Supplementary Table 1. The relationship between the presence of nerve fibres and/or trunks and clinicopathological parameters in breast cancer

Parameter	Nerve - (n=19)	Nerve+ (n=107)	P-value[a]
Tumor size[b]			0.7279
1 (n=56)	8 (14.3%)	48 (85.7%)	
2 (n=61)	10 (16.4%)	51 (83.6%)	
3 (n=4)	1(25.0%)	3 (75.0%)	
4 (n=5)	0 (0.0%)	5(100.0%)	
Patient age[c]			0.8619
≤50 (n=64)	10 (15.6%)	54 (84.4%)	
>50 (n=62)	9 (14.5%)	53 (85.5%)	
Lymph node involvement[d]			0.2551
0 (n=71)	11 (15.5%)	60 (84.5%)	
1 (n=31)	7 (22.6%)	24 (77.4%)	
2 (n=10)	1 (10.0%)	9 (90.0%)	
3 (n=14)	0 (0.0%)	14 (100.0%)	
HER2[e]			0.3384
HER2 - (n =91)	12 (13.2%)	79 (86.8%)	
HER2 + (n=35)	7 (20.0%)	28 (80.0%)	
ER[e]			0.0789
ER - (n =44)	10 (22.7%)	34 (77.3%)	
ER + (n =82)	9 (11.0%)	73 (89.0%)	
PR[e]			0.2290
PR - (n =57)	11 (19.3%)	46 (80.7%)	
PR + (n =69)	8 (11.6%)	61 (88.4%)	
Molecular subtype[f]			0.3949
Luminal A (n =69)	7 (10.1%)	62 (89.9%)	
Luminal B (n =15)	3 (20.0%)	12 (80.0%)	
HER-2 positive (n =20)	4 (20.0%)	16 (80.0%)	
Triple negative (n =22)	5 (22.7%)	17 (77.3%)	
Pathological subtype[g]			0.3645
IDC (n =116)	16 (13.8%)	100 (86.2%)	
ILC (n =6)	2 (33.3%)	4 (66.7%)	
Others (n=4)	1 (25.0%)	3 (75.0%)	
Menopause			0.1943
Pre-menopause (n =69)	13(18.8%)	56 (81.2%)	
Post-menopause (n =57)	6 (10.5%)	51 (89.5%)	
The age of menarche[h]			**0.0441**
≤15 (n =73)	15 (20.5%)	58 (79.5%)	
>15 (n =53)	4 (7.5%)	49 (92.5%)	

[a]Chi-squared test, a *P* value ≤ 0.05 was considered statistically significant.

[b]Tumor sizes were scored according to the TNM staging system.

[c]Patients were arbitrarily divide into two groups according to the median age at diagnosis age 50.

[d]Lymph node involvement was scored according to the TNM staging system.

[e]HER2, ER and PR positivity defined using immunohistochemistry was recorded in the pathology report of the surgically removed breast cancer tissues

[f]Molecular subtypes were defined as luminal A: ER+ and/or PR+/HER2-; luminal B: ER+ and/or PR+/HER2+; HER2+; TNBC: ER-/PR-/HER2-.

[g]IDC: Invasive ductal carcinomas; ILC: Invasive lobular carcinomas; Others including micropapillary carcinomas, metaplastic carcinomas and mucinous adenocarcinomas.

[h]Patients were arbitrarily divided into two groups according to the median age of menarche age 15.

Supplementary Table 2. The relationship between the presence of nerve fibres and clinicopathological parameters in breast cancer

