ONLINE ONLY SUPPLEMENTARY MATERIALS

Supplemental Table 1. Baseline Demographics and Disease Characteristics by Cohort and Dose Group

	Cohort A Pembrolizumab Plus Carboplatin-Paclitaxel		Cohort B Pembrolizumab Plus Carboplatin-Paclitaxel-Bevacizumab		Cohort C Pembrolizumab Plus Pemetrexed-Carboplatin	
	2 mg/kg Q3W N = 13	10 mg/kg Q3W N = 12	2 mg/kg Q3W N = 12	10 mg/kg Q3W N = 13	2 mg/kg Q3W N = 12	10 mg/kg Q3W N = 12
Age, median (range), years	66 (45–74)	62 (45–75)	61 (52–70)	62 (44–74)	59.5 (36–75)	62 (53–75)
Sex, n (%)						
Male	8 (62)	4 (33)	6 (50)	7 (54)	6 (50)	6 (50)
Female	5 (38)	8 (67)	6 (50)	6 (46)	6 (50)	6 (50)
Ethnic origin						
White	11 (85)	8 (67)	12 (100)	12 (92)	6 (50)	10 (83)
Black or African American	1 (8)	3 (25)	0	0	6 (50)	2 (17)
Asian	1 (8)	1 (8)	0	1 (8)	0	0
ECOG performance status, n (%)						
0	5 (38)	6 (50)	3 (25)	8 (62)	3 (25)	4 (33)
1	8 (62)	6 (50)	9 (75)	5 (38)	9 (75)	8 (67)
Histology, n (%)						
Adenocarcinoma	5 (38)	8 (67)	9 (75)	12 (92)	9 (75)	10 (83)
Squamous	5 (38)	4 (33)	0	0	0	0
NSCLC not otherwise specified/other	3 (23)	0	3 (25)	1 (8)	3 (25)	2 (17)
Disease stage, n (%)						
IIIB	0	0	0	1 (8)	1 (8)	0
IV	13 (100)	12 (100)	12 (100)	12 (92)	11 (92)	12 (100)
Smoking status, n (%)						
Current or former smoker	12 (92)	11 (92)	12 (100)	12 (92)	10 (83)	10 (83)
Never	1 (78)	1 (8)	0	1 (8)	2 (17)	2 (17)
Brain metastases, n (%)	0	2 (17)	2 (17)	2 (15)	0	2 (17)

	Cohort A Pembrolizumab Plus Carboplatin-Paclitaxel		Cohort B Pembrolizumab Plus Carboplatin-Paclitaxel-Bevacizumab		Cohort C Pembrolizumab Plus Pemetrexed-Carboplatin	
	2 mg/kg Q3W N = 13	10 mg/kg Q3W N = 12	2 mg/kg Q3W N = 12	10 mg/kg Q3W N = 13	2 mg/kg Q3W N = 12	10 mg/kg Q3W N = 12
PD-L1 TPS						
≥50%	7 (54)	2 (17)	4 (33)	4 (31)	5 (42)	3 (25)
1%–49%	2 (15)	4 (33)	6 (50)	6 (46)	3 (25)	5 (42)
<1%	4 (31)	5 (42)	2 (17)	3 (23)	4 (33)	4 (33)
Missing	0	1 (8)	0	0	0	0
Prior systemic (neo)adjuvant therapy, n (%)	0	1 (8)	1 (8)	0	1 (8)	0

NSCLC, non–small-cell lung cancer; PD-L1, programmed death ligand 1; Q3W, every 3 weeks; TPS, tumor proportion score.

Supplemental Table 2. Incidence of Adverse Events in Cohort A by Dose Group

	Pembrolizumab 2 mg/kg Q3W plus carboplatin-paclitaxel N = 13		Pembrolizumab 10 mg/kg plus carboplatin-paclitaxel N = 12	
Treatment-related AEs, n (%)				
Any grade	13 (100)		12 (100)	
Grade 3–4	7 (54)		3 (25)	
Leading to discontinuation	1 (8)		0	
Leading to death	0		0	
Treatment-related AEs occurring in ≥15% of patients in cohort A, n (%)	Any grade	Grade 3/4	Any grade	Grade 3/4
Alopecia	6 (46)	0	6 (50)	0
Fatigue	6 (46)	1 (8)	5 (42)	1 (8)
Nausea	4 (31)	0	4 (33)	0
Anemia	4 (31)	1 (8)	3 (25)	1 (8)
Peripheral sensory neuropathy	3 (23)	0	3 (25)	0
Peripheral neuropathy	4 (31)	0	2 (17)	0
Arthralgia	5 (38)	0	1 (8)	0
Rash	4 (31)	0	2 (17)	0
Dysgeusia	2 (15)	0	3 (25)	0
Diarrhea	2 (15)	0	2 (17)	0
Thrombocytopenia	1 (8)	0	3 (25)	0
Pain in extremity	1 (8)	0	3 (25)	0
Immune-mediated AEs and infusion reactions,[a] n (%)				
Colitis	1 (8)	0	1 (8)	0
Hypothyroidism	2 (15)	0	0	0
Infusion reactions	0	0	2 (17)	0
Pneumonitis	1 (8)	0	0	0
Severe skin reactions	0	0	1 (8)	1 (8)

AE, adverse event.
[a]Adverse events with a possible immune etiology regardless of attribution to study treatment or immune-relatedness by the investigator.

