials and cohorts within those trials based on FDA and other regulatory agency input; the new version of the protocol which further defines the patient population to include more advanced patients in the Company’s cervical cancer trial may have an adverse effect on the results reported to date; the data within these trials may not be supportive of product approval; the Company’s ability to address FDA or other regulatory authority requirements relating to its clinical programs and registrational plans, such requirements including, but not limited to, clinical, safety, manufacturing and control requirements; the Company’s interpretation of communications with the FDA; risks related to the Company’s ability to maintain and benefit from accelerated FDA review designations, including BTD and RMAT, which may not result in a faster development process or review of the Company’s product candidates (and which may later be rescinded by the FDA), and does not assure approval of such product candidates by the FDA or the ability of the Company to obtain FDA approval in time to benefit from commercial opportunities; and the ability of the Company to manufacture its therapies using third party manufacturers. A further list and description of the Company’s risks, uncertainties and other factors can be found in the Company’s most recent Annual Report on Form 10-K and the Company’s subsequent filings with the Securities and Exchange Commission. Copies of these filings are available online at www.sec.gov or www.iovance.com. The forward-looking statements are made only as of the date of this press release and the Company undertakes no obligation to publicly update such forward-looking statements to reflect subsequent events or circumstances.

Investor Relations Contacts:

Annie Chang
Solebury Trout
646-378-2972
achang@troutgroup.com

Chad Rubin
Solebury Trout
646-378-2947
crubin@troutgroup.com

Media Relations Contact:

Rich Allan

Solebury Trout

646-378-2958

rallan@troutgroup.com
