

BREAST CANCERS FROM BLACK WOMEN EXHIBIT HIGHER NUMBERS OF IMMUNOSUPPRESSIVE MACROPHAGES WITH PROLIFERATIVE ACTIVITY AND OF CROWN LIKE STRUCTURES ASSOCIATED WITH LOWER SURVIVAL COMPARED TO NON-BLACK LATINAS AND CAUCASIANS.

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SUPPLEMENTARY MATERIAL:
Supplementary Table 1

Variables	ALL		Race						p-value*
			BL		NBLA		CA		
	N	%	n	%	n	%	n	%	
ALL	145	100.0	48	33.0	49	34.0	48	33.0	
Age (years)									0.0195
n (missing)	145 (0)		48 (0)		49 (0)		48 (0)		
Mean (sd)	54.9 (12.4)		51.6 (12.7)		54.5 (12.2)		58.6 (11.5)		
Median (Q1 ; Q3)	57 (47 ; 64)		55 (39.5 ; 59.5)		57 (47 ; 61)		60.5 (50 ; 65.5)		
Min ; max	27 ; 87		27 ; 87		28 ; 81		35 ; 84		
Follow-up (months)									***
n (missing)	145 (0)		48 (0)		49 (0)		48 (0)		
Mean (sd)	117.3 (81)		106.6 (81.9)		114.2 (78.4)		131.1 (82.4)		
Median (Q1 ; Q3)	116 (37.9 ; 184)		81.5 (29.5 ; 168)		104 (44 ; 176)		145.5 (42.5 ; 191)		
Min ; max	2 ; 326		6 ; 325		2 ; 286		12 ; 326		
Histology Type									0.2821
Ductal	127	87.6	42	87.5	46	93.9	39	81.3	
Lobular	12	8.3	5	10.4	1	2.0	6	12.5	
Other	6	4.1	1	2.1	2	4.1	3	6.3	
T stage									0.1868
T1	56	38.6	15	31.3	18	36.7	23	47.9	
T2	55	37.9	16	33.3	22	44.9	17	35.4	
T3	13	9.0	7	14.6	2	4.1	4	8.3	
T4	18	12.4	7	14.6	7	14.3	4	8.3	
Tx	3	2.1	3	6.3					
N stage									0.0941
N0	60	41.4	16	33.3	19	38.8	25	52.1	
N1	33	22.8	10	20.8	14	28.6	9	18.8	
N2	21	14.5	10	20.8	7	14.3	4	8.3	
N3	25	17.2	7	14.6	8	16.3	10	20.8	
Nx	6	4.1	5	10.4	1	2.0			
M stage									0.6043
M0	128	88.3	41	85.4	45	91.8	42	87.5	
M1	17	11.7	7	14.6	4	8.2	6	12.5	
LVI									0.2324
No	78	53.8	28	58.3	29	59.2	21	43.8	
Yes	67	46.2	20	41.7	20	40.8	27	56.3	
Stage									0.0832
I	37	25.5	6	12.5	12	24.5	19	39.6	
II	50	34.5	18	37.5	20	40.8	12	25.0	
III	41	28.3	17	35.4	13	26.5	11	22.9	
IV	17	11.7	7	14.6	4	8.2	6	12.5	
Recurrence									0.0762
No	62	42.8	15	31.3	21	42.9	26	54.2	
Yes	83	57.2	33	68.8	28	57.1	22	45.8	
Vital Status									0.1051
Alive	57	39.3	15	31.3	18	36.7	24	50.0	
Dead	88	60.7	33	68.8	31	63.3	24	50.0	
ER status									0.0261**
Negative	57	39.3	22	45.8	24	49.0	11	22.9	
Positive	86	59.3	26	54.2	25	51.0	35	72.9	
Unknown	2	1.4					2	4.2	
PR status									0.1614**
Negative	60	41.4	22	45.8	25	51.0	13	27.1	
Positive	74	51.0	24	50.0	23	46.9	27	56.3	
Unknown	11	7.6	2	4.2	1	2.0	8	16.7	
HER-2 status									0.7909
Negative	128	88.3	43	89.6	42	85.7	43	89.6	
Positive	17	11.7	5	10.4	7	14.3	5	10.4	
Grade									0.1121
I	22	15.2	5	10.4	8	16.3	9	18.8	
II	75	51.7	24	50.0	21	42.9	30	62.5	
III	48	33.1	19	39.6	20	40.8	9	18.8	
Any Treatment									0.4706
Unknown	14	9.7	6	12.5	3	6.1	5	10.4	
No	18	12.4	4	8.3	6	12.2	8	16.7	
Yes	113	77.9	38	79.2	40	81.6	35	72.9	
Chemotherapy									0.0057**
Unknown	14	9.7	6	12.5	3	6.1	5	10.4	
No	78	53.8	22	45.8	22	44.9	34	70.8	
Yes	53	36.6	20	41.7	24	49.0	9	18.8	
Radiation Therapy									0.4749**
Unknown	14	9.7	6	12.5	3	6.1	5	10.4	
No	91	62.8	28	58.3	35	71.4	28	58.3	
Yes	40	27.6	14	29.2	11	22.4	15	31.3	
Hormonal Therapy									0.3287**
Unknown	14	9.7	6	12.5	3	6.1	5	10.4	
No	76	52.4	26	54.2	29	59.2	21	43.8	
Yes	55	37.9	16	33.3	17	34.7	22	45.8	

