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): August 25, 2022

IOVANCE BIOTHERAPEUTICS, INC.

(Exact Name of Registrant as Specified in Charter)

Delaware	
(State of Incorporation)	
001-36860	**75-3254381**
Commission File Number	**(I.R.S. Employer Identification No.)**
825 Industrial Road, 4th Floor **San Carlos, California**	**94070**
(Address of Principal Executive Offices)	**(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 August 25, 2022, Iovance Biotherapeutics, Inc. (the "Company") issued a press release announcing that the Company has initiated a rolling Biologics License Application (BLA) submission to the U.S. Food and Drug Administration (FDA) for lifileucel in advanced melanoma. The full text of the press release is attached hereto as Exhibit 99.1 and incorporated herein by reference.

On August 25, 2022, 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 99.2 and incorporated herein by reference.

Item 9.01. Financial Statements and Exhibits.

(d) Exhibits.

Exhibit No.	Description
99.1	Press Release of Iovance Biotherapeutics, Inc., dated August 25, 2022.
99.2	Iovance Biotherapeutics, Inc., Corporate Presentation - August 2022.
104	Cover Page Interactive Data File (embedded as Inline XBRL document)

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: August 29, 2022

IOVANCE BIOTHERAPEUTICS, INC.

By: /s/ Frederick G. Vogt
Frederick G. Vogt, Interim CEO & General Counsel

Exhibit 99.1

Iovance Biotherapeutics Initiates Biologics License Application (BLA) Submission for Lifileucel in Advanced Melanoma

First TIL Therapy BLA Submission Initiated with U.S. Food and Drug Administration

Complete BLA Submission on Track for Fourth Quarter 2022

SAN CARLOS, Calif., August 25, 2022 -- Iovance Biotherapeutics, Inc. (NASDAQ: IOVA), a late-stage biotechnology company developing novel T cell-based cancer immunotherapies, today announced that it has initiated a rolling Biologics License Application (BLA) submission to the U.S. Food and Drug Administration (FDA) for lifileucel, a tumor infiltrating lymphocyte (TIL) therapy, in patients with advanced (unresectable or metastatic) melanoma who progressed on or after prior anti-PD-1/L1 therapy, and if BRAF mutation positive, also prior BRAF or BRAF/MEK inhibitor therapy. There are no FDA approved therapies in this treatment setting.

Frederick Vogt, Ph.D., J.D., Interim President and Chief Executive Officer of Iovance, stated, "Initiating our rolling BLA submission for lifileucel is a significant step towards our goal to deliver the first individualized, one-time cell therapy for melanoma patients with significant unmet need. In parallel, we are executing our on-boarding and personnel training at authorized treatment centers, education and awareness initiatives, internal capacity planning, and launch readiness activities to prepare for commercialization. The FDA is supportive of our regulatory approach, and we look forward to continuing this collaboration throughout the submission and review process."

A rolling BLA allows Iovance to submit portions of the BLA to the FDA on an ongoing basis, which enables the FDA to begin review as early as possible while documents are received. Iovance expects to complete the BLA submission in the fourth quarter of 2022. The rolling BLA submission and eligibility for priority review are benefits available under the FDA's guidance on expedited programs for serious conditions. The FDA previously granted a regenerative medicine advanced therapy (RMAT) designation for lifileucel in advanced melanoma.

"Lifileucel represents hope and a new treatment for thousands of people with advanced melanoma who have very limited options after they progress on available standard of care," said Kyleigh LiPira, CEO, Melanoma Research Foundation. "Cell immunotherapies are revolutionizing cancer treatment, and we are excited about the potential for the first FDA-approved TIL cell therapy for the treatment of melanoma, which helps us take another step towards finding a cure."

The BLA submission for lifileucel is supported by positive clinical data from the C-144-01 clinical trial in patients with advanced melanoma. Iovance plans to present additional results from the C-144-01 trial at a medical meeting later this year.

About Iovance Biotherapeutics, Inc.

Iovance Biotherapeutics aims to be the global leader in innovating, developing and delivering tumor infiltrating lymphocyte (TIL) therapies for patients with cancer. We are pioneering a transformational approach to cure cancer by harnessing the human immune system's ability to recognize and destroy diverse cancer cells in each patient. Our lead late-stage TIL product candidate, lifileucel for metastatic melanoma, has the potential to become the first approved one-time cell therapy for a solid tumor cancer. The Iovance TIL platform has demonstrated promising clinical data across multiple solid tumors. We are committed to continuous innovation in cell therapy, including gene-edited cell therapy, that may extend and improve life for patients with 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") within the meaning of the Private Securities Litigation Reform Act of 1995 (the "PSLRA"). All such written or oral statements made in this press release, other than statements of historical fact, are forward-looking statements and are intended to be covered by the safe harbor for forward-looking statements provided by the PSLRA. Without limiting the foregoing, we may, in some cases, use terms such as "predicts," "believes," "potential," "continue," "estimates," "anticipates," "expects," "plans," "intends," "forecast," "guidance," "outlook," "may," "could," "might," "will," "should" or other words that convey uncertainty of future events or outcomes and are intended to identify forward-looking statements. Forward-looking statements are based on assumptions and assessments made in light of management's experience and perception of historical trends, current conditions, expected future developments and other factors believed to be appropriate. Forward-looking statements in this press release are made as of the date of this press release, and we undertake no duty to update or revise any such statements, whether as a result of new information, future events or otherwise. Forward-looking statements are not guarantees of future performance and are subject to risks, uncertainties and other factors, many of which are outside of our control, that may cause actual results, levels of activity, performance, achievements and developments to be materially different from those expressed in or implied by these forward-looking statements. Important factors that could cause actual results, developments and business decisions to differ materially from forward-looking statements are described in the sections titled "Risk Factors" in our filings with the Securities and Exchange Commission, including our most recent Annual Report on Form 10-K and Quarterly Reports on Form 10-Q, and include, but are not limited to, the following substantial known and unknown risks and uncertainties inherent in our business: the effects of the COVID-19 pandemic; risks related to the timing of and our ability to successfully develop, submit, 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, and our ability to successfully commercialize any product candidates for which we obtain FDA approval; whether clinical trial results from our pivotal studies and cohorts may support registration and approval by the FDA; preliminary and interim clinical results, which may include efficacy and safety results, from ongoing clinical trials or cohorts may not be reflected in the final analyses of our ongoing clinical trials or subgroups within these trials or in other prior trials or cohorts; the risk that enrollment may need to be adjusted for our trials and cohorts within those trials based on FDA and other regulatory agency input; the changing landscape of care for cervical cancer patients may impact our clinical trials in this indication; the risk that we may be required to conduct additional clinical trials or modify ongoing or future clinical trials based on feedback from the FDA or other regulatory authorities; the risk that our interpretation of the results of our clinical trials or communications with the FDA may differ from the interpretation of such results or communications by the FDA (including from the recent pre-BLA meeting with the FDA); the risk that the rolling BLA submission for lifileucel in metastatic melanoma may take longer than expected; the acceptance by the market of our product candidates and their potential reimbursement by payors, if approved; our ability or inability to manufacture our therapies using third party manufacturers or our own facility may adversely affect our potential commercial launch; the results of clinical trials with collaborators using different manufacturing processes may not be reflected in our sponsored trials; the risk that unanticipated expenses may decrease our estimated cash balances and forecasts and increase our estimated capital requirements; and other factors, including general economic conditions and regulatory developments, not within our control.

