and stool were analyzed at baseline (pre-FMT), before immunotherapy, and three weeks after it.

Results Patient 1 was diagnosed with recurrent melanoma of the lower limb with multiple in-transit lesions refractory to control with surgery and a single intralesional injection of IL-2. Patient received stool from Donor 1 and did not experience any adverse effects from FMT. At the time of treatment #4, a solitary large cutaneous lesion stabilized but the patient experienced grade 1 diarrhoea, grade 2 nausea, and grade 2 fatigue, and grade 2 depression (NCI-CTCAE v5.0). Patient 2 was diagnosed with recurrent melanoma of the parotid gland with metastatic lesions in the lungs. Patient 2 received stool from Donor 2 and experienced only grade 1 flatus from FMT. At the time of treatment #3, the patient experienced grade 1 constipation. Both patients had a vigorous immune response to FMT measured by changes in the immune subpopulations in peripheral blood one week after FMT, including an increase in CD28+ CD8+ T cells and a decrease in PDL1 + CD3- cells. Following anti-PD1 therapy, both patients had an increase in CD39+ CD8+ T cell population. The PD1+ CD38+ CD8+ dysfunctional T cell levels decreased in both patients post-FMT and anti-PD1 therapy.

Conclusions FMT combined with anti-PD1 therapy in patients with advanced melanoma appears to be safe. A measurable immune response was observed one week after FMT in both patients. One patient experienced several grade 2 toxicities with stabilization of a large cutaneous lesion.

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Trial Registration NCT03772899

Ethics Approval The study was approved by Western University Institutution's Ethics Board, approval number 113131, date of approval March 15, 2019.

P865 SAFETY & EFFICACY OF LIFILEUCEL (LN-144) TUMOR INFILTRATING LYMPHOCYTE THERAPY IN METASTATIC MELANOMA PATIENTS AFTER PROGRESSION ON MULTIPLE THERAPIES – INDEPENDENT REVIEW COMMITTEE DATA UPDATE

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Background Treatment options are limited for patients with advanced melanoma who have progressed on checkpoint inhibitors and targeted therapies such as BRAF/MEK inhibitors (if BRAF-V600E mutated). Adoptive cell therapy utilizing tumor-infiltrating lymphocytes (TIL) has shown antitumor efficacy with durable responses in heavily pretreated melanoma patients. Safety and efficacy of lifileucel, a centrally manufactured cryopreserved autologous TIL therapy assessed by both investigator and an independent review committee (IRC), are presented.

Methods C-144-01 is a global Phase 2 open-label, multicenter study of the safety and efficacy of lifileucel in patients with unresectable metastatic melanoma. We report on Cohort 2 (N = 66) patients with Stage IIIC/IV unresectable melanoma who received lifileucel. Tumors resected at local institutions were processed in central GMP facilities for TIL production in a 22-day process. Final TIL infusion product was cryopreserved and shipped to sites. Patients received one week of cyclophosphamide/fludarabine preconditioning lymphodepletion, a single lifileucel infusion, followed by up to 6 doses of IL-2. All responses were assessed by RECIST 1.1.

Results 66 patients had the following baseline characteristics: 3.3 mean prior therapies (anti-PD1 100%; anti-CTLA-4 80%; BRAF/MEK inhibitor 23%), relatively high tumor burden (106 mm mean target lesion sum of diameters), 44% with liver and/or brain lesions, median LDH 244 U/L. Objective Response Rate (ORR) by investigator was 36.4% (2 CR, 22 PR, 1 previously confirmed PR is now changed to SD) and Disease Control Rate (DCR) of 80.3%. At a median follow up of 9.7 months, median Duration of Response (DOR) has not been reached. The adverse event profile was generally consistent with the underlying advanced disease and the profile of the lymphodepletion and IL-2 regimens.

The ORR per IRC was 34.8% (2 CR, 21 PR) and DCR was 72.7%. At a median follow up of 6.9 months, the median IRC DOR has not been reached. Overall concordance rate of investigator and IRC read of response was 89.4%. The concordance compares favorably with literature reports in a metastatic disease.[1]

Conclusions Lifileucel treatment resulted in a 36.4% ORR in heavily pretreated metastatic melanoma patients with high baseline disease burden who had received prior anti-PD1 and BRAF/MEK inhibitors, if tumor BRAF mutated. The high concordance of 89.4% between investigator and IRC confirms the original assessment of lifileucel efficacy in metastatic melanoma.[2]

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Trial Registration ClinicalTrials. gov Identifier: NCT02360579

Ethics Approval Ethics Approval This trial was approved by Western Institutional Review Board - IRB Tracking Number: 20160198.

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