Supplementary Appendix

This appendix has been provided by the authors to give readers additional information about their work.

Supplement to: Topalian SL, Hodi FS, Brahmer JR, et al. Safety, activity, and immune correlates of anti–PD-1 antibody in cancer. N Engl J Med 2012;366:2443-54. DOI: 10.1056/NEJMoa1200690.

Supplementary appendices for "Safety, activity, and immune correlates of anti-PD-1 antibody in cancer patients" by Topalian et al.

Table of Contents of Supplementary Appendices

Supplementary appendices for "Safety, activity, and immune correlates of anti-PD-1 antibody in cancer patients" by Topalian et al.

Methods S1. Definition of Tumor Response Terms per RECIST v1.0

Complete response (CR): disappearance of all target lesions

Partial response (PR): at least a 30% decrease in the sum of the largest diameter (LD) of target lesions taking as reference the baseline sum of the LDs

Stable disease (SD): neither a sufficient shrinkage to qualify for PR nor sufficient increase to qualify for progressive disease (PD) taking as reference the baseline sum of the LDs

Progressive disease: at least a 20% increase in the sum of LD of target lesions taking as reference the smallest LD recorded since the start of treatment or the appearance of one or more new lesions

Supplementary appendices for "Safety, activity, and immune correlates of anti-PD-1 antibody in cancer patients" by Topalian et al.

Table S1-A. Summary of Baseline Demographics and Prior Therapy*

Variable	All Treated Patient Population (N=296)	Efficacy Population† (N=236)
Age - yr		
Median	63	62
Range	29-85	29-85
Sex – no. (%)		
Male	195 (66)	160 (68)
Female	101 (34)	76 (32)
Tumor histology – no. (%)		
Melanoma	104 (35)	94 (40)
Non-small-cell lung cancer	122 (41)	76 (32)
Squamous	47 (39)	18 (24)
Non-squamous	73 (60)	56 (74)
Unknown	2 (2)	2 (3)
Renal-cell cancer	34 (11)	33 (14)
Castration-resistant prostate cancer	17 (6)	13 (6)
Colorectal cancer	19 (6)	19 (8)
ECOG performance status – no. (%)		
0	128 (43)	108 (46)
1	158 (53)	121 (51)
2	7 (2)	7 (3)
Not reported	3 (1)	0
Number of prior therapies – no. (%)		
1	71 (24)	56 (24)
2	79 (27)	65 (28)
3	54 (18)	42 (18)
≥4	86 (29)	73 (31)
Not reported	6 (2)	0
Nature of prior therapy – no. (%)		
Chemotherapy	238 (80)	190 (81)
Surgery	235 (79)	192 (81)
Radiotherapy	144 (49)	108 (46)
Hormonal, immunologic or biologic therapy	132 (45)	117 (50)
Other	35 (12)	32 (14)

*ECOG denotes Eastern Cooperative Oncology Group.

† The efficacy population consists of response-evaluable patients whose treatment was initiated by July 1, 2011 and had measurable disease at baseline and one of the following: at least 1 on-treatment scan or clinical evidence of disease progression or death.

Table S1-B. Baseline Characteristics and Prior Therapy of All Treated Patients With Non-Small-Cell Lung Cancer*

Variable	Non-Small-Cell Lung Cancer Patients (n=122)
Age - yr	
Median	65
Range	38-85
Sex – no. (%)	
Male	74 (61)
Female	48 (39)
ECOG performance status – no. (%)	
0	34 (28)
1	83 (68)
2	2 (2)
Not reported	3 (2)
Number of prior therapies – no. (%)	
1	18 (15)
2	31 (25)
3	27 (22)
≥4	40 (33)
Not reported	6 (5)
Nature of prior therapy – no. (%)	
Platinum-based chemotherapy	115 (94)
Tyrosine kinase inhibitor	41 (34)
Lesions at baseline	
Bone	21 (17)
Liver	24 (20)
Lung	107 (88)
Lymph node	81 (66)
Other	46 (38)

*ECOG denotes Eastern Cooperative Oncology Group.