CONTACTS

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Global Leadership in Innovating, Developing and Delivering TIL Therapy for Patients with Cancer

Platform

500+
Patients Treated with Iovance TIL

90%+
Manufacturing Success Rate

22-day
Proprietary Manufacturing Process

Pipeline

6 Active Clinical Trials

5 Oncology Indications in Clinic

1 BTD **1** RMAT

3 Fast Track Designations

People & Assets

~$431M
Cash as of 6/30/22

50+
US and International Patents

400+
Employees

Partners & Collaborato

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Abbreviations: BTD: Breakthrough Therapy Designation; RMAT: Regenerative Medicine Advanced Therapy Designation

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Iovance Immuno-Oncology Pipeline

	PRODUCT CANDIDATE	INDICATION(S)	IND-ENABLING	PHASE 1	PHASE 2	PIVOTAL
TIL	Lifileucel/LN-144	Melanoma (post-anti-PD-1)	C-144-01, Cohorts 2 & 4 (Rolling BLA commenced)			FDA RMAT Design
	Lifileucel	Cervical cancer (post-chemo & post-anti-PD-1)	C-145-04, Cohort 2 (Registrational)			FDA BTD
	LN-145	NSCLC (2L post-chemo & post-anti-PD-1)	IOV-LUN-202, Cohorts 1 & 2			
	LN-145	NSCLC (2-4L incl. post-anti-PD-1)	IOV-COM-202, Cohort 3B			
	LN-145	HNSCC (post-anti-PD-1)	C-145-03, Cohort 2			
TIL Combinations	Lifileucel + pembro	Melanoma (anti-PD-1 naïve)	IOV-COM-202, Cohort 1A			
	Lifileucel + pembro	Cervical cancer (1L, chemo & anti-PD-1 naïve)	C-145-04, Cohort 3			
	LN-145 + pembro	NSCLC (anti-PD-1 naïve)	IOV-COM-202, Cohort 3A			
	LN-145 + ipi/nivo	NSCLC (post-anti-PD-1)	IOV-COM-202, Cohort 3C			
	LN-145 + pembro	HNSCC (anti-PD-1 naïve)	IOV-COM-202, Cohort 2A			
PD-1 Selected TIL	LN-145-S1	Melanoma (post-anti-PD-1)	IOV-COM-202, Cohort 1B			
	LN-145-S1	HNSCC (post-anti-PD-1)	C-145-03, Cohort 4			
Third-Generation (Gen 3) TIL 16-day manufacturing	LN-145 Gen 3 + core biopsy	NSCLC (2L post-chemo & post-anti-PD-1)	IOV-LUN-202, Cohort 3			
	LN-144 Gen 3	Melanoma (post-anti-PD-1)	IOV-COM-202, Cohort 1C			
	LN-145 Gen 3	HNSCC (post-anti-PD-1)	C-145-03, Cohort 3			
PBL Therapy	IOV-2001	CLL/SLL (post-BTKi)	IOV-CLL-01			
PD-1 Inactivated TIL	IOV-4001	Melanoma (post-anti-PD-1)	IOV-GM1-201, Cohort 1			
	IOV-4001	NSCLC (2-4L incl. post-anti-PD-1)	IOV-GM1-201, Cohort 2			
IL-2 Analog	IOV-3001	Multiple				

Abbreviations: 1L=first line; 2L=second line; 4L=fourth line; BTD=breakthrough therapy designation; BTKi=Bruton's tyrosine kinase inhibitor; CLL/SLL=chronic lymphocytic leukemia and small lymphocytic lymphoma; HNSCC=head and neck squamous cell carcinoma; IL-2=interleukin 2; IND=Investigational New Drug; ipi/nivo=ipilimumab/nivolumab; NSCLC=non-small cell lung cancer; PBL=peripheral blood lymphocytes; PD-1=programmed cell death protein-1; RMAT=Regenerative Medicines Advanced Therapy; TIL=tumor infiltrating lymphocytes

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Significant Market Potential in Solid Tumors

90%

of all cancer cases are solid tumors[1]

1.7M

New cases of solid tumors in the U.S.[1]

Move into earlier line of therapy

Expand into other indications

	Deaths[1]	New Cases[1]
Melanoma	7,650	99,780
Cervical	4,280	14,100
Lung & Bronchus	130,180	236,740
Oral Cavity, Pharynx & Larynx	15,050	66,470
Breast	43,780	290,560
Pancreatic	49,830	62,210
Brain & Other Nervous System	18,280	25,050
	Potential to address unmet need in late lines of treatment	**Potential market for early lines in combo with standard of care**

1. https://seer.cancer.gov accessed May 2022

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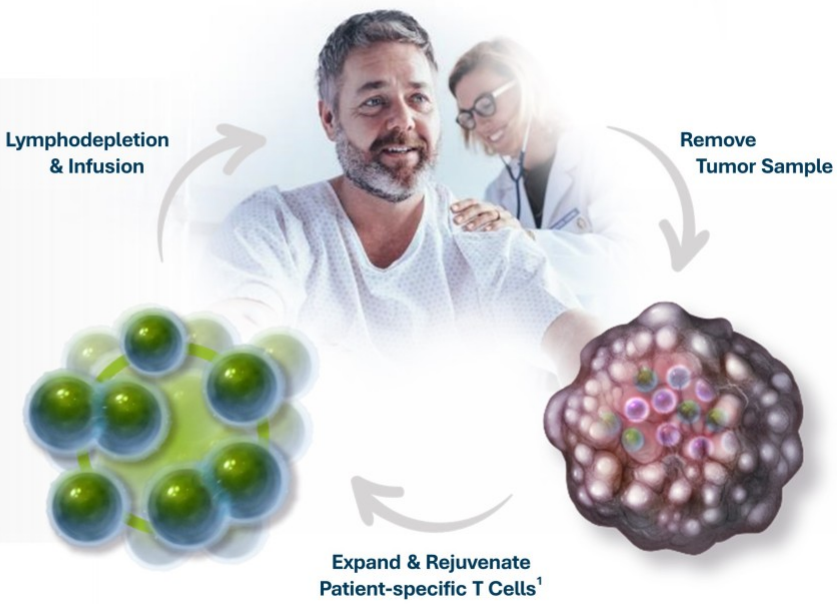
Tumor Infiltrating Lymphocytes (TIL): Leading Platform for Treatment of Solid Tumors

