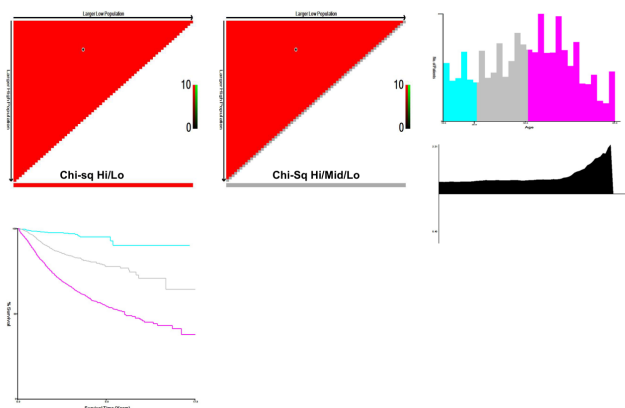


Table S1 Baseline characteristics with SMD

Variables	Total (n=11442)	Excluded (n=4526)	Included (n=6916)	SMD
Age at diagnosis, n(%)				
18-30 years	1613 (14.1)	502 (11.09)	1111 (16.06)	0.135
31-50 years	3519 (30.76)	1365 (30.16)	2154 (31.15)	0.021
≥51 years	6310 (55.15)	2659 (58.75)	3651 (52.79)	-0.119
Sex, n(%)				
Female	6518 (56.97)	2489 (54.99)	4029 (58.26)	0.066
Male	4924 (43.03)	2037 (45.01)	2887 (41.74)	-0.066
Race, n(%)				
American Indian/Alaska Native	87 (0.76)	40 (0.88)	47 (0.68)	-0.025
Asian/Pacific Islander	657 (5.74)	258 (5.70)	399 (5.77)	0.003
Black	1029 (8.99)	380 (8.40)	649 (9.38)	0.034
White	9503 (83.05)	3682 (81.35)	5821 (84.17)	0.077
NA	166 (1.45)	166 (3.67)	0 (0.00)	-0.310
Marital status, n(%)				
Divorced/widowed/Single/Separated	4535 (39.63)	1705 (37.67)	2830 (40.92)	0.066
Married	6250 (54.62)	2495 (55.13)	3755 (54.29)	-0.017
Other	657 (5.74)	326 (7.20)	331 (4.79)	-0.113
Radiation, n(%)				
No	11332 (99.04)	4494 (99.29)	6838 (98.87)	-0.040
Yes	110 (0.96)	32 (0.71)	78 (1.13)	0.040
Chemotherapy, n(%)				
No	8229 (71.92)	3150 (69.60)	5079 (73.44)	0.087
Yes	3213 (28.08)	1376 (30.40)	1837 (26.56)	-0.087
Surgery, n(%)				
No	841 (7.35)	620 (13.70)	221 (3.20)	-0.597
Local tumor destruction				
Resection	9645 (84.29)	3343 (73.86)	6302 (91.12)	0.607
NA	256 (2.24)	256 (5.66)	0 (0.00)	-0.389
Year of diagnosis				
2004	225 (1.97)	159 (3.51)	66 (0.95)	-0.263
2005	263 (2.30)	188 (4.15)	75 (1.08)	-0.296
2006	274 (2.39)	189 (4.18)	85 (1.23)	-0.303
2007	268 (2.34)	178 (3.93)	90 (1.30)	-0.232
2008	312 (2.73)	208 (4.60)	104 (1.50)	-0.254
2009	333 (2.91)	219 (4.84)	114 (1.65)	-0.233
2010	420 (3.67)	215 (4.75)	205 (2.96)	-0.105
2011	432 (3.78)	204 (4.51)	228 (3.30)	-0.068
2012	486 (4.25)	246 (5.44)	240 (3.47)	-0.095
2013	524 (4.58)	181 (4.00)	343 (4.96)	0.064
2014	613 (5.36)	201 (4.44)	412 (5.96)	0.083
2015	927 (8.10)	300 (6.63)	627 (9.07)	0.085
2016	990 (8.65)	415 (9.17)	575 (8.31)	-0.028
2017	1039 (9.03)	464 (10.25)	569 (8.23)	-0.074
2018	1170 (9.89)	331 (7.31)	839 (12.13)	0.181
2019	1133 (9.90)	372 (8.22)	761 (11.74)	0.144
2020	1077 (9.41)	286 (6.32)	791 (11.44)	0.161
2021	1083 (9.47)	269 (5.94)	814 (11.77)	0.181