Table S1-C. Baseline Characteristics and Prior Therapy of All Treated Patients With Melanoma*

Variable	Melanoma Patients (n=104)
Age - yr	
Median	61
Range	29-85
Sex – no. (%)	
Male	69 (66)
Female	35 (34)
ECOG performance status – no. (%)	
0	63 (61)
1	38 (37)
2	3 (3)
Number of prior therapies – no. (%)	
1	41 (39)
2	36 (35)
3	18 (17)
≥4	9 (9)
Nature of prior therapy – no. (%)	
Immunotherapy	67 (64)
B-RAF inhibitor	8 (8)
Lesions at baseline	
Bone	13 (13)
Liver	37 (36)
Lung	63 (61)
Lymph node	69 (66)
Other	64 (62)

*ECOG denotes Eastern Cooperative Oncology Group.

Table S1-D. Baseline Characteristics and Prior Therapy of All treated Patients With Renal-Cell Cancer*

Variable	Renal-Cell Cancer Patients (n=34)
Age - yr	
Median	58
Range	35-74
Sex – no. (%)	
Male	26 (76)
Female	8 (24)
ECOG performance status – no. (%)	
0	13 (38)
1	21 (62)
2	0
Number of prior therapies – no. (%)	
1	10 (29)
2	9 (26)
3	5 (15)
≥4	10 (29)
Nature of prior therapy – no. (%)	
Surgery	32 (94)
Immunotherapy	20 (59)
Antiangiogenic therapy	25 (74)
Lesions at baseline	
Bone	10 (29)
Liver	9 (26)
Lung	30 (88)
Lymph node	28 (82)
Other	20 (59)

*ECOG denotes Eastern Cooperative Oncology Group.

Table S2-A. Summary of Exposure to Anti-PD-1 Antibody, All Treated Patient Population

Variable	Anti-PD-1 Dose, mg/kg					Total (N=296)
	0.1 (n=18)	0.3 (n=19)	1 (n=79)	3 (n=50)	10 (n=130)	
Duration of therapy (wk)						
Median	23.1	17.0	16.1	17.5	14.3	16.0
Range	8.0-51.4	4.0-43.0	2.0-100.0	2.0-101.3	2.0-121.7	2.0-121.7
Dose intensity per patient (mg/kg/2 wk)*						
Median	0.1	0.3	1.0	2.9	9.8	Not applicable
Range	0.1-0.8	0.2-1.0	0.6-1.1	1.0-3.7	0.9-11.0	Not applicable
Relative dose-intensity – no. (%) of patients†						
≥90%	18 (100)	17 (90)	68 (86)	40 (80)	111 (85)	254 (86)

*Dose intensity per patient is the cumulative dose ÷ duration of therapy, in 2-week periods.

†Relative dose intensity is the dose intensity per patient ÷ planned dose per 2 weeks per patient.

Table S2-B. Summary of Patient Disposition, All Treated Patient Population

Patient Disposition	Anti-PD-1 Dose, mg/kg					Total
	0.1	0.3	1	3	10	
	No. (%) of Patients					
All treated patient population*	18	19	79	50	130	296
Efficacy population†	15	16	62	36	107	236
Study status‡						
On study	10 (56)	11 (58)	38 (48)	24 (48)	33 (25)	116 (39)
Off study	8 (44)	8 (42)	41 (52)	26 (52)	97 (75)	180 (61)
Key reasons for discontinuation from study						
Disease progression	6 (75)	4 (50)	20 (49)	11 (42)	46 (47)	87 (48)
Death (any cause)	1 (13)	1 (13)	11 (27)	6 (23)	22 (23)	41 (23)
Adverse event regardless of causality (including drug-related adverse events) §	0	3 (16)	10 (13)	7 (14)	25 (19)	45 (15)
Drug-related adverse event§	0	0	3 (4)	2 (4)	10 (8)	15 (5)

*As of February 24, 2012, the date of data analysis, a total of 381 patients were enrolled; 296 were treated and 85 were either screen failures or withdrew consent prior to initiation of treatment.

