Biomarker	Study – first author	Patients (denominator)	Data type	Results	Population
Conventional serum indices					
Lymphocyte indices	Karantanos, 2019	22	Retrospective	ALC positively correlated with OS (R^2=0.28, Coeff = 1.54) NLR negatively correlated with OS (P = 0.0494, R^2 = 0.28, Coeff = – 0.43)	NSCLC
	Maltese, 2017	40	Retrospective	Median TTP significantly longer in patients with ALC ≥ 1000/mm^3 (p=0.01)	Various
	Ho, 2018	34	Retrospective	Median PFS 60 vs 141 days, p=0.03 in patients with ALC<600	HNSCC
	Saravia, 2018	107	Retrospective	Median OS = NR good; 15.1mths (CI: 9.5-21.0) intermediate and 3.2mths (CI: 2.5-4.0) poor group	NSCLC
	Ren, 2019	147	Retrospective	NLR≤2.5 significantly favourable OS (p=0.009) and PFS (p=0.017) vs NLR>2.5 NLR≤2.5 significantly favourable OS (p=0.003) and PFS (p=0.001) vs NLR>2.5 where TMB>10 but not signif in TMB≤10	NSCLC
	Wang, 2018	183	Retrospective	NLR ≥ 5 - OS HR 1.76 p<0.01 in multivariate analysis	NSCLC
	Soyano, 2018	157	Retrospective	NLR ≥5.9 - OS HR 1.94 (CI 1.24-3.03; p =0.004)	NSCLC
	Ferrucci, 2016	720	Prospective	NLR ≥3 - OS HR 2.29; CI 1.86-2.82; p<0.0001	Melanoma
Lactate dehydrogenase	Kelderman, 2014	166	Retrospective	RR 9% vs 23% in patients with elevated vs normal LDH; LDH strongest predictive factor for OS in multivariate analysis	Melanoma
	Nosrati, 2017	315	Retrospective	OR for high LDH and response to ipilimumab = 0.48 (CI 0.25-0.90); p=0.02	Melanoma
	Ferrucci, 2016	460 (720)	Prospective	OS HR 13.24 (CI 8.10 - 21.66); p<0.0001 for patients with high ANC, NLR and LDH	Melanoma
	Mezquita, 2018	431(466)	Retrospective	LDH >ULN - HR, 2.51 (95% CI, 1.32-4.76); dNLR >3 + LDH >ULN vs not - mOS 4.8 (95% CI 3.6-7.7) vs 16.5 (95% CI 11.4-34) mths	NSCLC
Tumoural factors					
EBV	Kim, 2018	6 (61)	Prospective	All 6 patients achieved PR; median DOR 8.5 months	Gastric
Tumour infiltrating lymphocytes	Tumeh, 2014	46	Prospective	Higher CD8+ T cell density in responding patients vs progressing patients; ROC AUC CD8+ density at tumour 0.91 (95% CI 0.81-1.00; p<0.001) and invasive margin 0.94 (0.88-1.00; p<0.001)	Melanoma
	Daud, 2016	40	Retrospective	PFS 31.6 mths vs 9.6 mths for tumours with >20% vs ≤20% CTLA-4^{hi}, PD-1^{hi} CD8+ TILs (p=0.017); ORR 85.7% vs 0%	Melanoma
Host factors					
Gut microbiome	Matson, 2018	42	Prospective	Spearman's coefficient Bifidobacterium longum = 0.83 (p<0.0001); full results tabulated	Melanoma
	Gopalkrishnan, 2018	43	Prospective	High vs intermediate diversity (HR 3.60, 95% CI 1.02 to 12.74); high vs low (HR 3.57, 95% CI 1.02 to 12.52)	Melanoma
	Jin, 2018	37	Prospective	High vs low diversity - median PFS 209 versus 52 days, p = 0.005	NSCLC
	Chaput, 2017	26	Prospective	Overall microbial composition ROC AUC = 0.77	Melanoma
Genetic Polymorphisms	Chowell, 2018	1535	Not stated	Homozygosity at HLA-I locus - OS HR = 1.38 (95% CI 1.11 to 1.70; p=0.003)	Melanoma, NSCLC
	Vargas, 2018	155	Patient datasets	OS for low neoantigen burden + CD16A-V158F SNP HR = 0.247 (95% CI, 0.074-0.826) p = 0.014	Melanoma
Research markers					
