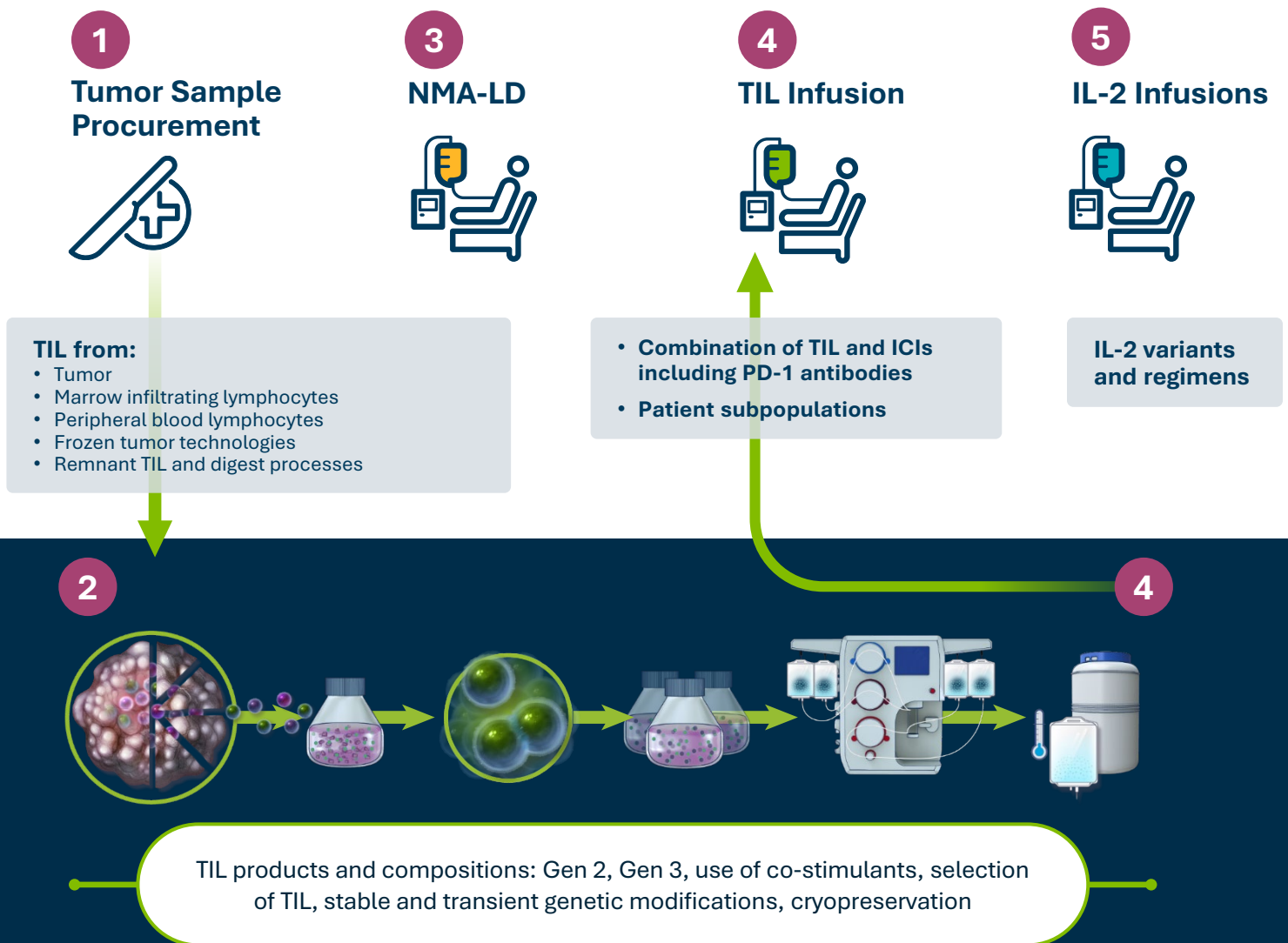


# Iovance IP Leadership Within T-cell Based Immunotherapy

## Iovance IP Portfolio Summary:

- >50 granted or allowed US and international patents
- Compositions of matter for TIL products
- Methods of treatment in a broad range of cancers
- Manufacturing processes
- >700 patents and applications worldwide, including major pharmaceutical markets

We established our leadership within T cell-based immunotherapy by building and augmenting the patent rights for our proprietary tumor infiltrating lymphocyte (TIL) technology platform—developed internally and licensed from third parties.



# Broad, Iovance-Owned IP Around TIL Therapy



Iovance owns more than 50 U.S. patents related to TIL therapy, including patents directed to compositions and methods of treatment in a broad range of cancers, such as U.S. Patent Nos. 10,130,659; 10,166,257; 10,272,113; 10,363,273; 10,398,734; 10,420,799; 10,463,697; 10,517,894; 10,537,595; 10,639,330; 10,646,517; 10,653,723; 10,695,372; 10,894,063; 10,905,718; 10,918,666; 10,925,900; 10,933,094; 10,946,044; 10,946,045; 10,953,046; 10,953,047; 11,007,225; 11,007,226; 11,013,770; 11,026,974; 11,040,070; 11,052,115; 11,052,116; 11,058,728; 11,083,752; 11,123,371; 11,141,438; 11,168,303; 11,168,304; 11,179,419; 11,202,803; 11,202,804; 11,220,670; 11,241,456; 11,254,913; 11,266,694; 11,273,180; 11,273,181; 11,291,687; 11,304,979; 11,304,980; 11,311,578; 11,337,998; 11,344,579; 11,344,580; 11,344,581; 11,351,197; 11,351,198; 11,351,199; 11,364,266; 11,369,637; and 11,384,337.

