

SUPPLEMENTAL TABLE 1.

Baseline characteristics	N (%)	First line	Second/third line	P-value
Median age, years	67.0	67.0	66.5	0.93
Sex				0.93
Male	7 (58.3)	3 (60.0)	4 (57.1)	
Female	5 (41.7)	2 (40.0)	3 (42.9)	
WHO performance status				0.69
0	4 (33.3)	2 (40.0)	2 (28.6)	
1	8 (66.7)	3 (60.0)	5 (71.4)	
Tumor PD-L1 expression				0.020
<1 %	4 (33.3)	0	4 (57.1)	
1-49 %	3 (25.0)	1 (20.0)	2 (28.6)	
>50%	5 (41.7)	4 (80.0)	1 (14.3)	
PD-1 expression				0.015
IC0	3 (25.0)	0	3 (42.9)	
IC1	4 (33.3)	1 (20.0)	3 (42.9)	
IC2	2 (16.7)	1 (20.0)	1 (14.3)	
IC3	3 (25.0)	3 (60.0)	0	
Number of previous anticancer regimens				0.002
0	5 (41.7)	5 (100)	0	
1	5 (41.7)	0	5 (71.4)	
2	2 (16.7)	0	2 (28.6)	

Patient baseline characteristics. WHO world health organization; PD-L1 programmed death-ligand 1; PD-1 programmed cell death protein 1; IC immune score according to SP142

SUPPLEMENTAL TABLE 2.

	Adverse events
Patient 1	Fatigue grade I Anorexia grade I Atelectasis grade II
Patient 2	Fatigue grade I Anorexia grade I Dyspnea grade II
Patient 3	Fatigue grade II Anorexia grade II Dizziness grade I Constipation grade II
Patient 4	Dyspnea grade I
Patient 5	None
Patient 6	None
Patient 7	Anemia grade III
Patient 8	Cough grade I Productive cough grade II
Patient 9	Non cardiac chest pain grade II
Patient 10	Fatigue grade I
Patient 11	None
Patient 12	Myalgia grade III

Adverse events per patient.

SUPPLEMENTAL TABLE 3.

		First imaging acquisition			Second imaging acquisition		
		Day 3	Day 5	Day 6 or 7	Day 14 or 15	Day 17	Day 18 or 19
Patient 1	primary tumor	0.11	0.13	0.13	0.13	0.16	0.23
Patient 2	primary tumor	0.05	0.05	0.07	BLQ	0.07	0.07
	lymph node	0.06	0.06	0.06	BLQ	BLQ	BLQ
Patient 3	primary tumor	0.08	0.08	0.09	NP	0.07	0.07
	bone metastasis	0.08	0.08	0.10	NP	0.07	0.07
	bone metastasis	0.02	0.03	0.04	NP	0.04	0.04
Patient 4	primary tumor	0.18	NP	0.21	0.14	NP	0.20
Patient 5	primary tumor	0.13	NP	0.14	0.14	NP	0.17
	lung metastasis	0.12	NP	0.14	0.15	NP	0.16
Patient 6	brain metastasis	0.05	NP	0.07	NP	NP	NP
	lymph node	0.13	NP	0.12	NP	NP	NP
Patient 7	primary tumor	0.10	NP	0.08	0.08	NP	NP
	bone metastasis	0.05	NP	0.07	0.04	NP	NP
	bone metastasis	0.08	NP	0.08	0.05	NP	NP
	lymph node	0.08	NP	0.06	0.06	NP	NP
	soft tissue	0.16	NP	0.11	0.06	NP	NP
	bone metastasis	0.06	NP	0.06	0.05	NP	NP
	soft tissue	0.09	NP	0.07	0.05	NP	NP
	soft tissue	0.09	NP	0.06	0.05	NP	NP
	bone metastasis	0.08	NP	0.09	0.05	NP	NP
	bone metastasis	0.09	NP	0.10	0.05	NP	NP
	bone metastasis	0.05	NP	0.10	0.05	NP	NP
	soft tissue	0.15	NP	0.13	0.07	NP	NP
	soft tissue	0.14	NP	0.13	0.07	NP	NP
Patient 8	primary tumor	0.18	NP	0.22	0.24	NP	0.27
Patient 9	primary tumor	0.05	NP	0.06	BLQ	NP	0.07
Patient 10	brain metastasis	0.03	NP	0.05	0.05	NP	0.06
	bone metastasis	0.06	NP	0.08	BLQ	NP	BLQ
	bone metastasis	0.08	NP	0.09	BLQ	NP	BLQ
	bone metastasis	0.04	NP	0.07	BLQ	NP	BLQ
	bone metastasis	0.08	NP	0.09	BLQ	NP	BLQ
Patient 11	primary tumor	0.08	NP	0.08	0.11	NP	0.14
	lymph node	0.10	NP	0.11	BLQ	NP	BLQ
Patient 12	soft tissue	BLQ	NP	0.08	BLQ	NP	BLQ

%ID/gr for all lesions and time points after first and second ⁸⁹Zr-pembrolizumab injection.

BLQ below quantification limit; NP not performed.

SUPPLEMENTAL TABLE 4.

Patient	Number of brain metastases ≤10 mm	Number of brain metastases >10 mm but ≤20 mm	Number of brain metastases >20 mm (number)	Number of irradiated brain metastases	Number of visible brain metastases on ⁸⁹Zr-pembrolizumab
<i>Patient 1</i>	5			5	0
<i>Patient 2</i>	8	2	2	12	0
<i>Patient 6</i>			1	1	1
<i>Patient 10</i>	13	6	1	0	2

Brain metastases. Information of all brain metastases in participants and visualization on ⁸⁹Zr-pembrolizumab PET/CT.

SUPPLEMENTAL TABLE 5.

Patient	PD-L1 expression (%)	PD-1 expression	SUVpeak day 6/7
1	0	IC2	8.8
2	20	IC2	6.4
3	1	IC0	6.0
4	0	IC1	15.2
5	80	IC3	12.5
6	0	IC0	BLQ
7	75	IC3	7.0
8	90	IC3	BLQ
9	0	IC0	BLQ
10	30	IC1	BLQ
11	60	IC1	7.4
12	60	IC1	BLQ

SUVpeak and immunohistochemistry. Characteristics of each biopsied lesion including PD-L1 expression, PD-1 expression and SUVpeak on day 6 or 7.

PD-L1 programmed death-ligand 1; PD-1 programmed cell death protein 1; SUV standardized uptake value; BLQ below limit of quantification.