Parameter	Nerve fibre negative (n=28)	Nerve fibre positive (n=98)	P-value[a]
Tumor size[b]			0.3511
1 (n=56)	13 (23.2%)	43 (76.8%)	
2 (n=61)	13 (21.3%)	48 (78.7%)	
3 (n=4)	2 (50.0%)	2 (50.0%)	
4 (n=5)	0 (0.0%)	5 (100.0%)	
Patient age[c]			0.9241
≤50 (n=64)	14 (21.9%)	50 (78.1%)	
>50 (n=62)	14 (22.6%)	48 (77.4%)	
Lymph node involvement[d]			0.3006
0 (n=71)	17 (23.9%)	54 (76.1%)	
1 (n=31)	9 (29.0%)	22 (71.0%)	
2 (n=10)	1 (10.0%)	9 (90.0%)	
3 (n=14)	1 (7.1%)	13 (92.9%)	
HER2[e]			0.2877
HER2- (n =91)	18 (19.8%)	73 (80.2%)	
HER2+ (n=35)	10 (28.6%)	25 (71.4%)	
ER[e]			0.0577
ER- (n =44)	14 (31.8%)	30 (68.2%)	
ER+ (n =82)	14 (17.1%)	68 (82.9%)	
PR[e]			0.1513
PR- (n =57)	16 (28.1%)	41 (71.9%)	
PR+ (n =69)	12 (17.4%)	57 (82.6%)	
Molecular subtype[f]			0.1073
Luminal A (n =69)	10 (14.5%)	59 (85.5%)	
Luminal B (n =15)	5 (33.3%)	10 (66.7%)	
HER-2 positive (n =20)	5 (25.0%)	15 (75.0%)	
TNBC (n =22)	8 (36.4%)	14 (63.6%)	
Pathological subtype[g]			0.2400
IDC (n =116)	24 (20.7%)	92 (79.3%)	
ILC (n =6)	3 (50.0%)	3 (50.0%)	
Others (n=4)	1 (25.0%)	3 (75.0%)	
Menstruation			0.2509
Pre-menopause (n =69)	18 (26.1%)	51 (73.9%)	
Post-menopause (n=57)	10 (17.5%)	47 (82.5%)	
Age of menarche[h]			0.2279
≤15 (n =73)	19 (26.0%)	54 (74.0%)	
>15 (n =53)	9 (17.0%)	44 (83.0%)	

[a]Chi-squared test, a P value ≤ 0.05 was considered statistically significant.

[b]Tumor sizes were scored according to the TNM staging system.

[c]Patients were arbitrarily divide into two groups according to the median age at diagnosis age 50.

[d]Lymph node involvement was scored according to the TNM staging system.

[e]HER2, ER and PR positivity defined using immunohistochemistry was recorded in the pathology report of the surgically removed breast cancer tissues

[f]Molecular subtypes were defined as luminal A: ER+ and/or PR+/HER2-; luminal B: ER+ and/or PR+/HER2+; HER2+; TNBC: ER-/PR-/HER2-.

[g]IDC: Invasive ductal carcinomas; ILC: Invasive lobular carcinomas; Others including micropapillary carcinomas, metaplastic carcinomas and mucinous adenocarcinomas.

[h]Patients were arbitrarily divided into two groups according to the median age of menarche age 15.

Supplementary Table 3. The relationship between the density of nerve fibres and clinicopathological parameters in breast cancer (the median nerve fibre count as the cut-off)

Parameter	Nerve fibre counts <8 (n=62)	Nerve fibre counts ≥8 (n=64)	P-value[a]
Tumor size[b]			0.5207
1 (n=56)	30 (53.6%)	26 (46.4%)	
2 (n=61)	27 (44.3%)	34 (55.7%)	
3 (n=4)	3 (75.0%)	1 (25.0%)	
4 (n=5)	2 (40.0%)	3 (60.0%)	
Patient age[c]			0.8563
≤50 (n=64)	32 (50.0%)	32 (50.0%)	
>50 (n=62)	30 (48.4%)	32 (51.6%)	
Lymph node involvement[d]			0.1292
0 (n=71)	39 (54.9%)	32 (45.1%)	
1 (n=31)	16 (51.6%)	15 (48.4%)	
2 (n=10)	4 (40.0%)	6 (60.0%)	
3 (n=14)	3 (21.4 %)	11 (78.6%)	
HER2[e]			0.2691
HER2 - (n =91)	42 (46.2%)	49 (53.8%)	
HER2 + (n=35)	20 (57.1%)	15 (42.9%)	
ER[e]			**0.0176**
ER - (n =44)	28 (63.6%)	16 (36.4%)	
ER + (n =82)	34 (41.5%)	48 (58.5%)	
PR[e]			0.0762
PR - (n =57)	33 (57.9%)	24 (42.1%)	
PR + (n =69)	29 (42.0%)	40 (58.0%)	
Molecular subtype[f]			0.1155
Luminal A (n =69)	28 (40.6%)	41 (59.4%)	
Luminal B (n =15)	7 (46.7%)	8 (53.3%)	
HER-2 positive (n =20)	13 (65.0%)	7 (35.0%)	
Triple negative (n =22)	14 (63.6%)	8 (36.4%)	
Pathological subtype[g]			0.9986
IDC (n =116)	57 (49.1%)	59 (50.9%)	
ILC (n =6)	3 (50.0%)	3 (50.0%)	
Others (n=4)	2 (50.0%)	2 (50.0%)	
Menstruation			0.1473
Pre-menopause (n =69)	38 (55.1%)	31 (44.9%)	
Post-menopause (n =57)	24 (42.1%)	33 (57.9%)	
Age of menarche[h]			**0.0282**
≤15 (n =73)	42 (57.5%)	31 (42.5%)	
>15 (n =53)	20 (37.7%)	33 (62.3%)	