*p-value is from one-way ANOVA for testing means or Chi-square or Fisher's exact test for testing the proportion among races. **Unknown category were excluded from Chi-Square test. ***test for mean differences is not applicable due to censoring.

Supplementary Table 2 (A and B)

Table 2A

	All	Race			p-value*
		BL	NBLA	CA	
Density of TAMs (CD163)					<.0001
n (missing)	145 (0)	48 (0)	49 (0)	48 (0)	
Mean (sd)	105.06 (82.07)	142.21 ^a (89.3)	110.16 ^a (75.23)	62.72 ^b (60.11)	
Median (Q1 ; Q3)	82.54 (38.1 ; 156.1)	137.15 (68.79 ; 195.2)	96.03 (38.62 ; 166.1)	47.49 (18.92 ; 91.52)	
Min ; max	2.91 ; 395.5	21.69 ; 395.5	8.2 ; 271.2	2.91 ; 269.6	

*p-value is from one-way ANOVA for testing the mean differences among races where pairwise comparison were done by Bonferroni t-test.

Table 2B

	All		Race						p-value
			BL		NBLA		CA		
	n	%	n	%	n	%	n	%	
All	145	100.0	48	33.0	49	34.0	48	33.0	
Qual. Density (CD163)									0.0009
1+	100	69.0	25	52.1	33	67.3	42	87.5	
2+	44	30.3	22	45.8	16	32.7	6	12.5	
3+	1	0.7	1	2.1					
Qual. Density (CD206)									0.0238
1+	91	62.8	22	45.8	32	65.3	37	77.1	
2+	41	28.3	18	37.5	14	28.6	9	18.8	
3+	13	9.0	8	16.7	3	6.1	2	4.2	
Qual. Density (CD40)									<0.0001
0	111	76.6	42	87.5	48	98.0	21	43.8	
1+	32	22.1	4	8.3	1	2.0	27	56.3	
2+	2	1.4	2	4.2	-	-	-	-	

*p-value is from Chi-square or Fisher's exact test for testing the proportion differences among races.