TIL – Unique Mechanism of Action

- Highly personalized
- One-time therapy
- Patient's own immune system amplified and rejuvenated



1. Simpson-Abelson et al., ESMO 2020

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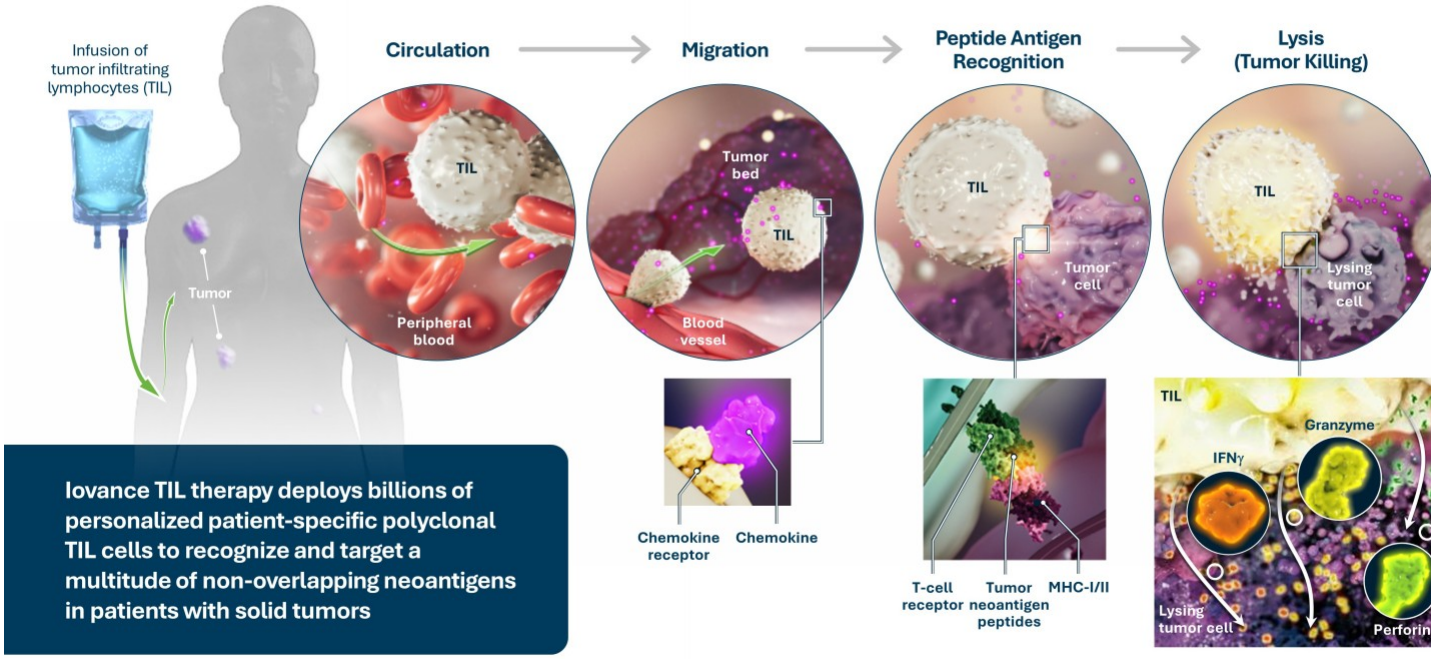
TIL Mechanism of Action



Iovance TIL therapy deploys billions of personalized patient-specific polyclonal TIL cells to recognize and target a multitude of non-overlapping neoantigens in patients with solid tumors

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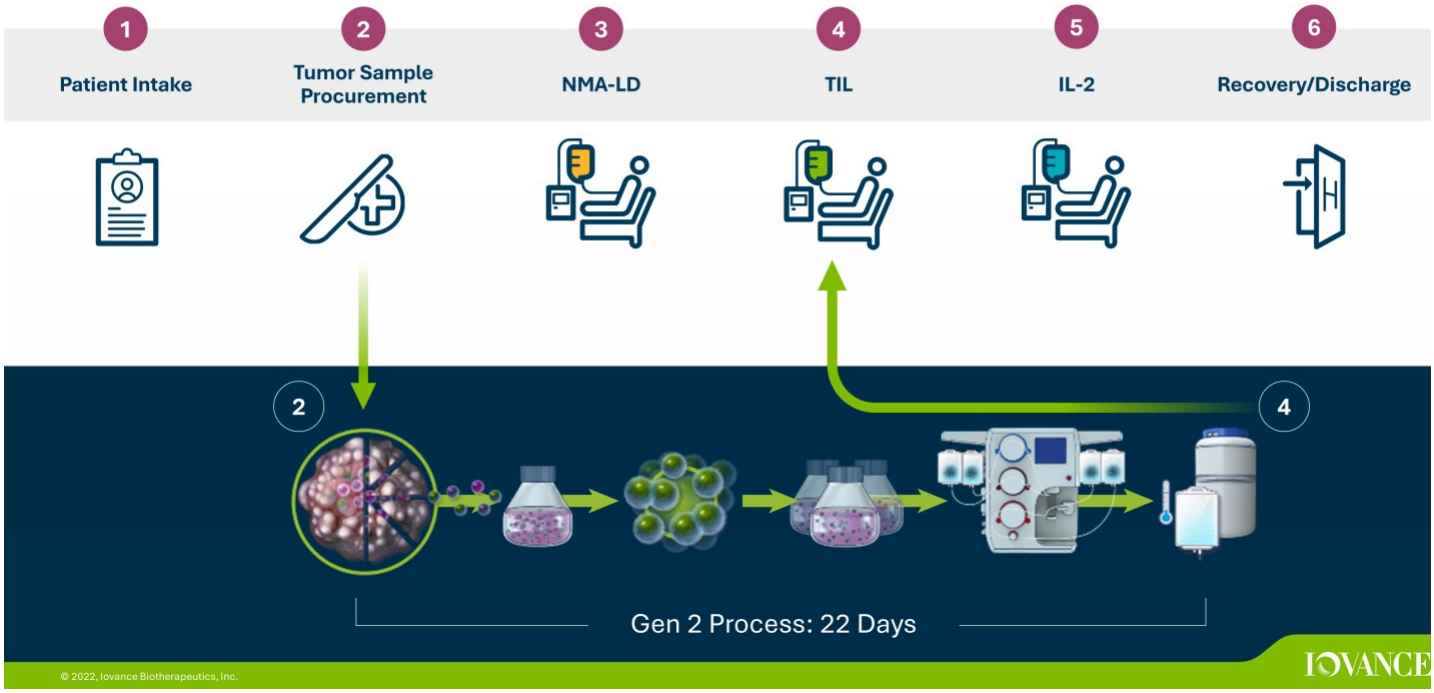
Iovance Streamlined 22-Day GMP Manufacturing Process