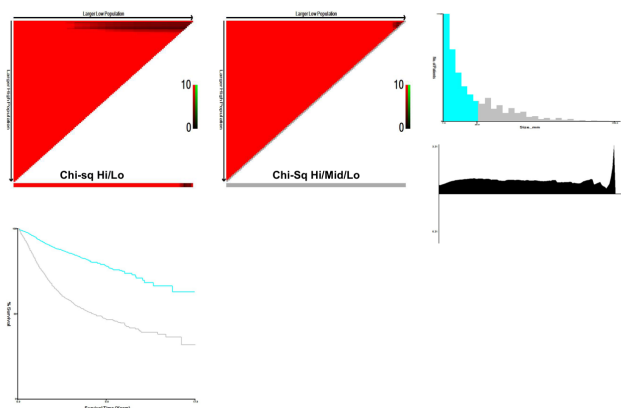
**A** vival Analysis: Age



Pt No	% Total	Events	Rate	Rank	Range
765	15.79	22	2.88	0 to 12	18.00 thru 30.00
1510	31.17	188	12.45	13 to 32	31.00 thru 50.00
2569	53.03	753	29.31	33 to 67	51.00 thru 85.00
4844	100.00	963	19.88	0 to 67	18.00 thru 85.00

Variable	Value
Chi-Square	294.3063
Uncorrected P	0.00000

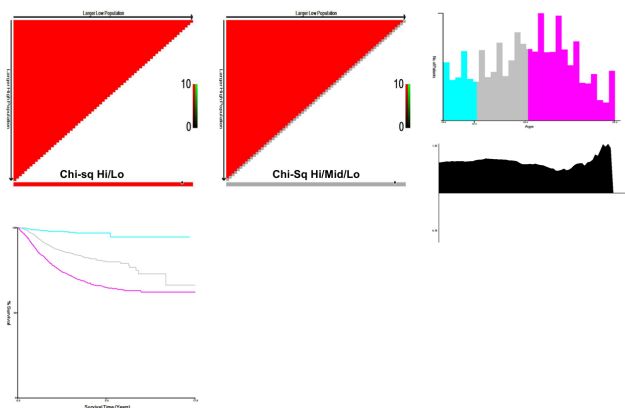
**B** vival Analysis: Size\_mm



Pt No	% Total	Events	Rate	Rank	Range
3363	69.43	399	11.86	0 to 29	1.00 thru 30.00
1481	30.57	564	38.08	30 to 115	31.00 thru 150.00
4844	100.00	963	19.88	0 to 115	1.00 thru 150.00

Variable	Value
Chi-Square	369.8087
Uncorrected P	0.00000

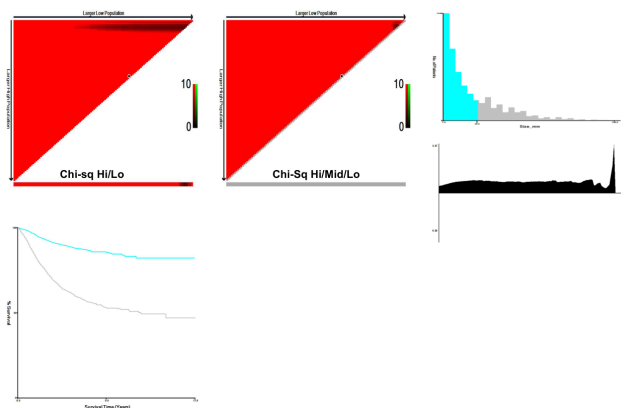
**C** vival Analysis: Age



Pt No	% Total	Events	Rate	Rank	Range
765	15.79	16	2.09	0 to 12	18.00 thru 30.00
1510	31.17	174	11.52	13 to 32	31.00 thru 50.00
2569	53.03	571	22.23	33 to 67	51.00 thru 85.00
4844	100.00	761	15.71	0 to 67	18.00 thru 85.00

Variable	Value
Chi-Square	198.3059
Uncorrected P	0.00000

**D** vival Analysis: Size\_mm



Pt No	% Total	Events	Rate	Rank	Range
3363	69.43	283	8.42	0 to 29	1.00 thru 30.00
1481	30.57	478	32.28	30 to 115	31.00 thru 150.00
4844	100.00	761	15.71	0 to 115	1.00 thru 150.00

Variable	Value
Chi-Square	399.3129
Uncorrected P	0.00000

**Figure S1** X-tile-determined cutpoints for age and tumor size in the training cohort. (A) Age cutpoints for overall survival (OS); (B) tumor size cutpoint for OS; (C) age cutpoints for cancer-specific survival (CSS); (D) tumor size cutpoint for CSS. X-tile selects outcome-oriented cutpoints based on log-rank statistics; the corresponding cutpoints, subgroup sizes, and  $\chi^2$  statistics are shown in each panel.