†Efficacy population consisted of response-evaluable patients who initiated treatment by July 1, 2011, had measurable disease at baseline and either at least 1 on-treatment scan or disease progression or death.

‡As of February 24, 2012, the date of data analysis.

§Data sourced from listing of adverse events leading to study drug discontinuation.

Table S2-C. Summary of Deaths, All Treated Patient Population

Parameter	**All Treated Patients (N=296)**
Deaths – no. (%)	62 (21)
Cause of death – no. (%)	
Disease	46 (16)
Serious adverse event[*†]	11 (4)
Study drug toxicity	3 (1)
Other	2 (1)

[*]Serious adverse event was defined as an adverse event that was fatal or life threatening, required hospitalization, or resulted in persistent or significant disability/incapacity and/or required medical or surgical intervention to prevent one of the outcomes listed above.

[†]None of these serious adverse events were reported as related to study drug by the investigators.

Table S3A. Adverse Events That Occurred in at Least 10% of the All Treated Patient Population*

Adverse Event	Adverse Events, Regardless of Causality												Anti-PD-1 Related-Adverse Events†	
	Anti-PD-1 Dose, mg/kg													
	0.1 (n=18)		0.3 (n=19)		1 (n=79)		3 (n=50)		10 (n=130)		Total (N=296)		Total (N=296)	
	All Gr	Gr 3-4	All Gr	Gr 3-4	All Gr	Gr 3-4	All Gr	Gr 3-4	All Gr	Gr 3-4	All Gr	Gr 3-4	All Gr	Gr 3-4
	No. (%) of Patients per Cohort													
Any adverse event‡	18 (100)	11 (61)	17 (90)	5 (26)	74 (94)	34 (43)	48 (96)	26 (52)	129 (99)	70 (54)	286 (97)	146 (49)	207 (70)	41 (14)
General disorders														
Fatigue	10 (56)	2 (11)	8 (42)	-	35 (44)	6 (8)	23 (46)	1 (2)	70 (54)	7 (5)	146 (49)	16 (5)	72 (24)	5 (2)
Pyrexia	3 (17)	-	2 (11)	-	13 (17)	-	6 (12)	-	28 (22)	1 (1)	52 (18)	1 (0.3)	16 (5)	-
Edema peripheral	4 (22)	1 (6)	2 (11)	-	18 (23)	-	6 (12)	-	20 (15)	-	50 (17)	1 (0.3)	2 (1)	-
Gastrointestinal disorders														
Diarrhea	3 (17)	-	2 (11)	-	30 (38)	-	12 (24)	-	36 (28)	3 (2)	83 (28)	3 (1)	33 (11)	3 (1)
Nausea	4 (22)	1 (6)	3 (16)	-	18 (23)	1 (1)	14 (28)	-	41 (32)	5 (4)	80 (27)	7 (2)	24 (8)	1 (0.3)
Constipation	8 (44)	1 (6)	3 (16)	-	16 (20)	-	11 (22)	-	27 (21)	-	65 (22)	1 (0.3)	5 (2)	-
Vomiting	4 (22)	1 (6)	3 (16)	-	13 (17)	-	10 (20)	1 (2)	35 (27)	4 (3)	65 (22)	6 (2)	9 (3)	1 (0.3)
Respiratory, thoracic, and mediastinal disorders														
Cough	5 (28)	-	2 (11)	-	18 (23)	2 (3)	11 (22)	1 (2)	38 (29)	1 (1)	74 (25)	4 (1)	8 (3)	1 (0.3)
Dyspnea	1 (6)	1 (6)	2 (11)	1 (5)	20 (25)	5 (6)	12 (24)	2 (4)	30 (23)	14 (11)	65 (22)	23 (8)	7 (2)	-
Musculoskeletal and connective tissue disorders														
Back pain	5 (28)	-	1 (5)	-	9 (11)	-	7 (14)	-	28 (22)	5 (4)	50 (17)	5 (2)	1 (0.3)	1 (0.3)
Arthralgia	7 (39)	1 (6)	2 (11)	-	13 (17)	-	9 (18)	-	17 (13)	2 (2)	48 (16)	3 (1)	13 (4)	-