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Iovance Cell Therapy Center: iCTC

Built-to-suit custom facility in Navy Yard Philadelphia

136,000 ft^2, $85M investment

LEED gold certification for core and shell building

Honorable Mention Winner: 2022 ISPE Facility of the Year Awards

Clinical supply initiated 3Q21

Commercial manufacturing expected with BLA approval

Control to optimize capacity, quality & COGS

Leading Cell Therapy Manufacturing Facility

IOVANCE BIOTHERAPEUTICS CELL THERAPY CENTER

FOYA 2022 ISPE Facility of the Year Awards
CATEGORY WINNER
Honorable Mention

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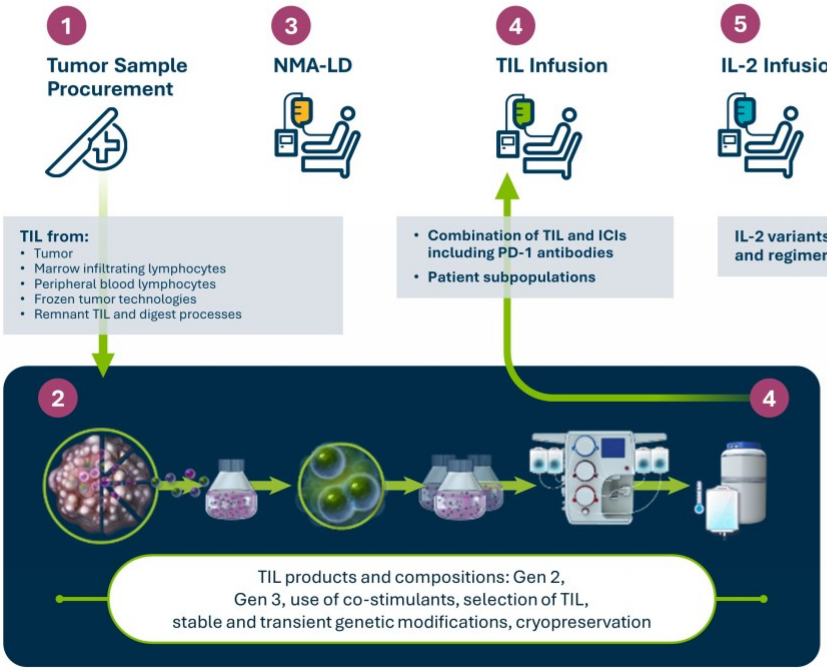
Broad, Iovance-Owned IP Around TIL Therapy



- ✓ 50+ granted or allowed US and international patents
- ✓ Compositions of matter for TIL products
- ✓ Methods of treatmen in a broad range of cancers
- ✓ Manufacturing processes

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Clinical Data Highlights

Potential Market for Metastatic Melanoma

Unmet Needs to Increase Response Rates in Early Line and Post-Immune Checkpoint Inhibitors

"For patients who progress on anti-PD-1 therapy, there is an unfilled need for efficacious and durable treatment options. The latest results with lifileucel suggest that intervention with TIL therapy, upon progression, can achieve this goal for patients and should be considered as appropriate therapy."

Omid Hamid, MD
Chief of Research/Immuno-Oncology
The Angeles Clinic & Research Institute

325k New cases WW each year[1]

57k Deaths WW each year[1]

100k New cases in U.S. each year[2]

7.7k Deaths in U.S. each year[2]

Available Care:

- 1st line: Anti-PD-1 Immunotherapy 21%-33% ORR[3]
- BRAF/MEK inhibitors for BRAF positive
- 2nd line: Chemotherapy ORR 4-10%[4] OS ~7-8 months[5]

Limited options after progression on checkpoint and BRAF/MEK inhibitors

1. Global Cancer Statistics 2020: GLOBOCAN Estimates of Incidence and Mortality Worldwide for 36 Cancers in 185 Countries, CA Cancer J Clin., May 2021
2. https://seer.cancer.gov accessed May 2022
3. Keytruda USPI accessed Mar 2022
4. Keytruda USPI accessed Mar 2022 (4%) and Weber et al., Lancet Oncol 2015 (ICC 10%)
5. Kirchburger et al., Eur J Cancer 2016 and Goldinger et al., J Clin Oncol 2018

C-144-01 Phase 2 Study Design

Phase 2, Multicenter Study to Assess the Efficacy and Safety of Lifileucel for Treatment of Patients with Metastatic Melanoma (NCT02360579)

Unresectable or metastatic melanoma treated with 1 systemic prior therapy including a PD-1 blocking antibody and if BRAF V600 mutation positive, a BRAF or BRAF/MEK

Cohort 1: Non-cryopreserved TIL product (Gen 1) N=30
Closed to enrollment

Cohort 2: Cryopreserved TIL product (Gen 2) N=60
Closed to enrollment

Cohort 3: TIL re-treatment N=10

Cohort 4: Pivotal Cryopreserved TIL product (Gen 2) N=75
Closed to enrollment

Endpoints

- Primary: Efficacy defined as ORR assessed by IRC

Study Updates

- Mar 2019: Cohort 4 (pivotal trial) first patient enrolled
- Jan 2020: last patient dosed (Cohort 4)
- May 2021: Cohort 2 publication in *Journal of Clinical Oncology*[1]
- June 2021: Cohort 2 median DOR not reached at 33.1 months of median study follow up[2]
- May 2022: Cohort 4 and Cohort 2 topline IRC data release

Same eligibility criteria and manufacturing process used for C-144-01 Cohorts 2 and 4

