

## Supplementary Data

**Supplementary Table 1.** Patient and treatment characteristics of ICI monotherapy cohort.

	<b>Black</b>	<b>White</b>	<b>Hispanic</b>
<b>N</b>	58	78	29
<b>Age at diagnosis</b>	62.8	63.2	61.2
<b>Age at ICI initiation</b>	64.3	65.4	62.3
<b>Sex</b>			
Male	47 (81.0)	61 (78.2)	17 (58.6)
Female	11 (19.0)	17 (21.8)	12 (41.4)
<b>Smoking status*</b>			
Yes	48 (82.8)	70 (89.7)	19 (65.5)
Never smoker	9 (15.5)	8 (10.3)	10 (34.5)
Smoker at diagnosis	14 (24.1)	31 (39.7)	7 (24.1)
Unknown	1 (1.7)	0 (0)	0 (0)
<b>Alcohol</b>			
Yes	17 (29.3)	35 (44.9)	10 (34.5)
No	36 (62.1)	33 (42.3)	19 (65.5)
Unknown	5 (8.6)	10 (12.8)	0 (0)
<b>Cancer</b>			
Lung	49 (84.5)	60 (76.9)	23 (79.3)
Adenocarcinoma	34 (69.4)	36 (60.0)	17 (73.9)
Squamous	13 (26.5)	15 (25.0)	6 (26.0)
Small cell	2 (4.1)	6 (10.0)	0 (0)
NSCLC (NOS)	0 (0)	3 (5.0)	0 (0)
Head and neck SCC	9 (18.4)	18 (23.1)	6 (20.7)
<b>ECOG</b>			
0	7 (12.1)	12 (15.4)	6 (20.7)
1	22 (37.9)	32 (41.0)	14 (48.3)
2	17 (29.3)	22 (28.2)	5 (17.2)
3	3 (5.2)	6 (7.7)	3 (10.3)
4	1 (1.7)	0 (0)	0 (0)
Unknown	8 (13.8)	6 (7.7)	1 (3.4)
<b>Number of Metastasis*</b>			
0	8 (13.8)	11 (14.1)	4 (13.7)
Contralateral lung only	4 (6.9)	2 (2.6)	5 (17.2)
1	17 (29.3)	37 (47.4)	1 (3.4)
2	21 (36.2)	14 (17.9)	15 (51.7)
3	4 (6.9)	11 (14.1)	3 (10.3)
4+	4 (6.9)	3 (3.8)	1 (3.4)
Any brain metastasis	9 (15.5)	18 (23.1)	8 (27.6)
<b>Prior systemic therapy (all)</b>			
0	9 (15.5)	14 (17.9)	5 (17.2)
1	28 (48.3)	42 (53.8)	16 (55.2)
2	15 (25.9)	14 (17.9)	4 (13.8)
3	4 (6.9)	4 (5.1)	1 (3.4)
4+	2 (3.4)	4 (5.1)	3 (10.3)

**Prior systemic therapy  
(concurrent and adjuvant  
chemo excluded)**

0	12 (20.7)	21 (26.9)	6 (20.7)
1	29 (50.0)	43 (55.1)	15 (51.7)
2	12 (20.7)	7 (9.0)	4 (13.8)
3	3 (5.2)	3 (3.8)	1 (3.4)
4+	2 (3.4)	4 (5.1)	3 (10.3)

**ICI treatment**

Nivolumab	36 (62.1)	46 (59.0)	15 (51.7)
Pembrolizumab	22 (37.9)	32 (41.0)	14 (48.3)

**Prior radiation anywhere\***

Yes	39 (67.2)	63 (80.8)	17 (58.6)
No	19 (32.8)	15 (19.2)	12 (41.4)