Supplementary Table 3 (A and B)

Table 3A

Variables		All	Race			p value
			BL	NBLA	CA	
Density of CD163 (cells/mm2)	N (missing)	23 (0)	8 (0)	7 (0)	8 (0)	0.0701
	Mean (sd)	208 (62.1)	236.9 (63.4) ^a	219.7 (44.5) ^{ab}	169 (59.9) ^b	
	Median (Q1, Q3)	196 (156.1 ; 266.7)	233.1 (186.4 ; 281)	231 (166.1 ; 266.7)	156 (130.2 ; 207.6)	
	Min, max	94.7 ; 338.6	155.8 ; 338.6	165.1 ; 271.2	94.7 ; 269.6	
Average # of cells of CD163/Ki67+	N (missing)	23 (0)	8 (0)	7 (0)	8 (0)	0.1614
	Mean (sd)	4.6 (3.8)	6.6 (4.8)	3 (1.6)	4 (3.6)	
	Median (Q1, Q3)	4 (2 ; 6)	4.5 (4 ; 9.5)	3 (2 ; 4)	3 (1.5 ; 5)	
	Min, max	1 ; 16	1 ; 16	1 ; 6	1 ; 12	
Density of CD163/Ki67+ (cells/mm2)	N (missing)	23 (0)	8 (0)	7 (0)	8 (0)	0.1613
	Mean (sd)	16.5 (13.7)	23.7 (17.1)	10.7 (5.8)	14.3 (12.9)	
	Median (Q1, Q3)	14.3 (7.1 ; 21.4)	16.1 (14.3 ; 33.9)	10.7 (7.1 ; 14.3)	10.7 (5.4 ; 17.9)	
	Min, max	3.6 ; 57.1	3.6 ; 57.1	3.6 ; 21.4	3.6 ; 42.9	
Ratio	N (missing)	23 (0)	8 (0)	7 (0)	8 (0)	0.3239
	Mean (sd)	0.081 (0.06)	0.095 (0.053)	0.052 (0.03)	0.091 (0.081)	
	Median (Q1, Q3)	0.075 (0.036 ; 0.102)	0.093 (0.062 ; 0.119)	0.04 (0.026 ; 0.087)	0.083 (0.042 ; 0.097)	
	Min, max	0.013 ; 0.275	0.018 ; 0.194	0.015 ; 0.093	0.013 ; 0.275	

* Ratio is the total dividing TAMs (CD163+/Ki-67+) divided by the total # of TAMs (CD163+). P value is from ANOVA for testing the mean differences among race where pairwise comparison were done by Bonferroni t-test,

Table 3B

Variables		All	Race			p value
			BL	NBLA	CA	
Density of CD163 (cells/mm2)	N (missing)	23 (0)	8 (0)	7 (0)	8 (0)	0.0701
	Mean (sd)	208 (62.1)	236.9 (63.4) ^a	219.7 (44.5) ^{ab}	169 (59.9) ^b	
	Median (Q1, Q3)	196 (156.1 ; 266.7)	233.1 (186.4 ; 281)	231 (166.1 ; 266.7)	156 (130.2 ; 207.6)	
	Min, max	94.7 ; 338.6	155.8 ; 338.6	165.1 ; 271.2	94.7 ; 269.6	
Average # of cells of CD163/Ki67+	N (missing)	23 (0)	8 (0)	7 (0)	8 (0)	0.0107
	Mean (sd)	1.7 (1.7)	3 (1.5) ^a	1 (1.5) ^b	0.9 (1.1) ^b	
	Median (Q1, Q3)	1 (0 ; 3)	3.5 (1.5 ; 4)	0 (0 ; 2)	0.5 (0 ; 1.5)	
	Min, max	0 ; 5	1 ; 5	0 ; 4	0 ; 3	
Density of CD163/Ki67+ (cells/mm2)	N (missing)	23 (0)	8 (0)	7 (0)	8 (0)	0.0107
	Mean (sd)	5.9 (6)	10.7 (5.4) ^a	3.6 (5.5) ^b	3.1 (4) ^b	
	Median (Q1, Q3)	3.6 (0 ; 10.7)	12.5 (5.4 ; 14.3)	0 (0 ; 7.1)	1.8 (0 ; 5.4)	
	Min, max	0 ; 17.9	3.6 ; 17.9	0 ; 14.3	0 ; 10.7	
Ratio	N (missing)	23 (0)	8 (0)	7 (0)	8 (0)	0.0353
	Mean (sd)	0.027 (0.024)	0.044 (0.018) ^a	0.018 (0.025) ^b	0.017 (0.021) ^b	
	Median (Q1, Q3)	0.02 (0 ; 0.046)	0.044 (0.03 ; 0.058)	0 (0 ; 0.043)	0.007 (0 ; 0.04)	
	Min, max	0 ; 0.07	0.018 ; 0.07	0 ; 0.062	0 ; 0.046	