1. Sarnaik et al., J Clin Oncol 2021 (data reported by investigator)
2. Larkin, et. al. ASCO 2021 (data reported by investigator; data extract: Apr'21)

Abbreviations: ORR, objective response rate; DOR, duration of response; PD-1, programmed cell death protein-1; IRC, independent review committee

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C-144-01 COHORT 2 ASCO 2021 – ASSESSED BY INVESTIGATOR USING RECIST 1.1

Lifileucel C-144-01 Cohort 2 Clinical Data Highlights in Melanoma

Single-Agent Lifileucel Following Progression on Anti-PD-1 Therapy
(C-144-01 Cohort 2, N=66)[1]

36% ORR

Median DOR not reached

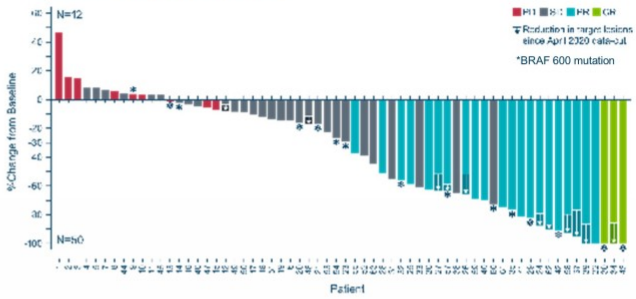
33.1 months

Median study follow up

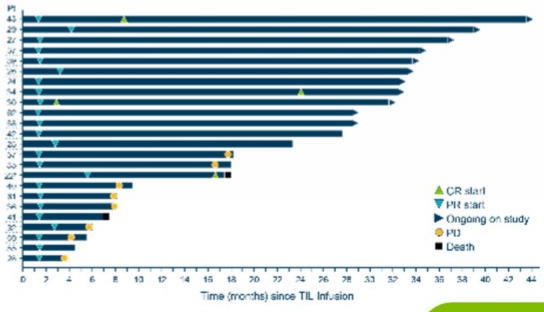
Responses continue to deepen over time:

- 17% of patients had deepening of response
- 1 PR converted to CR 24 months post-lifileucel

Best Overall Response



Time to Response for Evaluable Patients (PR or Better)



1. As assessed by investigator using RECIST 1.1 (data extraction: April 22, 2021). Larkin, et. al. ASCO 2021. Abstract #9505.

Abbreviations: CR, complete response; DOR, duration of response; ORR, objective response rate; PR, partial response; SD, stable disease

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C-144-01 COHORT 2 AND COHORT 4 TOPLINE DATA RELEASE ASSESSED BY IRC USING RECIST 1.1

C-144-01 Primary Analysis Supports Expected Approval

Cohort 4 Met Primary Endpoint: Ruled Out Null Hypothesis of ORR<= 10%

Cohort 4 (N=87[1])

29% ORR (IRC)

10.4 Months
Median DOR

23.5 Months
Median Study Follow-up

Cohort 2+4 (N=153)

31% ORR (IRC)
Median DOR not reached

27.6 Months
Median Study Follow-up

Cohort 2 (N=66[1])

35% ORR (IRC)
Median DOR not reached

36.6 Months
Median Study Follow-up

- **Cohort 2 patients had about half the cumulative duration of prior anti-PD-1 therapy compared to Cohort 4**
- **Lower baseline disease burden in Cohort 2 compared to Cohort 4:**
  - Elevated LDH, a well-known negative prognostic factor, increased to 64.4% of patients in Cohort 4 versus 40.9% in Cohort 2
  - A greater number of tumor lesions at baseline were observed, with 83.9% versus 65.2% of patients with more than three lesions in Cohort 4 versus Cohort 2

1. Full Analysis Set (FAS)
Abbreviations: ORR, objective response rate; DOR, duration of response; PD-1, programmed cell death protein-1; LDH, lactate dehydrogenase; IRC, independent review committee; RECIST, Response Evaluation Criteria in Solid Tumors

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C-144-01 COHORT 4 TOPLINE DATA RELEASE ASSESSED BY IRC USING RECIST 1.1

C-144-01 Cohort 4 Data Highlights: DOR at Data Cutoff

44% of Responders → DOR ≥ **12** mo.

26.3 Months → Longest Ongoing Response

Heavily pre-treated patients – 3 median prior lines of therapy[1]

83% of FAS[2] → Prior anti-CTLA-4

55% of FAS[3] → Prior anti-CTLA-4 in combination with anti-PD-1

1. All patients received prior anti-PD1 therapy; 2. 88% of responders had prior anti-CTLA-4-therapy; 3. 48% of responders had prior anti-CTLA-4 + anti-PD-1 combination therapy
Abbreviations: CTLA-4, cytotoxic T-lymphocyte antigen 4; DOR, duration of response; FAS, Full Analysis Set; IRC, independent review committee; PD-1, programmed cell death protein-1; RECIST, Response Evaluation Criteria in Solid Tumors

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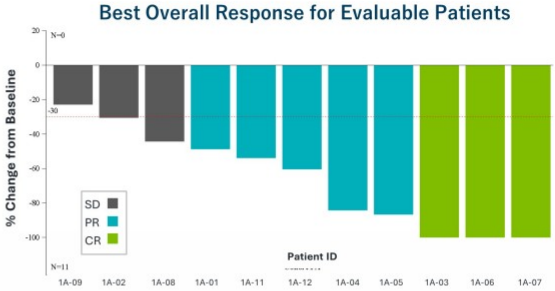
Iovance TIL Clinical Highlights in Combination with Pembrolizumab in Metastatic Melanoma

Lifileucel in combination with anti-PD-1/PD-L1 therapy in ICI-naïve patients
(IOV-COM-202 Cohort 1A, N=12)[1]

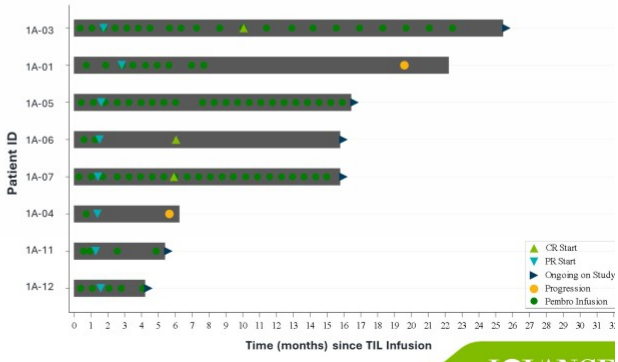
66.7% ORR

- 8 / 12 patients had a confirmed objective response per RECIST 1.1 (3 CRs & 5 PRs)
- 6 / 8 responders had ongoing response at the time of the last data cut
- 5 responders had a duration of response >1 year
- FDA Fast Track Designation