Musculoskeletal pain	2 (11)	-	-	-	8 (10)	2 (3)	5 (10)	1 (2)	18 (14)	3 (2)	33 (11)	6 (2)	7 (2)	1 (0.3)
Pain in extremity	4 (22)	1 (6)	1 (5)	-	8 (10)	-	4 (8)	-	13 (10)	3 (2)	30 (10)	4 (1)	7 (2)	-
Metabolism and nutrition disorders														
Decreased appetite	7 (39)	1 (6)	7 (37)	-	25 (32)	-	12 (24)	-	41 (32)	-	92 (31)	1 (0.3)	24 (8)	-
Hyperglycemia	4 (22)	-	2 (11)	-	15 (19)	1 (1)	4 (8)	-	8 (6)	1 (1)	33 (11)	2 (1)	2 (1)	-
Dehydration	2 (11)	1 (6)	1 (5)	1 (5)	6 (8)	2 (3)	2 (4)	-	17 (13)	4 (3)	28 (10)	8 (3)	2 (1)	1 (0.3)
Skin and subcutaneous tissue disorders														
Rash	3 (17)	-	3 (16)	-	21 (27)	-	11 (22)	-	22 (17)	-	60 (20)	-	36 (12)	-
Pruritus	-	-	5 (26)	-	17 (22)	-	6 (12)	-	15 (12)	1 (1)	43 (15)	1 (0.3)	28 (10)	1 (0.3)
Vitiligo	3 (17)	-	-	-	3 (4)	-	2 (4)	-	-	-	8 (3)	-	8 (3)	-
Nervous system disorders														
Headache	4 (22)	1 (6)	5 (26)	-	12 (15)	-	9 (18)	-	22 (17)	-	52 (18)	1 (0.3)	8 (3)	-
Dizziness	3 (17)		3 (16)	-	12 (15)	-	8 (16)	1 (2)	20 (15)	-	46 (16)	1 (0.3)	9 (3)	-
Investigations														
Weight decreased	4 (22)	-	2 (11)	-	9 (11)	-	6 (12)	1 (2)	22 (17)	-	43 (15)	1 (0.3)	10 (3)	-
Hemoglobin decreased	3 (17)	-	4 (21)	-	10 (13)	-	5 (10)	-	14 (11)	2 (2)	36 (12)	2 (1)	19 (6)	1 (0.3)
Psychiatric disorders														
Insomnia	2 (11)	-	3 (16)	-	10 (13)	-	9 (18)	1 (2)	16 (12)	-	40 (14)	1 (0.3)	-	-
Vascular disorders														
Hypotension	2 (11)	-	1 (5)	-	5 (6)	-	6 (12)	1 (2)	16 (12)	3 (2)	30 (10)	4 (1)	7 (2)	-
Neoplasms														
Neoplasm malignant	3 (17)	-	-	-	10 (13)	3 (4)	2 (4)	2 (4)	19 (15)	3 (2)	34 (12)	8 (3)	1 (0.3)	1 (0.3)

Blood and lymphatic system disorders														
Anemia	1 (6)	-	2 (11)	-	6 (8)	3 (4)	4 (8)	-	17 (13)	3 (2)	30 (10)	6 (2)	3 (1)	-
Adverse events of any grade leading to drug discontinuation	-		3 (16)		10 (13)		7 (14)		25 (19)		45 (15)		15 (5)	

*Gr denotes grade.

†Anti-PD-1-related adverse events as identified by investigators for those events that were reported in at least 10% of the all treated patient population. See Table S3B for anti-PD-1-related adverse events that occurred in at least 3% of the all treated patient population.

‡Note: The numbers reported within a column may not add up to the total number reported under "any adverse event" because (i) patients who had more than 1 adverse event were counted for each event but were counted only once for "any adverse event" and (ii) data for only those events that were reported in at least 10% of the all treated patient population are presented in this table.