* Ratio is the total dividing TAMs (CD163+/Ki-67+) divided by the total # of TAMs (CD163+). P value is from ANOVA for testing the mean differences among race where pairwise comparison were done by Bonferroni t-test,

Supplementary Table 4

Variables		All	ER status		p value
			Positive	Negative	
Density of CD163 (cells/mm2)	N (missing)	23 (0)	9 (0)	14 (0)	0.0269
	Mean (sd)	208 (62.1)	173.1 (38.2)	230.5 (65.2)	
	Median (Q1, Q3)	196 (156.1 ; 266.7)	176.7 (156.1 ; 196)	251.6 (165.1 ; 269.6)	
	Min, max	94.7 ; 338.6	94.7 ; 231	104.8 ; 338.6	
Average # of cells of CD163/Ki67+	N (missing)	23 (0)	9 (0)	14 (0)	0.4752
	Mean (sd)	1.7 (1.7)	1.3 (1.7)	1.9 (1.7)	
	Median (Q1, Q3)	1 (0 ; 3)	1 (0 ; 2)	1.5 (0 ; 3)	
	Min, max	0 ; 5	0 ; 4	0 ; 5	
Density of CD163/Ki67+ (cells/mm2)	N (missing)	23 (0)	9 (0)	14 (0)	0.4755
	Mean (sd)	5.9 (6)	4.8 (5.9)	6.6 (6.1)	
	Median (Q1, Q3)	3.6 (0 ; 10.7)	3.6 (0 ; 7.1)	5.4 (0 ; 10.7)	
	Min, max	0 ; 17.9	0 ; 14.3	0 ; 17.9	

*p-value is from Student's t-test for testing the mean differences among hormonal status.

Supplementary Table 5

Variables		PR status			p value
		All	Positive	Negative	
Density of CD163 (cells/mm ²)	N (missing)	21 (0)	7 (0)	14 (0)	0.0722
	Mean (sd)	214 (59.7)	181 (27.6)	230.5 (65.2)	
	Median (Q1 , Q3)	204.5 (165.1 ; 266.7)	176.7 (156.1 ; 204.5)	251.6 (165.1 ; 269.6)	
	Min , max	104.8 ; 338.6	155.8 ; 231	104.8 ; 338.6	
Average # of cells of CD163/Ki67+	N (missing)	21 (0)	7 (0)	14 (0)	0.7265
	Mean (sd)	1.8 (1.7)	1.6 (1.8)	1.9 (1.7)	
	Median (Q1 , Q3)	1 (0 ; 3)	1 (0 ; 4)	1.5 (0 ; 3)	
	Min , max	0 ; 5	0 ; 4	0 ; 5	
Density of CD163/Ki67+ (cells/mm ²)	N (missing)	21 (0)	7 (0)	14 (0)	0.7268
	Mean (sd)	6.3 (6.1)	5.6 (6.5)	6.6 (6.1)	
	Median (Q1 , Q3)	3.6 (0 ; 10.7)	3.6 (0 ; 14.3)	5.4 (0 ; 10.7)	
	Min , max	0 ; 17.9	0 ; 14.3	0 ; 17.9	

*p-value is from Student's t-test for testing the mean differences among hormonal status.