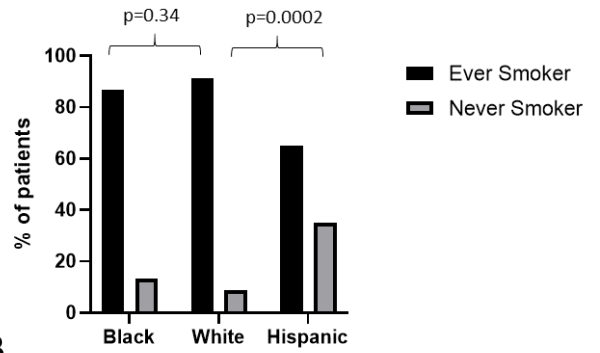
**PD-L1 status (NSCLC)**

0%	2 (4.3)	4 (7.4)	4 (17.4)
1-49%	7 (14.9)	4 (7.4)	3 (13.0)
>50%	12 (25.5)	14 (25.9)	7 (30.4)
Unknown	26 (55.3)	32 (59.3)	9 (39.1)

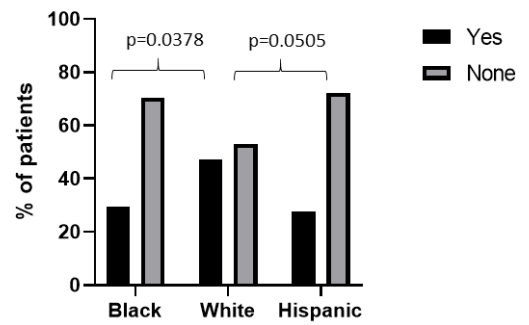
\*p<0.05 for Hispanic vs. White

**Supplementary Figure 1. Patient and disease characteristics with significant differences among the race/ethnic groups for the entire cohort (ICI monotherapy and chemo/ICI combination therapy). A) Smoking status, B) alcohol consumption, and C) number of metastatic sites.**

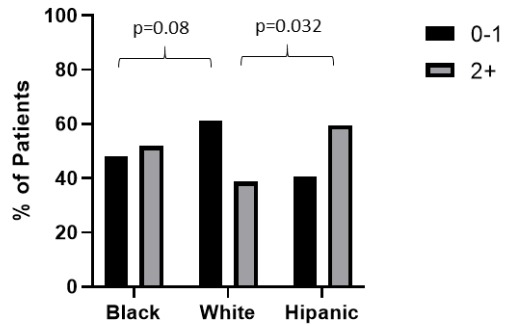
**A.**



**B.**

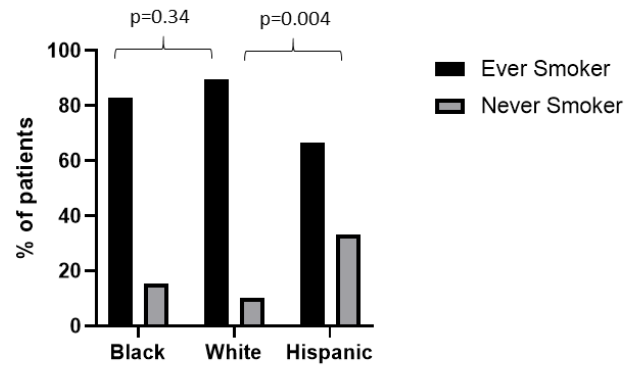


**C.**

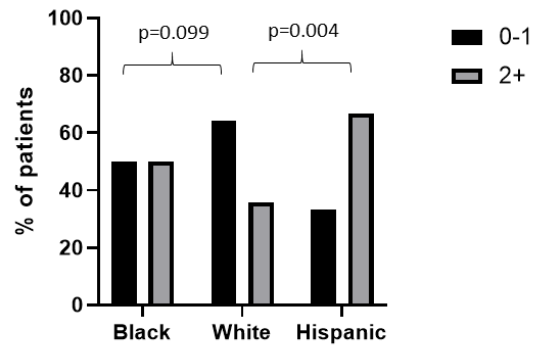


**Supplementary Figure 2. Cohort characteristics with significant differences among the race/ethnic groups for the ICI monotherapy cohort. A) Smoking status and B) number of metastatic sites.**