Supplemental Table 3. Incidence of Adverse Events in Cohort B by Dose Group

	Pembrolizumab 2 mg/kg Q3W plus carboplatin-paclitaxel-bevacizumab N = 11[a]		Pembrolizumab 10 mg/kg plus carboplatin-paclitaxel-bevacizumab N = 13	
Treatment-related AEs, n (%)				
Any grade	11 (100)		12 (92)	
Grade 3–4	4 (36)		6 (46)	
Leading to discontinuation	2 (18)		3 (23)	
Leading to death	0		0	
Treatment-related AEs occurring in ≥15% of patients in cohort B, n (%)	Any grade	Grade 3/4	Any grade	Grade 3/4
Alopecia	8 (73)	0	8 (62)	0
Fatigue	8 (73)	0	4 (31)	0
Constipation	4 (36)	0	5 (38)	0
Nausea	5 (45)	0	4 (31)	0
Arthralgia	4 (36)	0	4 (31)	0
Peripheral sensory neuropathy	5 (45)	0	3 (23)	0
Diarrhea	2 (18)	0	4 (31)	0
Rash	2 (18)	0	4 (31)	0
White blood cell count decreased	0	0	4 (31)	2 (15)
Epistaxis	3 (27)	0	3 (23)	0
Appetite decreased	1 (9)	0	4 (31)	0
Anemia	2 (18)	0	3 (23)	0
Neutrophil count decreased	2 (18)	1 (9)	3 (23)	0
Dysgeusia	3 (27)	0	2 (15)	0
Hypothyroidism	4 (36)	0	1 (8)	0
Pain in extremity	3 (27)	0	1 (8)	0
Stomatitis	2 (18)	0	2 (15)	0
Immune-mediated AEs and infusion reactions,[b] n (%)				
Colitis	0	0	1 (8)	1 (8)
Hyperthyroidism	0	0	1 (8)	0
Hypothyroidism	4 (36)	0	1 (8)	0
Infusion reactions	0	0	4 (31)	2 (15)
Pancreatitis	0	0	1 (8)	1 (8)
Pneumonitis	1 (9)	1 (9)	0	0
Thyroiditis	1 (9)	0	0	0
Uveitis	0	0	1 (8)	0

AE, adverse event.
[a]One patient in cohort B withdrew before receiving therapy and is not included in safety analyses.
[b]Adverse events with a possible immune etiology regardless of attribution to study treatment or immune-relatedness by the investigator.

Supplemental Table 4. Incidence of Adverse Events in Cohort C by Dose Group

	Pembrolizumab 2 mg/kg Q3W Plus Pemetrexed-Carboplatin N = 12		Pembrolizumab 10 mg/kg Plus Pemetrexed-Carboplatin N = 12	
Treatment-related AEs, n (%)				
Any grade	12 (100)		12 (100)	
Grade 3–4	4 (33)		7 (58)	
Leading to discontinuation	3 (25)		3 (25)	
Leading to death	0		0	
Treatment-related AEs occurring in ≥15% of patients in cohort C, n (%)	Any grade	Grade 3	Any grade	Grade 3
Fatigue	4 (33)	0	7 (58)	0
Anemia	4 (33)	1 (8)	4 (33)	1 (8)
Alanine aminotransferase increased	4 (33)	1 (8)	3 (25)	1 (8)
Aspartate aminotransferase increased	4 (33)	2 (17)	3 (25)	1 (8)
Nausea	4 (33)	0	3 (25)	0
Diarrhea	3 (25)	0	3 (25)	1 (8)
Rash	1 (8)	0	4 (33)	1 (8)
Maculopapular rash	3 (25)	0	2 (17)	0
Constipation	3 (25)	0	1 (8)	0
Decreased appetite	0	0	4 (33)	1 (8)
Dry skin	1 (8)	0	3 (25)	0
Peripheral edema	2 (17)	0	2 (17)	0
Pruritus	2 (17)	0	2 (17)	0
Immune-mediated AEs and infusion reactions,[a] n (%)				
Adrenal insufficiency	0	0	1 (8)	0
Colitis	2 (17)	1 (8)	1 (8)	0
Hypothyroidism	2 (17)	0	2 (17)	0
Infusion reactions	1 (8)	0	0	0
Severe skin reaction	0	0	1 (8)	1 (8)

AE, adverse event.
[a]Adverse events with a possible immune etiology regardless of attribution to study treatment or immune-relatedness by the investigator.

Supplemental Figure 1. Change from baseline in the sum of longest diameters (SLD) of target lesions in patients enrolled in the pembrolizumab and carboplatin-paclitaxel cohort (A), the pembrolizumab and carboplatin-paclitaxel-bevacizumab cohort (B), and the pembrolizumab and carboplatin-pemetrexed cohort (C), by blinded, independent central review.