Supplementary Table 6

Variables		All	HER status		p value
			Positive	Negative	
Density of CD163 (cells/mm ²)	N (missing)	23 (0)	3 (0)	20 (0)	0.7466
	Mean (sd)	208 (62.1)	196.8 (63.2)	209.7 (63.5)	
	Median (Q1 , Q3)	196 (156.1 ; 266.7)	165.1 (155.8 ; 269.6)	200.3 (161.1 ; 264.2)	
	Min , max	94.7 ; 338.6	155.8 ; 269.6	94.7 ; 338.6	
Average # of cells of CD163/Ki67+	N (missing)	23 (0)	3 (0)	20 (0)	0.9876
	Mean (sd)	1.7 (1.7)	1.7 (0.6)	1.7 (1.8)	
	Median (Q1 , Q3)	1 (0 ; 3)	2 (1 ; 2)	1 (0 ; 3.5)	
	Min , max	0 ; 5	1 ; 2	0 ; 5	
Density of CD163/Ki67+ (cells/mm ²)	N (missing)	23 (0)	3 (0)	20 (0)	0.9881
	Mean (sd)	5.9 (6)	6 (2.1)	5.9 (6.4)	
	Median (Q1 , Q3)	3.6 (0 ; 10.7)	7.1 (3.6 ; 7.1)	3.6 (0 ; 12.5)	
	Min , max	0 ; 17.9	3.6 ; 7.1	0 ; 17.9	

*p-value is from Student's t-test for testing the mean differences among hormonal status.

Supplementary Table 7

Variables		All	Race			p-value*
			BL	NBLA	CA	
Density of CLS (CD163)	n (missing)	145 (0)	48 (0)	49 (0)	48 (0)	0.0167
	Mean (sd)	0.06 (0.14)	0.11 ^a (0.22)	0.05 ^{ab} (0.08)	0.03 ^b (0.07)	
	Median (Q1 ; Q3)	0.01 (0 ; 0.04)	0.03 (0 ; 0.09)	0.02 (0 ; 0.04)	0 (0 ; 0.02)	
	Min ; max	0 ; 1.12	0 ; 1.12	0 ; 0.35	0 ; 0.38	
Density of CLS (CD206)	n (missing)	145 (0)	48 (0)	49 (0)	48 (0)	0.6374
	Mean (sd)	0.03 (0.07)	0.04 (0.09)	0.03 (0.05)	0.02 (0.06)	
	Median (Q1 ; Q3)	0 (0 ; 0.02)	0 (0 ; 0.02)	0.01 (0 ; 0.02)	0 (0 ; 0.03)	
	Min ; max	0 ; 0.45	0 ; 0.45	0 ; 0.23	0 ; 0.29	
Density of CLS (CD40)	n (missing)	145 (0)	48 (0)	49 (0)	48 (0)	0.2826
	Mean (sd)	0.01 (0.07)	0.02 (0.11)	0 (0)	0 (0.02)	
	Median (Q1 ; Q3)	0 (0 ; 0)	0 (0 ; 0)	0 (0 ; 0)	0 (0 ; 0)	
	Min ; max	0 ; 0.77	0 ; 0.77	0 ; 0	0 ; 0.13	