Best Overall Response for Evaluable Patients



Time to Response for Responders[2]



1. As assessed by investigator using RECIST 1.1 (January 20, 2022 data cutoff).
2. Each bar is presented for each patient starting from date of TIL infusion up to date of new anti-cancer therapy, end of assessment, death, or data cutoff date, whichever occurs earlier.
Abbreviations: CR, complete response; ICI, immune checkpoint inhibitor; ORR, objective response rate; PR, partial response; SD, stable disease; pembro, pembrolizumab; RECIST, Response Evaluation Criteria in Solid Tumors

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Potential Market for Non-Small Cell Lung Cancer (NSCLC)

Addressing a Defined Unmet Need in Second Line NSCLC

"The clinical data for LN-145 in heavily treated patients with metastatic non-small cell lung cancer is exciting. It represents the first experience for TIL monotherapy to show clinical benefit in metastatic non-small cell lung cancer."

Adam J. Schoenfeld, MD
Medical Oncologist
Memorial Sloan Kettering Cancer Center

2.2M New cases WW each year[1]

1.8M Deaths WW each year[1]

237k New cases in U.S. each year[2]

130k Deaths in U.S. each year[2]

Available Care:

Checkpoint Inhibitor + Chemo as 1st line option

9-13% ORR for docetaxel in 2nd line NSCLC following progression on chemo[3]

1. Global Cancer Statistics 2020: GLOBOCAN Estimates of Incidence and Mortality Worldwide for 36 Cancers in 185 Countries, CA Cancer J Clin., May 2021
2. https://seer.cancer.gov accessed May 2022
3. Brahmer et al., NEJM 2015; Borghaei et al., NEJM 2015; Herbst et al., Lancet 2016; Rittmeyer et al., Lancet 2017

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IOV-COM-202 COHORT 3B, POST-ANTI-PD-1 NSCLC, MAY 2022

Iovance TIL Clinical Data Highlights in NSCLC

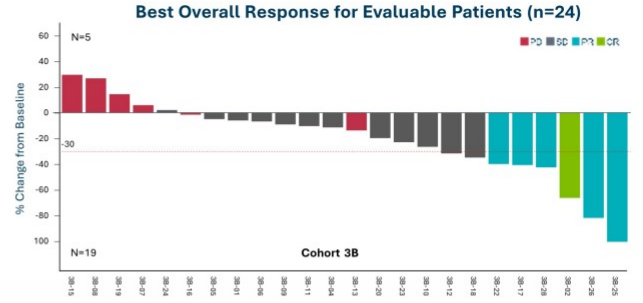
Single-Agent LN-145 Following Progression on Anti-PD-1 Therapy
(IOV-COM-202 Cohort 3B, N=28)[1]

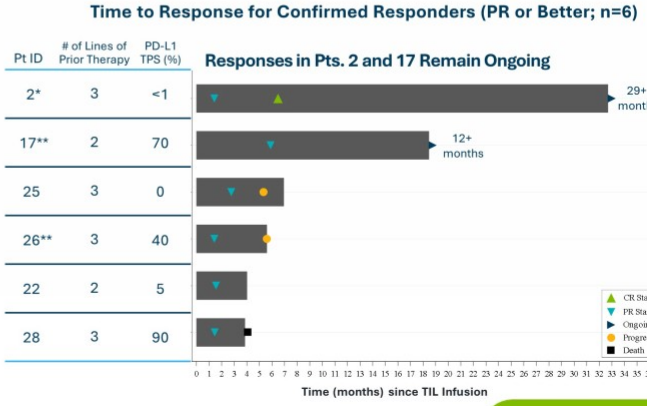
21% ORR **29+** months ongoing CR

Heavily Pre-Treated Patient Population

- All received prior anti-PD-1 / anti-PD-L1 therapy
- 24/28 patients (85.7%), including all responders, received ≥2 prior lines of systemic therapy

Ongoing Responses with Durations of 12+ and 29+ Months





1. As assessed by investigator using RECIST 1.1 (May 10, 2022 data cutoff).
*Patient 2 is reported as a CR based on negative FDG-PET scans by investigator
**Driver oncogenic mutations: Patient 17 (KRAS G12C); Patient 26 (KRAS G12D)
Abbreviations: CR, complete response; ORR, objective response rate; PD, progressive disease; PR, partial response; RECIST, Response Evaluation Criteria in Solid Tumors; SD, stable disease; TIL, tumor infiltrating lymphocytes; nivo, nivolumab

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IOV-LUN-202

Phase 2, Multicenter Study of LN-145 in Patients with Metastatic Non-Small-Cell Lung Cancer, IOV-LUN-202 (NCT04614103)

Unresectable or metastatic, NSCLC with progression on prior CPI + chemotherapy, N=95

Cohort 1: NSCLC
Patients with < 1% or unknown TPS
LN-145
N=40

Cohort 2: NSCLC
Patients with ≥ 1% TPS
LN-145
N= 40

Cohort 3: Core Biopsy and Gen 3*
LN-145
N=15

Cohort 4:
Retreatment

Endpoints

- Primary: Efficacy defined as ORR by IF
- Secondary: Safety and efficacy

Study Updates

- 2Q21: first patients dosed
- 36 sites are active in U.S., Canada, Europe

IOV-LUN-202 (NCT04614103) is designed to enroll patients with NSCLC with an unmet medical need but with fewer prior lines of therapy to maximize the potential for more sustained responses

*Cohort 3 patients unable to undergo surgical harvest, TIL grown from core biopsy
Abbreviations: CPI, checkpoint inhibitor; IRC, independent review committee; ORR, objective response rate; TPS, tumor proportion score

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IOV-4001 First-in-Human Study: IOV-GM1-201

Phase 1/2, Open-label Study of PD-1 Knockout Tumor-infiltrating Lymphocytes (IOV-4001) in Participants With Unresectable or Metastatic Melanoma or Stage III or IV Non-small-cell Lung Cancer (NCT05361174)

Phase 1 / 2 study to investigate the efficacy and safety of an infusion of IOV-4001 in adult participants with unresectable or metastatic melanoma or advanced non-small-cell lung cancer (NSCLC). N=53

Cohort 1: Unresectable or metastatic melanoma
Post-anti-PD-1/L1, post-BRAF/MEK inhibitor in patients with BRAF mutations

Cohort 2: Stage III or IV non-small-cell lung cancer
Post -anti-PD-1/L1 or
Post targeted therapy and either chemotherapy or anti-PD-1/L1