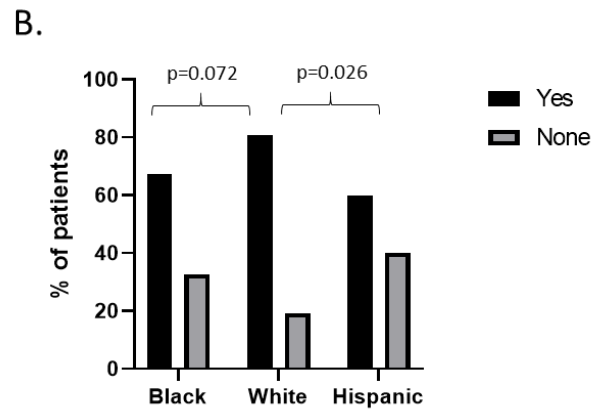
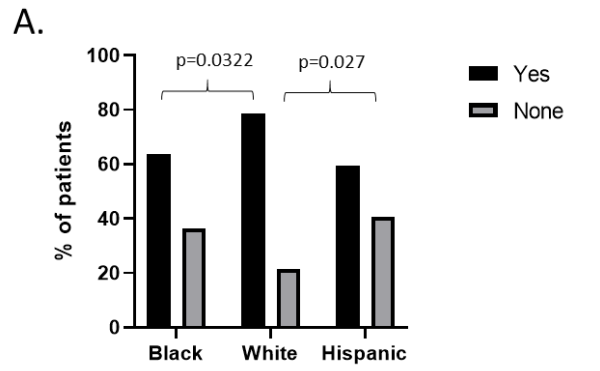
A.



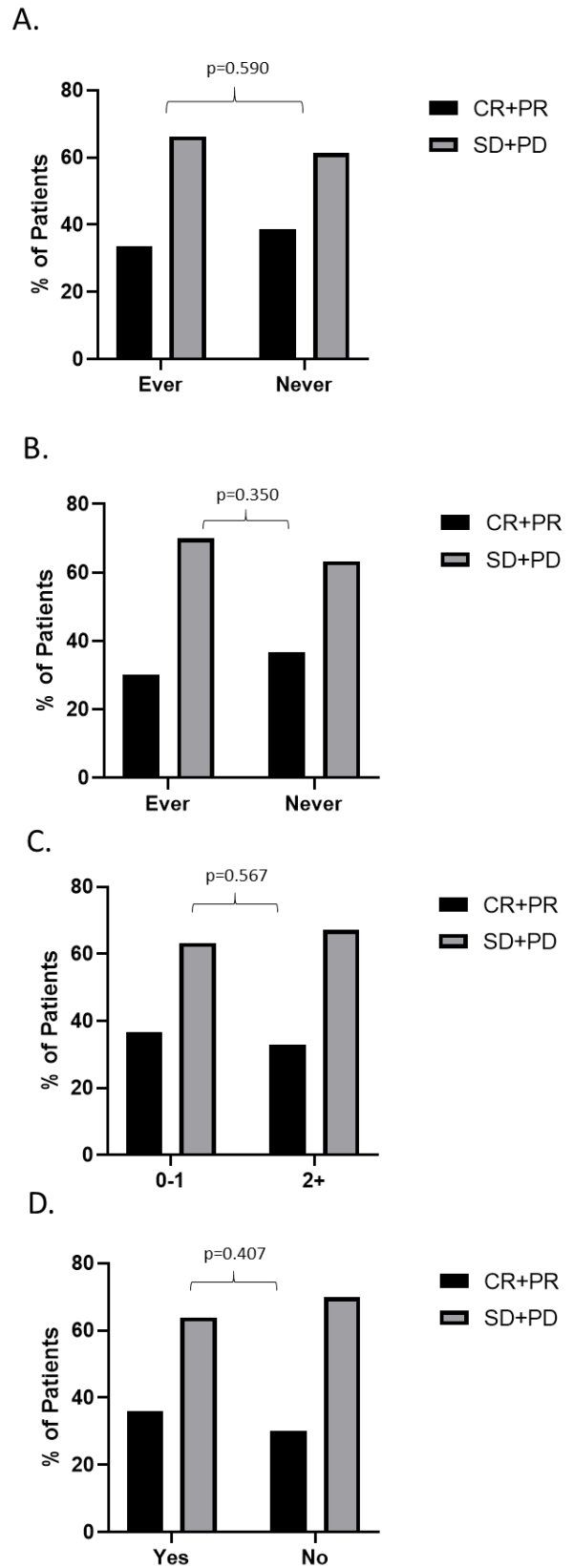
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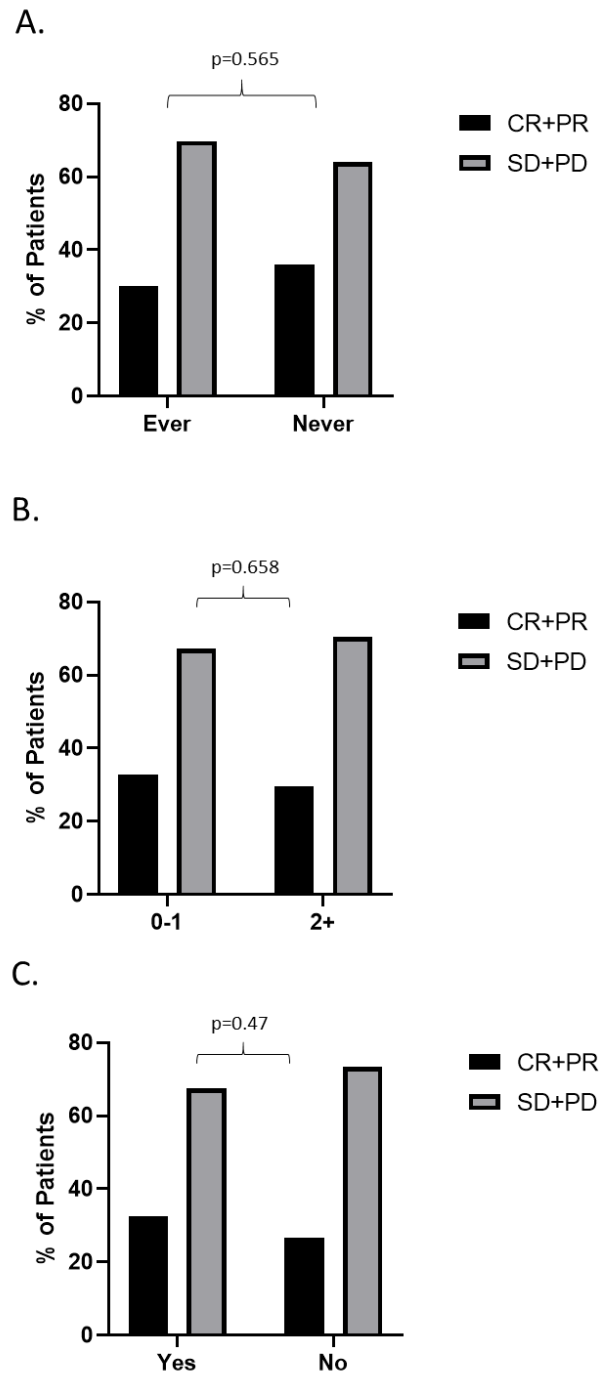
**Supplementary Figure 3. Radiation treatment differed significantly as a function of race/ethnicity. A) entire cohort and B) ICI monotherapy cohort.**