Table S3B. Anti-PD-1 Antibody-Related Adverse Events That Occurred in at Least 3% of the All Treated Patient Population*

Drug-Related Adverse Event	Anti-PD-1 Dose, mg/kg										Total (N=296)	
	0.1 (n=18)		0.3 (n=19)		1 (n=79)		3 (n=50)		10 (n=130)			
	All Gr	Gr 3-4	All Gr	Gr 3-4	All Gr	Gr 3-4	All Gr	Gr 3-4	All Gr	Gr 3-4	All Gr	Gr 3-4
	No. (%) of Patients per Cohort											
Any adverse event†	14 (78)	3 (17)	11 (58)	2 (11)	59 (75)	10 (13)	34 (68)	8 (16)	89 (69)	18 (14)	207 (70)	41 (14)
General disorders												
Fatigue	4 (22)	1 (6)	5 (26)	-	19 (24)	2 (3)	12 (24)	-	32 (25)	2 (2)	72 (24)	5 (2)
Pyrexia	1 (6)	-	1 (5)	-	6 (8)	-	2 (4)	-	6 (5)	-	16 (5)	-
Skin and subcutaneous tissue disorders												
Rash	3 (17)	-	2 (11)	-	16 (20)	-	4 (8)	-	11 (9)	-	36 (12)	-
Pruritus	-	-	2 (11)	-	13 (17)	-	4 (8)	-	9 (7)	1 (1)	28 (10)	1 (0.3)
Vitiligo	3 (17)	-	-	-	3 (4)	-	2 (4)	-	-	-	8 (3)	-
Gastrointestinal disorders												
Diarrhea	1 (6)	-	2 (11)	-	15 (19)	-	3 (6)	-	12 (9)	3 (2)	33 (11)	3 (1)
Nausea	-	-	1 (5)	-	5 (6)	-	7 (14)	-	11 (9)	1 (1)	24 (8)	1 (0.3)
Dry mouth	-	-	-	-	4 (5)	1 (1)	2 (4)	-	4 (3)	-	10 (3)	1 (0.3)
Abdominal pain	-	-	-	-	4 (5)	-	1 (2)	1 (2)	4 (3)	2 (2)	9 (3)	3 (1)
Vomiting	-	-	1 (5)	-	1 (1)	-	2 (4)	-	5 (4)	1 (1)	9 (3)	1 (0.3)
Investigations												
Hemoglobin decreased	2 (11)	-	3 (16)	-	4 (5)	-	2 (4)	-	8 (6)	1 (1)	19 (6)	1 (0.3)
Alanine aminotransferase increased	-	-	1 (5)	-	4 (5)	-	2 (4)	-	4 (3)	2 (2)	11 (4)	2 (1)
Weight decreased	1 (6)	-	2 (11)	-	2 (3)	-	3 (6)	-	2 (2)	-	10 (3)	-
Blood thyroid stimulating hormone increased	2 (11)	-	-	-	2 (3)	-	2 (4)	-	3 (2)	1 (1)	9 (3)	1 (0.3)
Aspartate aminotransferase increased	-	-	1 (5)	-	2 (3)	-	2 (4)	1 (2)	3 (2)	1 (1)	8 (3)	2 (1)
Metabolism and nutrition disorders												
Decreased appetite	1 (6)	-	2 (11)	-	6 (8)	-	5 (10)	-	10 (8)	-	24 (8)	-
Hypophosphatemia	-	-	-	-	3 (4)	1 (1)	3 (6)	-	4 (3)	2 (2)	10 (3)	3 (1)
Hyperuricemia	1 (6)	-	1 (5)	1 (5)	5 (6)	-	1 (2)	-	-	-	8 (3)	1 (0.3)

