both groups with the *SMARCA4* possibly indicating a significant number of CUP cases were actually TTF-1 IHC negative NSCLC.

Conclusions: *STK11*mut and *KEAP1*mut occur predominantly in NSCLC with *SK11*mut more frequent in *KEAP1*mut cases than vice versa. *STK11*mut and *KEAP1*mut tumors are similar in disease type, age, gender, alteration types, frequencies of co-alterations with *KRAS*, *TP53*, *CDKN2A/B*, *SMARCA4* and numerous other genes. In addition, *STK11*mut and *KEAP1*mut tumors feature biomarkers predictive of ICPI benefit despite the likelihood of resistance and a paucity of targeted therapy opportunities.

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108P Pembrolizumab in pre-treated advanced non-small cell lung cancer (NSCLC) patients (pts): Impact of blood-based biomarkers on survival outcomes

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Background: The Lung Immune Prognostic Index (LIPI) utilises derived neutrophil-lymphocyte ratio (dNLR) and LDH to define prognostic subgroups associated with overall survival (OS) and overall response rate (ORR) to immune-checkpoint inhibitors (Mezquita L et al, JAMA Oncol 2018).

Methods: Pre-treated advanced NSCLC pts who received Pembrolizumab (P) at The Christie (Jan '17-July '19) were identified. Baseline demographics, PD-L1 tumour proportion score (TPS), and LIPI score were collected. We assessed progression free survival (PFS) and OS using Kaplan-Meier method and performed a comparative analysis of LIPI score and PD-L1 TPS on survival.

Results: 111 consecutive pts were analysed (Table shows baseline demographics). After a median follow up of 11.2 months, 77.5% of pts progressed. ORR was 26.1%. Median PFS and OS were 4 (1.6-6.4) and 13 (10.2-15.8) months (mos), respectively. OS was 10 vs 19 mos (HR 0.50, 95%CI 0.3-0.8; p=0.006) for TPS 1-49% and ≥50%, respectively. OS for good vs intermediate vs poor LIPI score was 14, 11 and 3 mos (HR 1.5, 95% CI 1.1-2.3; p=0.018), respectively. 36.9% of pts experienced immune related adverse events (irAEs), 10.8% being grade 3-5. Toxicity-related discontinuation rate was 14.4%. LIPI score and high TPS remained prognostic factors in a multivariate model including ECOG, smoking status and irAEs. 40% of pts received ≤ 4 cycles, mostly due to early disease progression (EDP). Pts with EDP had shorter OS (4 vs 19 mos, P<0.005). Next generation sequencing analysis for this subgroup is ongoing.

Table: 108P

Demographics	*n* (%)
Age, mean	65
≥ 75	20 (18.0%)
Sex (male)	66 (59.5%)
ECOG	
0-1	108 (97.3)
2	3 (2.7)
Smoking history	
Current/Former	103 (92.8)
Never	8 (7.2)
Histology	
Adenocarcinoma	70 (63.1)
Squamous	34 (31.5)
Other/NOS	6 (5.4)
Molecular profile	
EGFR	2 (1.8)
ALK/ ROS1	0 (0)
KRAS	6 (5.4)
Biopsy sample for PD-L1	
Archival	76 (68.5)
Fresh	35 (31.5)
PD-L1 TPS	
1-49%	62 (55.9)
≥ 50%	49 (44.1)
Previous lines of treatment	
1	99 (89.2)
≥2	12 (10.8)
Stage at P initiation	
IIIA/IIIB	12 (10.8)
IV	99 (89.2)
Brain metastases	
Active brain metastases	

Conclusions: Our cohort demonstrated similar survival outcomes to KEYNOTE-010, which reflects appropriate patients' selection. High PD-L1 TPS and LIPI score predicted longer OS.

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109P Subpopulations of peripheral blood lymphocytes and response to immunotherapy across cancer-types

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Background: Most patients (pts) with advanced cancer do not benefit from immunotherapy (IT) and no predictive and reliable biomarker exists across cancer-types. Here, we studied lymphocyte subpopulations on peripheral blood as easily quantifiable biomarkers of response to IT.

Methods: From 11/2016 to 06/2019, pts with advanced solid cancer treated with IT at Hospital Clinic Clinical Trials Unit were recruited. Blood samples were collected at baseline (C1D1), at day 1 of cycle 2 (C2D1) and at each radiologic evaluation. Flow cytometry analyses were performed using the lineage and differentiation markers CD25, CD3, FOXP3, CD40L, HLA-DR, CD4, CD62L, CD69, CD8, CTLA4, CD19, CD16/56, CD28, PDL1, PD1, CD45RO/RA and CCR7. Forty-four lymphocyte subpopulations (LSP) were identified and quantified. The primary objective was to associate the levels of LSP with response according to iRECIST criteria. Secondary objectives were progression-free survival (PFS) and overall survival (OS). Cox models, logistic regressions, and areas under the ROC (AUC) were performed. Adjustment for multiple comparisons was considered.

Results: 71 evaluable pts with non-small cell lung cancer (25%), colorectal (15%), breast (12%), head and neck (10%), bladder (8%), melanoma (7%), renal (5%), prostate (5%) and others (10%) were recruited. Median age was 62 (22-80), 63% of pts were male and 90% were immune naïve. 50 pts received anti-PD1 (71%) and 69% of ITs were given as monotherapy. The overall response rate (ORR) was 13.5% (95% CI 8-22%). At C1D1, no LSP was found associated with ORR. At C2D1 (n=61) higher levels of effector memory T cells (TEM: CD3+CD45RO+CCR7-) were found associated with