[a]Chi-squared test, a P value ≤ 0.05 was considered statistically significant.

[b]Tumor sizes were scored according to the TNM staging system.

[c]Patients were arbitrarily divide into two groups according to the median age at diagnosis age 50.

[d]Lymph node involvement was scored according to the TNM staging system.

[e]HER2, ER and PR positivity defined using immunohistochemistry was recorded in the pathological report of surgically removed breast cancer tissues.

[f]Molecular subtypes were defined as luminal A: ER+ and/or PR+/HER2-; luminal B: ER+ and/or PR+/HER2+; HER2+; TNBC: ER-/PR-/HER2-.

[g]IDC: Invasive ductal carcinomas; ILC: Invasive lobular carcinomas; Others including micropapillary carcinomas, metaplastic carcinomas and mucinous adenocarcinomas.

[h]Patients were arbitrarily divided into two groups according to the median age of menarche age 15.

Supplementary Table 4. The relationship between the presence of nerve trunks and clinicopathological parameters in breast cancer

Parameter	Nerve trunk - (n=31)	Nerve trunk + (n=95)	p-value[a]
Tumor size[b]			0.9772
1 (n=56)	13 (23.2%)	43 (76.8%)	
2 (n=61)	16 (26.2%)	45 (73.8%)	
3 (n=4)	1 (25.0%)	3 (75.0%)	
4 (n=5)	1 (20.0%)	4 (80.0%)	
Patient age[c]			0.1782
≤50 (n=64)	19 (29.7%)	45 (70.3%)	
>50 (n=62)	12 (19.4%)	50 (80.6%)	
Lymph node involvement[d]			0.4032
0 (n=71)	20 (28.2%)	51 (71.8%)	
1 (n=31)	8 (25.8%)	23 (74.2%)	
2 (n=10)	2 (20.0%)	8 (80.0%)	
3 (n=14)	1 (7.1%)	13 (92.9%)	
HER2[e]			0.8575
HER2 - (n =91)	22 (24.2%)	69 (75.8%)	
HER2 + (n=35)	9 (25.7%)	26 (74.3%)	
ER[e]			0.0701
ER - (n =44)	15 (34.1%)	29 (65.9%)	
ER + (n =82)	16 (19.5%)	66 (80.5%)	
PR[e]			0.4115
PR - (n =57)	16 (28.1%)	41 (71.9%)	
PR + (n =69)	15 (21.7%)	54 (78.3%)	
Molecular subtype[f]			0.4206
Luminal A (n =69)	14 (20.3%)	55 (79.7%)	
Luminal B (n =15)	3 (20.0%)	12 (80.0%)	
HER-2 positive (n =20)	6 (30.0%)	14 (70.0%)	
Triple negative (n =22)	8 (36.4%)	14 (63.6%)	
Pathological subtype[g]			0.4174
IDC (n =116)	27 (23.3%)	89 (76.7%)	
ILC (n =6)	2 (33.3%)	4 (66.7%)	
Others (n=4)	2 (50.0%)	2 (50.0%)	
Menopause			**0.0368**
Pre-menopause (n =69)	22 (31.9%)	47 (68.1%)	
Post-menopause (n =57)	9 (15.9%)	48 (84.2%)	
The age of menarche [h]			**0.0114**
≤15 (n =73)	24 (32.9%)	49 (67.1%)	
>15 (n =53)	7 (13.2%)	46 (86.8%)	