Musculoskeletal disorders												
Arthralgia	1 (6)	-	1 (5)	-	5 (6)	-	3 (6)	-	3 (2)	-	13 (4)	-
Respiratory, thoracic, and mediastinal disorders												
Pneumonitis	-	-	-	-	3 (4)	2 (3)	1 (2)	-	5 (4)	1 (1)	9 (3)	3 (1)
Cough	1 (6)	-	-	-	3 (4)	1 (1)	2 (4)	-	2 (2)	-	8 (3)	1 (0.3)
Nervous system disorders												
Dizziness	-	-	1 (5)	-	1 (1)	-	-	-	7 (5)	-	9 (3)	-
Headache	-	-	1 (5)	-	2 (3)	-	-	-	5 (4)	-	8 (3)	-
Blood and lymphatic system disorders												
Lymphopenia	1 (6)	-	2 (11)	1 (5)	1 (1)	-	3 (6)	2 (4)	3 (2)	-	10 (3)	3 (1)

*Gr denotes grade.

†Note: The numbers reported within a column may not add up to the total number reported under "any adverse event" because (i) patients who had more than 1 adverse event were counted for each event but were counted only once for "any adverse event" and (ii) data for only those events that were reported in at least 3% of the all treated patient population are presented in this table.

Table S4. Anti-PD-1 Antibody-Related Serious Adverse Events That Occurred in at Least 2 Patients in the All Treated Patient Population*

Serious Adverse Event†	Anti-PD-1 Dose, mg/kg										Total (N=296)	
	0.1 (n=18)		0.3 (n=19)		1 (n=79)		3 (n=50)		10 (n=130)			
	All Gr	Gr 3-4	All Gr	Gr 3-4	All Gr	Gr 3-4	All Gr	Gr 3-4	All Gr	Gr 3-4	All Gr	Gr 3-4
	No. (%) of Patients per Cohort											
Any serious adverse event‡	-	-	-	-	5 (6)	5 (6)	7 (14)	4 (8)	20 (15)	13 (10)	32 (11)	22 (7)
Respiratory disorders												
Pneumonitis	-	-	-	-	2 (3)	2 (3)	-	-	4 (3)	1 (1)	6 (2)	3 (1)
General disorder												
Pyrexia	-	-	-	-	1 (1)	-	1 (2)	-	1 (1)	-	3 (1)	-
Infections and infestations												
Pneumonia	-	-	-	-	-	-	1 (2)	1 (2)	1 (1)	1 (1)	2 (1)	2 (1)
Sepsis	-	-	-	-	1 (1)	-	-	-	1 (1)	-	2 (1)	-
Investigations												
Alanine aminotransferase increased	-	-	-	-	-	-	1 (2)	-	1 (1)	1 (1)	2 (1)	1 (0.3)
Aspartate aminotransferase increased	-	-	-	-	-	-	1 (2)	1 (2)	1 (1)	-	2 (1)	1 (0.3)
Blood alkaline phosphatase increased	-	-	-	-	1 (1)	1 (1)	-	-	1 (1)	-	2 (1)	1 (0.3)
Lipase increased	-	-	-	-	1 (1)	1 (1)	-	-	1 (1)	1 (1)	2 (1)	2 (1)
Endocrine disorders												
Hypothyroidism	-	-	-	-	-	-	-	-	2(2)	1 (1)	2 (1)	1 (0.3)
Gastrointestinal disorders												
Diarrhea	-	-	-	-	-	-	-	-	4 (3)	3 (2)	4 (1)	3 (1)
Nausea	-	-	-	-	-	-	-	-	2 (2)	1 (1)	2 (1)	1 (0.3)
Vomiting	-	-	-	-	-	-	-	-	2 (2)	1 (1)	2 (1)	1 (0.3)

Hepatobiliary disorder												
Hepatitis	-	-	-	-	-	-	1 (2)	1 (2)	1 (1)	-	2 (1)	1 (0.3)

*Gr denotes grade.

†Serious adverse event was defined as an adverse event that was fatal or life threatening, required hospitalization, or resulted in persistent or significant disability/incapacity and/or required medical or surgical intervention to prevent one of the outcomes listed above.

