endpoints included disease control rate (DCR), progression-free survival (PFS) and safety.

**Results** Between Aug 5, 2019, and Jun 19, 2020, we enrolled 29 patients, 25 patients were available evaluated, ORR and DCR was 36% (9/25) and 92% (23/25), respectively. 25 of 29 patients were still receiving the treatment, the median PFS was not yet achieved. Compared with those without reactive cutaneous capillary endothelial proliferation (RCCEP), patients with RCCEP had higher ORR (60% vs. 28.6%). Treatment-related adverse events (AEs) occurred in 69.0% of patients (all Grade), and the most common were RCCEP (37.9%), pneumonitis (6.9%), and chest congestion (6.9%). Treatment-related grade 3 to 4 adverse events occurred in 10.3% of patients.

**Conclusions** In patients with previously treated advanced NSCLC, camrelizumab demonstrated improved ORR and DCR, compared with historical data of the 2nd line chemotherapy, with a manageable safety profile. While patients with RCCEP derived greater benefit from camrelizumab. Further studies are needed in large sample size trials.

http://dx.doi.org/10.1136/jitc-2020-SITC2020.0440

---

**441**

OUTCOMES OF PATIENTS WITH METASTATIC RENAL CELL CARCINOMA WITH INTERMEDIATE- OR POOR-RISK SYMPTOMATIC DISEASE WHO RECEIVED THEIR FIRST CYCLE OF NIVOLUMAB AND IPILIMUMAB WHILE BEING HOSPITALIZED

Omar Alhalabi*, Elshad Hasanov, John Araujo, Jianbo Wang, Matthew Campbell, Sangita Gospawmi, Amishi Shah, Jianjun Gao, Pavlos Msaouel, Nizar Tannir. U.T. MD Anderson Cancer Center, Houston, TX, USA

**Background** Nivolumab plus ipilimumab (nivo/ipi) is an approved therapy for patients with metastatic renal cell carcinoma (mRCC) who have intermediate- or poor-risk disease. Clinical factors that guide the selection of this regimen for patients with mRCC are urgently needed.

**Methods** We retrospectively analyzed medical records of patients with mRCC who were hospitalized because of cancer-related symptoms and received their first cycle of nivo/ipi in the inpatient setting. Clinical parameters including demographics, histology, clinical history, response and survival were collected. The 4-month survival probability, progression-free survival (PFS) and overall survival (OS) were calculated using Kaplan-Meier methods.

**Results** Between November 2017 and June 2020, 21 patients were identified that fit the search: 19 patients (91%) had poor-risk disease based on the International metastatic Renal Cell Carcinoma Database Consortium (IMDC) risk score; 17 patients (81%) had ≥4 risk factors; 9 patients (43%) had sarcomatoid features on histology. Shortness of breath (28%) and abdominal pain (19%) were the two most common reasons for hospitalization. Partial response was achieved in 14% (3/21) of patients. Median PFS for all patients was 1.7 months (95% CI 0 - 3.9); median OS for all patients was 1.7 months (95% CI 0 – 4.2); the 4-month survival probability was 36% (95% CI 25% - 47%) (figure 1).

**Conclusions** In this retrospective study, patients with mRCC who have intermediate- or poor-risk disease and are hospitalized for cancer-related symptoms derive little clinical benefit from nivo/ipi when started in the inpatient setting. Alternative more effective systemic therapies should be considered for these patients.

http://dx.doi.org/10.1136/jitc-2020-SITC2020.0441

---

**442**

ICT01, AN ANTI-BTN3A MAB THAT ACTIVATES VG9VD2 T CELLS, PLUS INTERLEUKIN-2: A POTENT AND PROMISING COMBINATION FOR CANCER IMMUNOTHERAPY

Aude de Gassart*, Patrick Brune, LE Suong, Sophie Agaugué, Emmanuel Valentín, Jennifer Sims, Daniel Olive, Paul Frohna, Rene Hoet. Imcheck Therapeutics, Marseille, France; Integrated Biologics GmbH, Basel, Switzerland; CRCM, Marseille, France