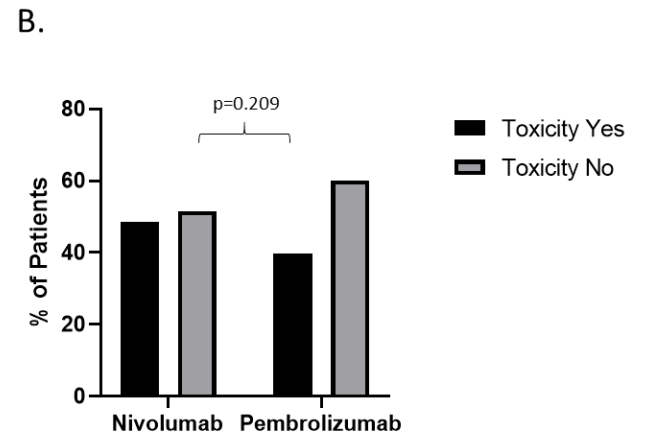
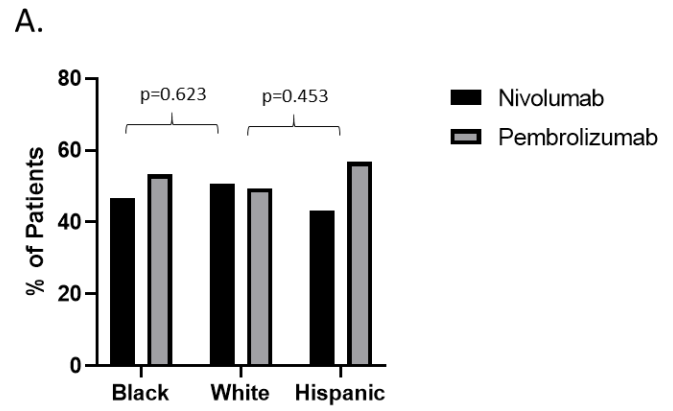
**Supplementary Figure 4. ORR as a function of cohort characteristics with significant differences among the race/ethnic groups for the entire cohort (ICI monotherapy and chemo/ICI combination therapy). A) Smoking status, B) alcohol consumption, C) number of metastatic sites, and D) history of radiation treatment. CR- complete response; PR- partial response; SD- stable disease; PD- progressive disease.**