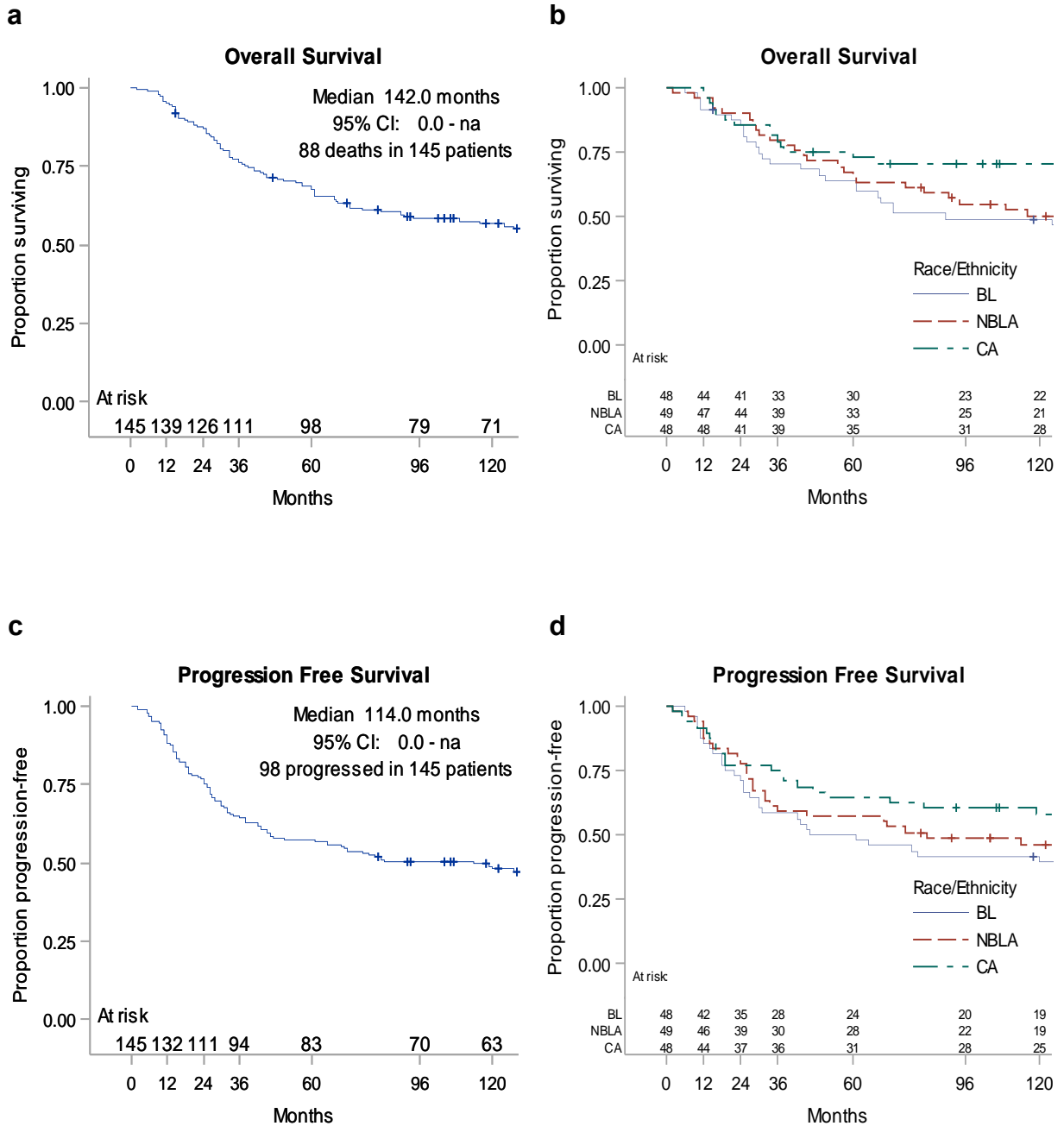
*p-value is from ANOVA for testing the mean differences among races.

** Pairwise comparison were done by Bonferroni t Test.

Supplementary Table 8

Rate (%) Time(months)	Overall Survival (%)				Progression Free Survival (%)			
	All	BL	NBLA	CA	All	BL	NBLA	CA
0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
12	95.2	91.7	95.9	97.9	88.3	85.4	87.8	91.7
24	86.9	85.3	89.8	85.4	75.2	70.8	77.6	77.1
36	76.4	70.3	79.6	79.2	64.1	58.3	59.2	75.0
60	67.4	64.0	65.3	72.9	57.2	50.0	57.1	64.6
90	58.1	49.0	54.8	70.7	50.3	41.7	48.9	60.4
120	56.6	49.0	50.0	70.7	48.0	39.5	46.4	58.1

Supplementary Fig. 1



Supplementary Fig. 1 Kaplan-Meier survival curves illustrating the overall survival (OS) and progression free survival (PFS) in all patients and different racial groups. a: OS in all patients with median survival rate and 95% CI. b: OS in three racial groups which showed that survival rates for BL patients were lower than NBLA and CA patients, and survival rates for NBLA were lower than for CA. c: PFS in all patients with median survival rate and 95% CI. d: PFS in three racial groups which showed same pattern as OS.