**Background** gdT-cells are attractive targets for cancer immunotherapy given their strong cytolytic and pro-inflammatory
cytokine secretion activities, and the association between tumor infiltration and positive prognosis. 2 ImCheck Therapeutics is developing ICT01, an anti-human butyrophilin-3A (BTN3A/CD277) mAb specifically activating g9d2 T-cells in a phosphoantigen (pAg)-independent manner. ICT01 is currently in a Phase 1/2a study in solid and hematologic tumors (NCT04243499). IL-2 has been shown to expand g9d2 T-cells in vitro and in non-human primates in presence of pAg. 3, 4, 5 We wanted to characterize the proliferative effects of combining ICT01 with IL-2 on g9d2 T-cells as an approach to potentiate g9d2 T-cell mediated cancer immunotherapy. Methods g9d2 T-cell activation and expansion was assessed in vitro in human PBMCs treated with ICT01+IL-2, and in vivo, in the blood of immunocompromised NCG mice engrafted with 20 × 10^6 human PBMCs and treated with ICT01 (single IV dose, 5 mg/kg on Day 1) ±IL-2 (0.3MIU/kg IP on Day 1–4). A dose-ranging ICT01 (single IV dose, 1 or 5 mg/kg on Day 1)+IL-2 combination (1 MIU SC QD on Days 1–5) study was conducted in cynomolgus monkeys. Results In PBMCs cultures in vitro, ICT01 selectively activated g9d2 T-cells and IL-2 significantly enhanced ICT01-mediated g9d2 T-cell proliferation, this compartment reaching >50% of T-cells after 8 days of treatment versus ~10% with ICT01 alone. This was confirmed in vivo in mice models. Flow cytometry analysis of mice blood revealed a 5.5-fold increase in human g9d2 T-cell number in the combination groups compared to ICT01 or IL-2 alone treated animals, with g9d2 T-cell frequency reaching ~35% of the CD3+ T-cell compartment. In Cynomolgus, a specific expansion and activation of peripheral g9d2 T-cells from ~1–2% at baseline to up to 30% of T cells 7 days post ICT01 administration was observed. No ICT01 effect was observed on other immune cells. Histopathological examinations revealed a trend towards higher numbers of g9d2 T-cells in several organs in ICT01+IL-2 treated monkeys. There was no evidence for a systemic cytokine release syndrome at any time point. Adverse effects with variable severity were observed, most of them being reversible and commonly associated with IL-2 alone, and not reported in the IND-enabling GLP toxicity study with ICT01 monotherapy at doses up to 100 mg/kg. Conclusions These results demonstrate the ability of ICT01 +IL-2 combination to trigger profound g9d2 T-cell activation and expansion, suggesting that the clinical combination of ICT01 with a lymphoproliferative cytokine (e.g., IL-2) may be a novel therapeutic approach for cancer patients. Ethics Approval Pseudonymized samples isolated from healthy volunteers: whole blood by ImCheck Therapeutics under the agreement n° 7173 between ImCheck Therapeutic SAS and EFS PACA (Etablissement Français du Sang Provence-Alpes cote d’Azur) REFERENCES 1. Gentles AJ, Newman AM, Liu CL, et al. The prognostic landscape of genes and infiltrating immune cells across human cancers. Nature Medicine 2015; 21(8):938–945. 2. Tosolini M, Pont F, Poupart M, et al. Assessment of tumor-infiltrating TCRVγ9Vδ2 γδ lymphocyte abundance by deconvolution of human cancer microarrays. Oncolmmunology 2017; 8(6):e1284723. 3. Nada MH, Wang H, Workalemahu G, Tanaka Y, Morita CT. Enhancing adoptive cancer immunotherapy with Vγ9Vδ2 T cells through pulse zoldebrolate stimulation. Journal for ImmunoTherapy of Cancer 2017; 5(1):9. 4. Sicard H, Ingoure S, Luciani B, et al. In Vivo Immunomanipulation of Vγ9Vδ2 T cells with a synthetic phosphoantigen in a preclinical nonhuman primate model. The Journal of Immunology 2005; 175(8):5471–5480. 