[a]Chi-squared test, a *P* value ≤ 0.05 was considered statistically significant.
[b]Tumor sizes were scored according to the TNM staging system.
[c]Patients were arbitrarily divide into two groups according to the median age at diagnosis age 50.
[d]Lymph node involvement was scored according to the TNM staging system.
[e]HER2, ER and PR positivity defined using immunohistochemistry was recorded in the pathological report of surgically removed breast cancer tissues.
[f]Molecular subtypes were defined as luminal A: ER+ and/or PR+/HER2-; luminal B: ER+ and/or PR+/HER2+; HER2+; TNBC: ER-/PR-/HER2-.
[g]IDC: Invasive ductal carcinomas; ILC: Invasive lobular carcinomas; Others including micropapillary carcinomas, metaplastic carcinomas and mucinous adenocarcinomas.
[h]Patients were arbitrarily divided into two groups according to the median age of menarche age 15.

Supplementary Table 5. The relationship between the density of nerve trunks and clinicopathological parameters in breast cancer (The median nerve trunk count as the cut-off)

Parameter	Nerve trunk counts ≤3 (n=66)	Nerve trunk counts >3 (n=60)	p-value[a]
Tumor size[b]			0.5290
1 (n=56)	30 (53.6%)	26 (46.4%)	
2 (n=61)	33 (54.1%)	28 (45.9%)	
3 (n=4)	2 (50.0%)	2 (50.0%)	
4 (n=5)	1 (20.0%)	4 (80.0%)	
Patient age[c]			0.3770
≤50 (n=64)	36 (56.3%)	28 (43.8%)	
>50 (n=62)	30 (48.4%)	32 (51.6%)	
Lymph node involvement[d]			0.0687
0 (n=71)	43 (60.6%)	28 (39.4%)	
1 (n=31)	16 (51.6%)	15 (48.4%)	
2 (n=10)	3 (30.0%)	7 (70.0%)	
3 (n=14)	4 (28.6%)	10 (71.4%)	
HER2[e]			0.8944
HER2 - (n =91)	48 (52.7%)	43 (47.3%)	
HER2 + (n=35)	18 (51.4%)	17 (48.6%)	
ER[e]			0.9858
ER - (n =44)	23 (52.3%)	21 (47.7%)	
ER + (n =82)	43 (52.4%)	39 (47.6%)	
PR[e]			0.5057
PR - (n =57)	28 (49.1%)	29 (50.9%)	
PR + (n =69)	38 (55.1%)	31 (44.9%)	
Molecular subtype[f]			0.2792
Luminal A (n =69)	34 (49.3%)	35 (50.7%)	
Luminal B (n =15)	10 (66.7%)	5 (33.3%)	
HER-2 positive (n =20)	8 (40.0%)	12 (60.0%)	
Triple negative (n =22)	14 (63.6%)	8 (36.4%)	
Pathological subtype[g]			0.1039
IDC (n =116)	60 (51.7%)	56 (48.3%)	
ILC (n =6)	2 (33.3%)	4 (66.7%)	
Others (n=4)	4 (100.0%)	0 (0.0%)	
Menstruation			0.5057
Pre-menopause (n =69)	38 (55.1%)	31 (44.9%)	
Post-menopause (n =57)	28 (49.1%)	29 (50.9%)	
Age of menarche [h]			0.3183
≤15 (n =73)	41 (56.2%)	32 (43.8%)	
>15 (n =53)	25 (47.2%)	28 (52.8%)	

[a]Chi-squared test, a P value ≤ 0.05 was considered statistically significant.

[b]Tumor sizes were scored according to the TNM staging system.

[c]Patients were arbitrarily divide into two groups according to the median age at diagnosis age 50.