Interleukin-6	Weber, 2019	Not stated	Prospective	Elevated serum IL-6 at baseline associated with shorter survival in patients receiving nivolumab (p = 0.003 and ipilimumab (p = 0.0001)	Melanoma
T-cell receptor clonality	Postow, 2015	12	Retrospective	Hierarchical clustering analysis. Patients who achieved clinical benefit had higher TCR richness and evenness (p=.033, p=0.028); No difference in OS between high vs low richness or evenness (P=0.218, p = 0.26)	Melanoma
	Tumeh, 2014	23 (46)	Prospective	Restricted TCR beta chain usage correlates with radiological response p=0.004)	Melanoma
Peripheral blood PD-1/PD-L1	Arrieta, 2017	70	Prospective	OS HR for % T-lymphocytes: PD-1 HR 1.193 (CI 0.855-1.665; p = 0.299); PD-L1 HR 1.248 (CI 1.106-1.41; p<0.0001); PD-L2 HR 1.37 (CI 1.075-1.745; p = 0.011)	NSCLC
	Gros, 2016	3 (4)	Not stated	Circulating CD8+PD-1+ cells from subject NCI-3784 recognized ≥3 neoantigens; NCI-3903, 1; NCI-3926, none	Melanoma
Cell-free DNA	Gandara, 2018	794 (1070)	Prospective	PPV between blood and tumour TMB 93.5%; Validation cohort: PFS HR bTMB ≥ 16 = 0.65 (CI 0.47-0.92; p=0.013); OS HR bTMB ≥ 16 = 0.64 (CI 0.44-0.92); p = 0.017)	NSCLC
	Wang, 2019	98	Retrospective	bTMB ≥ 6 vs <6 PFS HR 0.44 (0.20 - 0.99; p= 0.05)(multivariate analysis) ORR OR 11.69 (95% CI 2.16-111.6; p=0.01)	NSCLC
	AstraZeneca, 2019	not published	Prospective	Primary endpoint OS in patients with bTMB ≥ 20mut/Mb not met	NSCLC
Gene Expression Profiling					
***PTEN* inactivation**	Miao, 2018	14 (249)	Retrospective	All patients with homozygous PTEN deletion appeared intrinsically resistant to ICI; clonal biallelic loss of PTEN less strongly associated	Advanced solid tumours
	George, 2017	1	case report	Treatment-resistant metastasis harboured biallelic PTEN loss, unique to treatment resistant tumour	Leiomyosarcoma
***POLE* mutations**	Mehnert, 2016	1	case report	Sustained partial response (14 months at publication) after treatment with pembrolizumab; hybrid-capture-based comprehensive genomic profiling - POLE V411L mutation and R114 VUS	Endometrial carcinoma
	Santin, 2016	1	case report	Sustained partial response (7 months at publication) after treatment with nivolumab; POLE P286R mutation	Endometrial carcinoma
	Gong, 2017	1	case report	Reduction in tumour burden after treatment with pembrolizumab; POLE V411L mutation	Colorectal adenocarcinoma
	Song, 2018	1(9)	case report	Median TMB higher than wildtype POLE - (12.2/MB vs 7.8/Mb; p=0.026) Only 1 patient treated with ICI (atezolizumab) - partial response	NSCLC
***KRAS/STK11* co-mutation**	Skoulidis, 2018	54(174) primary cohort	Mixed	ORR KL 7.4%; KP35.7%; K-only 28.6%; PFS HR KL vs STK11 wildtype HR 1.87 (CI 1.32-2.66; p<0.001) OS KL vs STK11 wildtype = HR 1.99 (CI 1.29-3.06; p=0.0015)	NSCLC with KRAS mutation
Mutational signatures	Ock, 2017	Not stated	Mixed	ROC for predictive model used in patients receiving ipilimumab: AUC 0.7, p=0.02	D = melanoma; V = 30 tumour types
	Ayers, 2017	220	Prospective	ROC AUC 0.80 (CI 0.61-0.95 for HNSCC, 0.66 (CI 0.47-0.83) for gastric cancer	Nine tumour types
	Fehrenbacher, 2016	112	Prospective	T effector-interferon gamma signature inc expression - OS HR 0.43 (CI 0.24-0.77) in patients receiving atezolizumab	NSCLC