Endpoints

- Phase 1: Safety
- Phase 2: Objective Response Rate (ORR) per RECIST v1.1 as assessed by the investigator
- Secondary endpoints include complete response (CR) rate, duration of response (DOR), disease control rate (DCR), progression free survival (PFS), overall survival (OS), safety and tolerability, feasibility

Study Updates

- 1Q22: Investigational New Drug (IND) Allowance
- 2Q22: site activation and patient recruitment

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BIOTHERAPEU

Potential Market in Advanced Melanoma

Preparing to Launch First-to-Market TIL with No Near-Term Commercial Competition in Advanced Melanoma

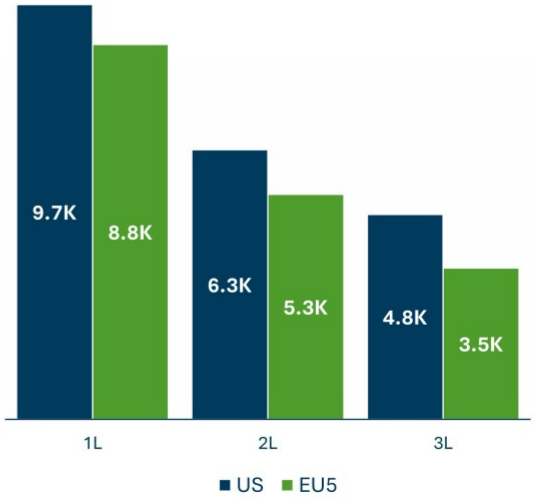
325k Annual new cases worldwide[1]

57k Annual deaths worldwide[1]

100k Annual new cases in U.S.[2]

7.7k Annual deaths in U.S.[2]

Melanoma Drug-Treated Population in 2020 Unresectable / Metastatic (US and EU5)



1. Global Cancer Statistics 2020: GLOBOCAN Estimates of Incidence and Mortality Worldwide for 36 Cancers in 185 Countries, CA Cancer J Clin., May 2021
2. https://seer.cancer.gov accessed May 2022
3. Clarivate DRG Disease Landscape (2021)

Abbreviations: EU5=France, Germany, Italy, Spain and United Kingdom, 1L=first line therapy, 2L=second line therapy, 3L=third line therapy

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Best-in-Class Manufacturing

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*i*CTC Designed for High-Volume TIL Manufacturing and Flexibility

- Core suites: TIL commercial manufacturing
- Flexible suites: clinical supply, pipeline expansion and advanced manufacturing, including IOV-4001 and Gen 3
- Integrated quality control, supply chain and IT systems
- 100+ employees with additional staffing into launch and beyond
- *i*CTC supplemented with external CDMO manufacturing capacity

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Building Capacity to Treat Thousands of Cancer Patients Annually

Phase 1
***i*CTC (Today):**

100s
of patients/year

BLA Prep
in core suites for commercial

4
separate flex suites for clinical

Phase 2
***i*CTC:**

2,000+
patients/year

12
core suites for commercial

4
separate flex suites for clinical

Phase 3
***i*CTC Expansion:[1]**

5,000+
patients/year

24
core suites for commercial

4
separate flex suites for clinical

Phase 4
Additional Site(s):

10,000+
patients/year

***i*CTC**

Adjacent and new sites[2]

Automation

1. Expansion within existing shell
2. Option to build on adjacent parcel

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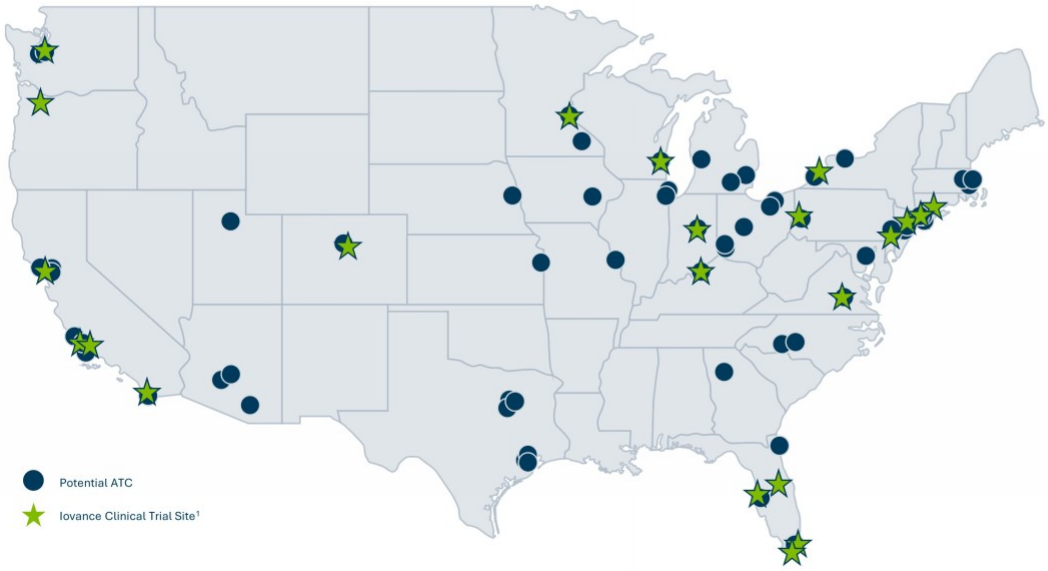
Targeting Potential Authorized Treatment Centers (ATCs)



Targeting Considerations

- Patient volume
- NCCN status, KOLs
- Existing cell therapy / BM
- Iovance clinical trial(s)

