Background Despite the benefits of immune checkpoint inhibitors (ICIs) in solid tumors, additional treatment options are needed for patients with primary or acquired resistance.\textsuperscript{3} TILs are present in various solid tumors, and TIL therapy has demonstrated efficacy and durable responses in some advanced solid tumors due to its antitumor reactivity and broad T-cell repertoire.\textsuperscript{2,4} Additionally, preclinical data suggest ICIs may further support the persistence of TILs in immunogenic tumors.\textsuperscript{5} Here, we describe a study that will explore the safety, feasibility, and preliminary efficacy of an autologous TIL therapy, ITIL-168, in combination with pembrolizumab in patients with cervical cancer (CC), head and neck squamous-cell carcinoma (HNSCC), or non-small cell lung cancer (NSCLC).

Methods DELTA-2 (NCT05393635) is an ongoing phase 1, multicenter, multicohort, open-label trial evaluating ITIL-168 with pembrolizumab in previously treated patients with advanced solid tumors. Patients will be enrolled in 1 of 3 cohorts (n=9–15 patients per cohort): advanced CC (Cohort 1), HNSCC (Cohort 2), or NSCLC (Cohort 3). Eligible patients must have progressed during or following ≥1 prior line of chemotherapy along with an ICI. EGFR mutations or ALK translocations in NSCLC are included in Cohort 3, and patients are required to have progressed on targetted therapy but not ICI. Eligibility criteria across all cohorts include ECOG PS ≤1, adequate organ function, resectable tumor lesion(s), and ≥1 remaining measurable lesion per RECIST v1.1 post-tumor resection. Bridging therapy is allowed but must be discontinued at least 2 weeks or 5 half-lives before baseline imaging. Patients with prior cell therapy treatment, symptomatic and/or untreated central nervous system metastases, or requiring chronic steroids are ineligible. Treatment will include lymphodepleting chemotherapy (the dosage of cyclophosphamide and fludarabine will be adjusted based on cohort and patient comorbidities) followed by a single infusion of ITIL-168 and up to 8 doses of high-dose IL-2 (figure 1). Patients will receive pembrolizumab at baseline before ITIL-168 infusion, day 21 postinfusion, and then every 6 weeks for ≤48 weeks or until disease progression or intolerable toxicity. An interim and a primary analysis for each cohort will be conducted. The primary endpoint is the frequency and severity of ITIL-168 treatment-emergent adverse events (AEs) per Common Terminology Criteria for AEs version 5.0. Secondary endpoints include manufacturing success rate, objective response rate per modified RECIST v1.1, duration of response, progression-free survival, and overall survival. The study opened in July 2022 and is currently recruiting patients.

Acknowledgements Medical writing support was provided by Christopher Waldapfel, PharmD, of Instil Bio, Inc. and Lauryn Samelko, PhD, and Phylicia Aaron, PhD, of Nexus Global Group Science, with funding from Instil Bio, Inc.