[d]Lymph node involvement was scored according to the TNM staging system.

[e]HER2, ER and PR positivity defined using immunohistochemistry was recorded in the pathological report of surgically removed breast cancer tissues.

[f]Molecular subtypes were defined as luminal A: ER+ and/or PR+/HER2-; luminal B: ER+ and/or PR+/HER2+; HER2+; TNBC: ER-/PR-/HER2-.

[g]IDC: Invasive ductal carcinomas; ILC: Invasive lobular carcinomas; Others including micropapillary carcinomas, metaplastic carcinomas and mucinous adenocarcinomas.

[h]Patients were arbitrarily divided into two groups according to the median age of menarche age 15.

Supplementary Table 6. The relationship between the density of nerve trunks and clinic-pathological parameters in breast cancer (The high quartile of nerve trunk count as the cut off)

Parameter	Low nerve trunk counts (n=99)	High nerve trunk counts (n=27)	p-value[a]
Tumor size[b]			0.6643
1 (n=56)	43 (76.8%)	13 (23.2%)	
2 (n=61)	50 (82.0%)	11 (18.0%)	
3 (n=4)	3 (75.0%)	1 (25.0%)	
4 (n=5)	3 (60.0%)	2 (40.0%)	
Patient age[c]			0.7564
≤50 (n=64)	51 (79.7%)	13 (20.3%)	
>50 (n=62)	48 (77.4%)	14 (22.6%)	
Lymph node involvement[d]			0.2290
0 (n=71)	58 (81.7%)	13 (18.3%)	
1 (n=31)	25 (80.6%)	6 (19.4%)	
2 (n=10)	8 (80.0%)	2 (20.0%)	
3 (n=14)	8 (57.1%)	6 (42.9%)	
HER2[e]			0.8085
HER2 - (n =91)	72 (79.1%)	19 (20.9%)	
HER2 + (n=35)	27 (77.1%)	8 (22.9%)	
ER[e]			0.2687
ER - (n =44)	37 (84.1%)	7 (15.9%)	
ER + (n =82)	62 (75.6%)	20 (24.4%)	
PR[e]			0.9255
PR - (n =57)	45 (78.9%)	12 (21.1%)	
PR + (n =69)	54 (78.3%)	15 (21.7%)	
Molecular subtype[f]			0.1884
Luminal A (n =69)	51 (73.9%)	18 (26.1%)	
Luminal B (n =15)	12 (80.0%)	3 (20.0%)	
HER-2 positive (n =20)	15 (75.0%)	5 (25.0%)	
Triple negative (n =22)	21 (95.5%)	1 (4.5%)	
Pathological subtype[g]			0.4500
IDC (n =116)	91 (78.4%)	25 (21.6%)	
ILC (n =6)	4 (66.7%)	2 (33.3%)	
Others (n=4)	4 (100.0%)	0 (0.0%)	
Menopause			0.7318
Pre-menopause (n =69)	55 (79.7%)	14 (20.3%)	
Post-menopause (n =57)	44 (77.2%)	13 (22.8%)	
The age of menarche[h]			0.4700
≤15 (n =73)	59 (80.8%)	14 (19.2%)	
>15 (n =53)	40 (75.5%)	13 (24.5%)	

[a]Chi-squared test, a P value ≤ 0.05 was considered statistically significant.

[b]Tumor sizes were scored according to the TNM staging system.

[c]Patients were arbitrarily divide into two groups according to the median age at diagnosis age 50.

[d]Lymph node involvement was scored according to the TNM staging system.

[e]HER2, ER and PR positivity defined using immunohistochemistry was recorded in the pathological report of surgically removed breast cancer tissues.

[f]Molecular subtypes were defined as luminal A: ER+ and/or PR+/HER2-; luminal B: ER+ and/or PR+/HER2+; HER2+; TNBC: ER-/PR-/HER2-.

[g]IDC: Invasive ductal carcinomas; ILC: Invasive lobular carcinomas; Others including micropapillary carcinomas, metaplastic carcinomas and mucinous adenocarcinomas.

[h]Patients were arbitrarily divided into two groups according to the median age of menarche age 15.