Iovance also owns U.S. patents covering methods of manufacturing TIL and TIL manufactured from a tumor digest and the use thereof, such as U.S. Patent Nos. 11,007,225; 11,007,226; 11,052,115; 11,052,116; 11,058,728; 11,083,752; 11,123,371; 11,141,438; 11,179,419; 11,202,803; 11,202,804; 11,241,456; 11,254,913; 11,266,694; 11,273,180; 11,273,181; 11,291,687; 11,304,979; 11,337,998; 11,344,579; and others. U.S. Patent No. 11,058,728 specifically covers a method of treatment using expanded TILs manufactured from a tumor digest where the expansion steps through the step of cryopreservation of the infusion bag having a harvested TIL population are performed within about 24 days. U.S. Patent No. 11,123,371 specifically covers a cryopreserved TIL composition comprising expanded TILs manufactured from a cryopreserved tumor digest where the expansion steps through the step of cryopreservation of the infusion bag having a harvested TIL population are performed within about 24 days. U.S. Patent No. 11,141,438 specifically covers an expanded population of TILs manufactured from a cryopreserved tumor digest where the expansion steps through the harvest step are performed within about 24 days. U.S. Patent No. 11,179,419 specifically covers a method for expanding TILs from a cryopreserved tumor digest where the expansion steps through the step of cryopreservation of the infusion bag having a harvested TIL population are performed within about 24 days.

Iovance holds an exclusive license from NIH of certain rights under U.S. Patent Nos. 11,077,182; 11,331,385; 11,338,032; and 11,376,318; covering TILs manufactured from T-cells expanded from HPV+ tumor fragments and methods of treating HPV+ cancers in a patient with TILs manufactured from T-cells expanded from HPV+ tumor fragments obtained from the patient.

Furthermore, Iovance owns U.S. patents covering the use of the combination of TIL therapy and an anti-PD-1 antibody, such as U.S. Patent No. 10,272,113, or an anti-PD-L1 antibody, such as U.S. Patent No. 11,013,770.

## Iovance's patent portfolio also includes patents and patent applications relating to:

- Frozen tumor-based TIL technologies
- Remnant TIL and digest TIL compositions and methods
- Use of co-stimulatory and T cell modulating molecules in TIL therapy and manufacturing
- Stable and transient genetically-modified TIL therapies
- Methods of using immune checkpoint inhibitors in combination with TIL therapies
- TIL selection technologies
- Methods of treating patient subpopulations

## U.S. Patent/Application Information for Iovance Clinical Products:

	Pursued Indication*	Composition of Matter	Method of Use	Method of Manufacturing	
<b>Lifileucel (TIL)</b>	Patients with metastatic melanoma or cervical cancer	US 10,894,063; US 10,398,734; US 10,537,595; US 10,695,372; US 10,653,723; US 11,337,998; US 11,344,579	US 10,166,257; US 10,130,659; US 10,272,113; US 10,463,697; US 10,363,273; US 10,646,517; US 10,905,718; US 11,202,803; US 11,241,456;	US 10,953,046; US 10,946,044; US 10,953,047; US 10,933,094; US 10,946,045; US 10,925,900; US 11,013,770; US 11,202,804; US 11,273,181	US 10,420,799; US 10,639,330; US 10,918,666; US 11,273,180; US 11,291,687; US 11,304,979
<b>Lifileucel or tumor digest TIL</b>	Same as above	US 11,337,998; US 11,344,579	US 11,202,803; US 11,202,804; US 11,241,456; US 11,273,181	US 11,273,180; US 11,291,687; US 11,304,979	
<b>LN-145 (TIL)</b>	Patients with metastatic melanoma, HNSCC, or NSCLC	US 10,894,063; US 10,398,734; US 10,537,595; US 10,695,372; US 10,653,723; US 11,337,998; US 11,344,579	US 10,166,257; US 10,130,659; US 10,272,113; US 10,463,697; US 10,363,273; US 10,646,517; US 10,905,718; US 10,953,046; US 10,946,044; US 10,953,047;	US 10,933,094; US 10,946,045; US 10,925,900 US 11,013,770; US 11,202,803; US 11,202,804; US 11,241,456; US 11,273,181	US 10,420,799; US 10,639,330; US 10,918,666; US 11,291,687; US 11,304,979
<b>Gen 3 TIL</b>	Same as above	US 10,894,063; US 10,398,734; US 10,537,595; US 10,695,372; US 10,653,723; US 11,337,998; US 11,344,579	US 10,166,257; US 10,130,659; US 10,272,113; US 10,463,697; US 10,363,273; US 10,646,517; US 10,905,718; US 11,202,803; US 11,241,456;	US 10,953,046; US 10,946,044; US 10,272,113; US 10,933,094; US 10,946,045; US 10,925,900; US 11,013,770; US 11,202,804; US 11,273,181	US 10,420,799; US 10,639,330; US 10,918,666; US 11,168,304; US 11,273,180; US 11,291,687; US 11,304,979
<b>IOV-2001 (PBL)</b>	Patients with CLL or SLL	WO 2020/180733 A1; US 2020/0224161 A1; US 2020/0347350 A1	WO 2020/180733 A1; US 2020/0224161 A1; US 2020/0347350 A1	WO 2020/180733 A1; US 2020/0224161 A1; US 2020/0347350 A1	
<b>IOV-4001 (PD1 KO TIL)</b>	Patients with metastatic melanoma or NSCLC			US 11,384,337	

\*Subject to FDA approval.

Abbreviations: CLL, chronic lymphocytic leukemia; HNSCC, head and neck squamous cell carcinoma; NSCLC, non-small-cell lung cancer; SLL, small lymphocytic leukemia; TIL, tumor infiltrating lymphocytes.