Drive Demand

- Top account prioritizatio
- Community referrals

1. ClinicalTrials.gov

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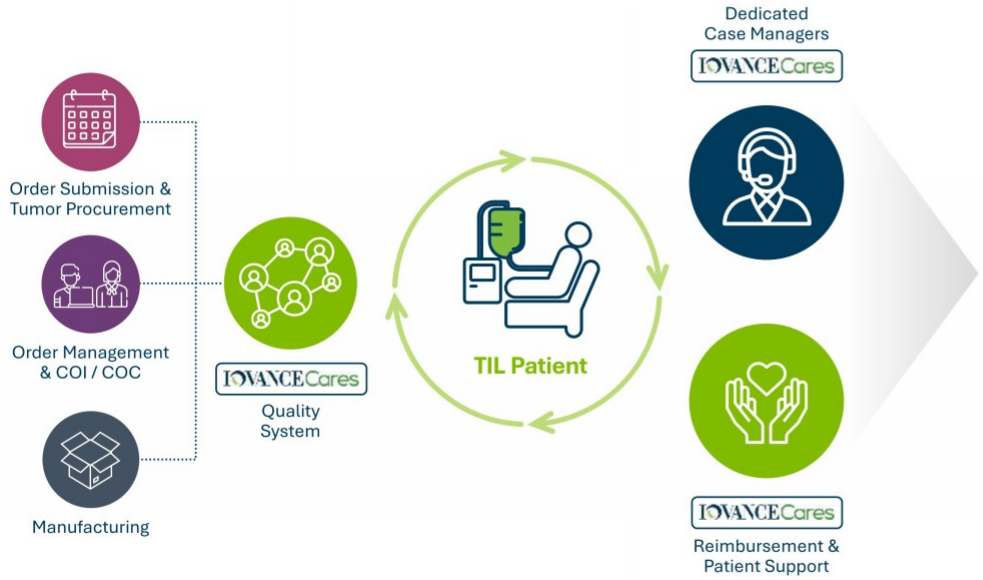
Supporting Providers & Patients: IovanceCares™



Customer-Centric

- Patient management ecosystem
- Proprietary COI/COC
- Treatment center quality prograr

Patient-Centric

- Dedicated case managers
- Reimbursement support
- Patient support

Abbreviations: COI, Chain of Identity; COC, Chain of Custody

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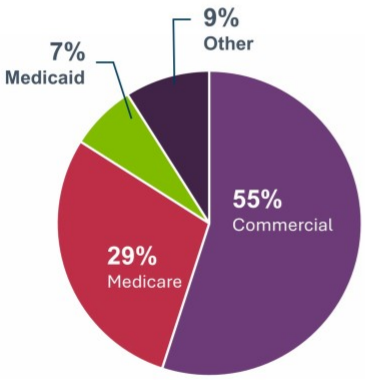
Enabling Market Access

High Unmet Need in Metastatic Melanoma and Clinical Value of Lifileucel

Metastatic Melanoma Payer Mix[1]

All Treatment Settings and Lines of Therapy



Payer Engagement

- Unmet need
- Clinical data
- Educational presentations and tools

Coding, Coverage and Payment

- ICD-10 PCS codes issued
- Medicare expanded DRG-018 to other immunotherapies, including lifileucel, in IPPS FY 2022 final rule

1. Metastatic Melanoma Insurance Claims Analysis, TIL-eligible patients treated in the ATC setting (1/1/2018 – 6/30/2021)

Abbreviations: ICD-10 PCS=International Classification of Diseases, 10th Revision, Procedure Coding System; IPPS=In-patient Prospective Payment System

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Research Pipeline

IOVANCE BIOTHERAPEUTICS

What's Next

Genetically modify TIL	Develop more potent TIL	Optimize process	Expand TIL into ne regimens
Cellectis gene-editing TALEN® collaboration[1,2] PD-1 and other immune checkpoint targets	PD-1+ selected TIL CD39/69 double negative TILs[3]	Gen 3 (16-day) process (COM-202) Core biopsy (LUN-202 study)	IOV-3001 IL-2 analo licensed from Novartis: IND enabling studies in 2022

1. Ritthipichai et al., ESMO 2020
2. Natarajan, et al., AACR 2022
3. Cubas et al., ESMO IO 2021

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Advancing Genetically-Modified TIL Toward the Clinic

PD-1 Inactivated TIL (IOV-4001) Clinical Study Underway

- Additional immune checkpoint targets, including double inactivation
- Cytokine tethered TILs
- Additional transient and stable gene insertion and inactivation

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Financial Summary & Milestones

Well-Capitalized in Pursuit of TIL Commercialization

June 30, 2022	In millions (unaudited)
Common shares outstanding	157.8
Preferred shares outstanding	2.9[1]
Stock options and restricted stock units outstanding	17.2
Cash, cash equivalents, investments, restricted cash	$430.9[2]
Anticipated cash runway sufficient into 2024	

1. Preferred shares are shown on an as-converted basis
2. Includes Restricted Cash of $6.4 million as of June 30, 2022

2021 Accomplishments

REGULATORY

- BLA: FDA feedback received for potency assays; additional assay data submission & interactions 2H21

PIPELINE

- Melanoma and Cervical: TIL + pembrolizumab data at ASCO and SITC 2021
- Cervical: last patient dosed in Cohort 2, potential to include in BLA
- NSCLC: initial LN-145 clinical data (Cohort 3B); patient dosing in IOV-LUN-202
- HNSCC: expanding TIL + pembrolizumab
- NSCLC: LN-145 clinical data at SITC 2021 (Cohort 3B)

MANUFACTURING

- Melanoma and NSCLC: 16-day Gen 3 process in clinic
- Completion of Navy Yard GMP facility (*i*CTC); start clinical manufacturing at *i*CTC

Anticipated 2022 Milestones

- BLA: Commence rolling BLA submission in August 2022
- BLA: Complete rolling BLA submission in Q4 2022
- Melanoma: Cohort 4 data
- NSCLC: enroll IOV-LUN-202 study, execute strategy based or FDA feedback
- Cervical: execute strategy based on FDA feedback for BLA
- TIL + pembrolizumab: continue ongoing cohorts and open a Phase 3 study in frontline metastatic melanoma in late 2022
- Genetically-modified TIL: initiate clinical study of IOV-4001
- Research pipeline: advance new TIL products towards the cl
- Continue GMP commercial readiness activities

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Investment Highlights

Pioneering a Transformational Approach to Cure Cancer

Large market opportunity & strong unmet need

- Initial focus in post-checkpoint solid tumors
- Expansion into combinations and earlier lines of therapy
- Company-sponsored trials in melanoma, cervical, head & neck, NSCLC, and chronic lymphocytic leukemia (CLL)

Potential to be first one-time cell therapy approved for solid tumors

- Accelerated path to approval in melanoma and cervical cancer
- Rolling BLA submission commenced in August 2022
- Melanoma: RMAT, Orphan Drug, and Fast Track
- Cervical cancer: BTD, Orphan Drug, and Fast Track

Efficient & scalable proprietary manufacturing

- Iovance Cell Therapy Center (*i*CTC) in-house manufacturing
- Additional capacity with contract manufacturers
- Rapid 22-day Gen 2 manufacturing with 90%+ success rate
- >500 patients treated with Iovance proprietary process

Infrastructure for commercial success

- Fully integrated
- Experienced cross-functional cell therapy team
- Partnering with leading U Cancer Centers to develo TIL service-line capabiliti
- IovanceCares™ proprietary platform

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