‡Note: The numbers reported within a column may not add up to the total number reported under "any serious adverse event" because (i) patients who had more than 1 adverse event were counted for each event but were counted only once for "any serious adverse event" and (ii) data for only those events that were reported in at least 2 patients are presented in this table.

Table S5. Tumor Specimens Analyzed for PD-L1 Expression[*]

Tumor Type	Dose (mg/kg)	Patient Number	Patient PD-L1 Status (pos/neg)[†]	Clinical Response (CR/PR/NR)	Tumor Site	PD-L1 Expression (% pos tumor cells)
MEL	0.1	1	pos	NR	Subcutaneous met 1	5-10
					Subcutaneous met 2	0
MEL	0.1	2	pos	NR	Cutaneous primary[‡]	20
					Lymph node met	0
MEL	0.1	3	pos	NR	Lymph node met	5
MEL	0.1	4	pos	PR	Ocular primary	5
MEL	0.3	5	pos	NR	Lung met	5-10
MEL	0.3	6	pos	NR[§]	Cutaneous primary	40
MEL	1	7	neg	NR	Cutaneous primary	0
MEL	1	8	neg	NR	Cutaneous primary	0
MEL	1	9	pos	PR	Lymph node met	15
MEL	3	10	pos	NR	Breast met	10
MEL	3	11	neg	NR	Ocular primary	0
MEL	3	12	pos	PR	Cutaneous met	5
MEL	3	13	pos	CR	Cutaneous primary	5
					Subcutaneous met	0
					Lymph node met	0
MEL	10	14	pos	NR	Cutaneous primary	5
					Lymph node met 1	0
					Lymph node met 2	5
MEL	10	15	pos	PR	Lymph node met	5
MEL	10	16	pos	NR	Gall bladder met	5
					Subcutaneous met 1	0
					Subcutaneous met 2	0

					Lymph node met 1	0
					Lymph node met 2	0
MEL	10	17	pos	PR	Lung met 1	5
					Lung met 2	50
MEL	10	18	pos	NR[§]	Lymph node met	10
NSCLC	1	19	neg	NR	Lymph node met	0
NSCLC	1	20	pos	NR	Lung primary	10
NSCLC	1	21	neg	NR	Lung primary	0
NSCLC	3	22	neg	NR	Lung primary 1	0
					Lung primary 2	0
NSCLC	3	23	neg	NR	Lung primary	0
					Bone met	0
NSCLC	10	24	pos	NR	Lung primary	5
NSCLC	10	25	neg	NR	Lung primary	0
NSCLC	10	26	pos	NR	Brain met	20
NSCLC	10	27	pos	NR	Lung primary	5
NSCLC	10	28	pos	PR	Lung met	10
CRC	10	29	neg	NR	Peritoneal met	0
CRC	10	30	pos	NR	Colon primary 1	0
					Colon primary 2	5
CRC	10	31	neg	NR	Colon primary	0
CRC	10	32	neg	NR	Colon primary 1	0
					Colon primary 2	0
					Liver met	0
CRC	10	33	neg	NR	Colon primary	0
CRC	10	34	neg	NR	Colon primary	0

CRC	10	35	neg	NR	Colon primary	0
RCC	10	36	pos	PR	Kidney primary	60
RCC	10	37	pos	CR	Kidney primary	5
					Lymph node met 1	10
					Lymph node met 2	5
RCC	10	38	pos	NR	Kidney primary	10
RCC	10	39	pos	NR	Lung met	10
					Lymph node met	5
RCC	10	40	neg	NR	Kidney primary	0
CRPC	10	41	neg	NR	Prostate primary	0
CRPC	10	42	neg	NR	Prostate primary	0

[*]CR denotes complete response, CRC colorectal cancer, CRPC castration-resistant prostate cancer, MEL melanoma, met metastasis, neg negative, NR non-responder, NSCLC non-small-cell lung cancer, pos positive, RCC renal-cell cancer.

[†]A patient was considered PD-L1 positive if any tumor biopsy was positive (see Methods).

[‡]Primary denotes primary tumor lesion.

[§]Two patients categorized as non-responders at the time of data analysis are still under evaluation.