**Supplementary Figure 5. ORR as a function of cohort characteristics with significant differences among the race/ethnic groups for the ICI monotherapy cohort. A) Smoking status, B) number of metastatic sites, and C) history of radiation treatment. CR- complete response; PR- partial response; SD- stable disease; PD- progressive disease.**

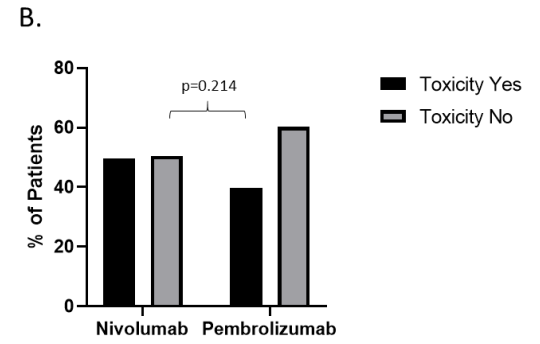
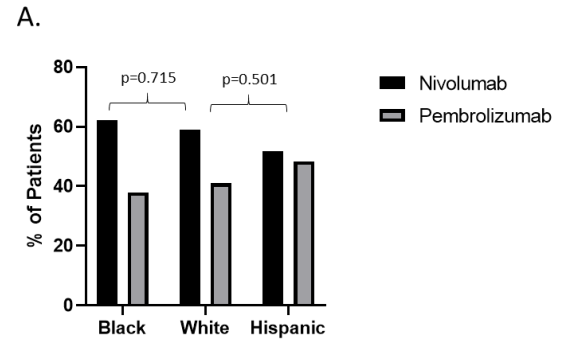


**Supplemental Figure 6: Toxicity and treatment type in the entire cohort. A) treatment type by race/ethnicity and B) toxicity by treatment type. P values were determined by two-sided Chi-square tests.**





**Supplemental Figure 7: Toxicity and treatment type in the monotherapy cohort.** **A)** treatment type by race/ethnicity and **B)** toxicity by treatment type. P values were determined by two-sided Chi-square tests



**Supplementary Table 2.** p16 status and response among oropharyngeal cancers by race/ethnicity.

<u>Race/Ethnicity</u>	<u>p16 status</u>	<u>Response type</u>
Black	unknown	Progression
Black	unknown	Progression
White	p16+	Partial response
White	p16+	Progression
White	p16+	Progression
White	p16+	Progression
White	p16-	Progression
White	p16-	Progression
Hispanic	p16+	Progression

**Supplementary Table 3.** Severe irAEs resulting in steroid administration or ICI cessation with summary of specific severe irAEs.

	<b><u>Black</u></b>	<b><u>White</u></b>	<b><u>Hispanic</u></b>
<b>irAE requiring stop of IO and/or systemic steroids</b>	15 (19.5)	16 (17.2)	6 (15.8)
Stop/hold IO	10	8	4
Steroid only	5	8	2
<b>irAE type</b>			
Ataxia	2	0	0
Meningoencephalitis	1	0	0
Hypophysitis	0	1	0
Adrenal insufficiency	1	1	0
Pneumonitis	3	3	3
Tracheobronchitis	0	1	0
Colitis	3	3	2
Hepatitis	2	2	1
Renal Toxicity	0	1	0
Rash	1	2	0
Shingles	1	0	0
ITP	1	0	0
Arthritis	0	2	0