5. Ali Z, Shao L, Halliday L, et al. Prolonged (E)-4-Hydroxy-3-Methyl-But-2-Enyl pyrophosphate-driven antimicrobial and cytotoxic responses of pulmonary and systemic Vγ9Vδ2 T cells in macaques. The Journal of Immunology 2007; 179(12):8287–8296. http://dx.doi.org/10.1136/jitc-2020-SITC2020.0442 443 AN IMMUNOTHERAPY TRIO IN ADVANCED HNSCC FOR COORDINATED B AND T CELL ANTIGEN RESPONSE 1Bernard Fox, 1Farsem Moudgil, 2Traci Hilton, 1Noriko Iwamoto, 2Christopher Paustian, 4Adi Mehta, 2Fridtjof Lund-Johansen, 1Rachel Sanborn, 2Byran Bell, 1Madeleine Laws, 1Glenna McDonnell, 1Yoshinobu Koguchi, 1Carlo Bifulco, 1Brian Plieninger, 2Carmen Ballesteros Merino, 1Shawn Jensen, 3Takashi Shimada, 1Hong-Ming Hu, 1Walter Urba, 1Rom Leidner, 1Marcus Couey, 1Marcus Couey*. 1Earle A. Chiles Research Institute, Prov, Portland, OR, USA; 2UbiVac, Portland, OR, USA; 3Shimadzu Scientific Instruments, Bothell, WA, USA; 4Oslo University Hospital Rikshospitalet, Oslo, Norway Background Outcomes for recurrent or metastatic (R/M) head and neck squamous cell carcinoma (HNSCC) are dismal and responses to anti-PD-1 appear best in tumors with PD-1+ T cells in proximity to PD-L1+ cells, arguing that improved outcome is associated with a pre-existing anti-cancer immune response. Based on this, we hypothesize that vaccines which prime and/or expand T cells to a spectrum of antigens overexpressed by HNSCC combined with T cell agonists, like anti-GITR, that provide costimulatory signals will improve the anti-PD-1 response rates. We have developed a cancer vaccine, DPV-001, that contains more than 300 proteins for genes overexpressed by HNSCC, encapsulated in a CLEC9A-targeted microvesicle and containing TLR/NOD agonists and DAMPs. Recently, we reported that combining anti-GITR + vaccine + anti-PD-1 augmented therapeutic efficacy in a preclinical model and now plan a phase 1b trial of this combination in patients with advanced HNSCC. Methods Sera from patients receiving DPV-001 as adjuvant therapy for definitively treated NSCLC, were analyzed for IgG responses to human proteins by MAP bead arrays and results compared to TCGA gene expression data sets for HNSCC. HNSCC cell lines were evaluated by RNAseq and peptides were eluted from HLA, analyzed by mass spectroscopy and correlated against MAP bead arrays and TCGA data sets. Tumor-reactive T cells from a vaccinated patient were enriched and expanded, and used in cytokine release assay (CRA) against autologous NSCLC and partially HLA matched allogeneic HNSCC cell lines. Results Patients receiving DPV-001 (N=13) made 147 IgG responses to at least 70 proteins for genes overexpressed by HNSCC. Preliminary evaluation of the HNSCC peptidome against the results of MAP bead array identify antigens that are target of a humoral immune response. Additionally, tumor-reactive T cells from a vaccinated patient were enriched and expanded, and used in cytokine release assay (CRA) against autologous NSCLC and partially HLA matched allogeneic HNSCC cell lines. Results Patients receiving DPV-001 (N=13) made 147 IgG responses to at least 70 proteins for genes overexpressed by HNSCC. Preliminary evaluation of the HNSCC peptidome against the results of MAP bead array identify antigens that are target of a humoral immune response. Additionally, tumor-reactive T cells from a vaccinated patient recognize two partially HLA-matched HNSCC targets, but not a mismatched target. Conclusions Recent observations from our lab and others have correlated IgG Ab responses with T cell responses to epitopes of the same protein. Based on the data summarized above, we hypothesize that we have induced T cell responses against a broad spectrum of shared cancer antigens that are common among adenocarcinomas and squamous cell cancers. Our planned clinical trial will vaccinate and boost the induced responses by costimulation with anti-GITR and then sequence in delayed anti-PD-1 to relieve checkpoint inhibition. MAP