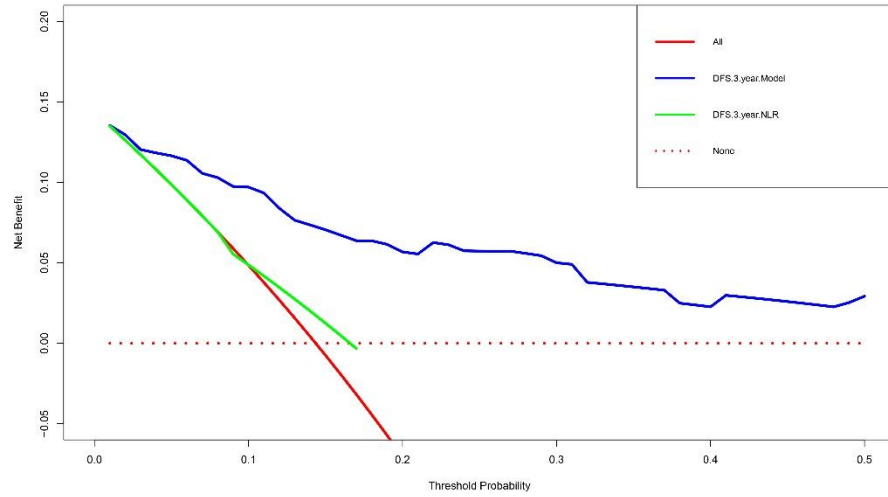
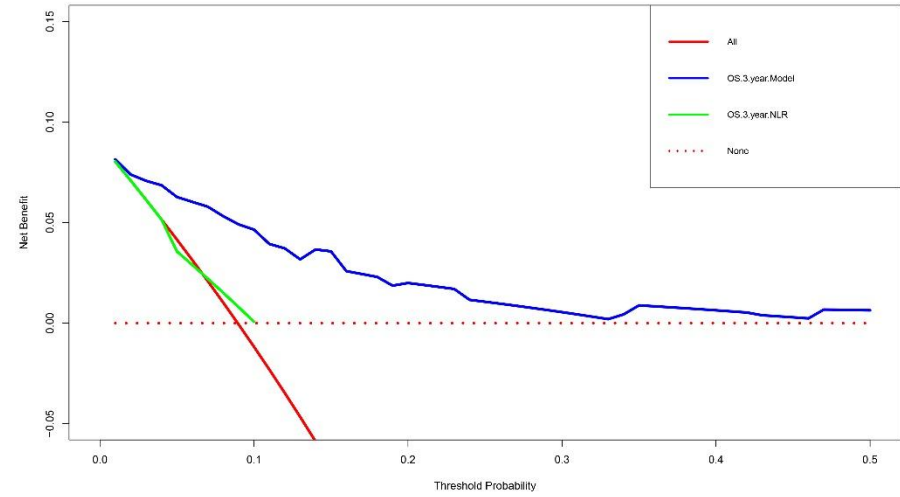
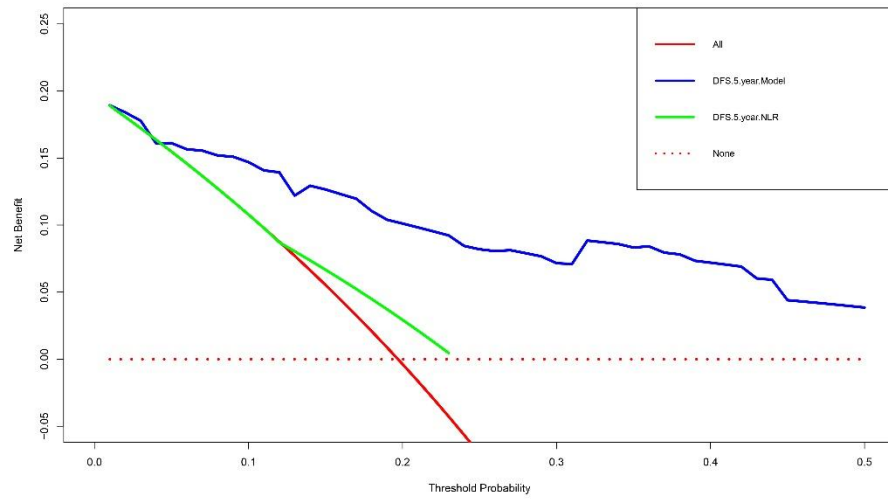
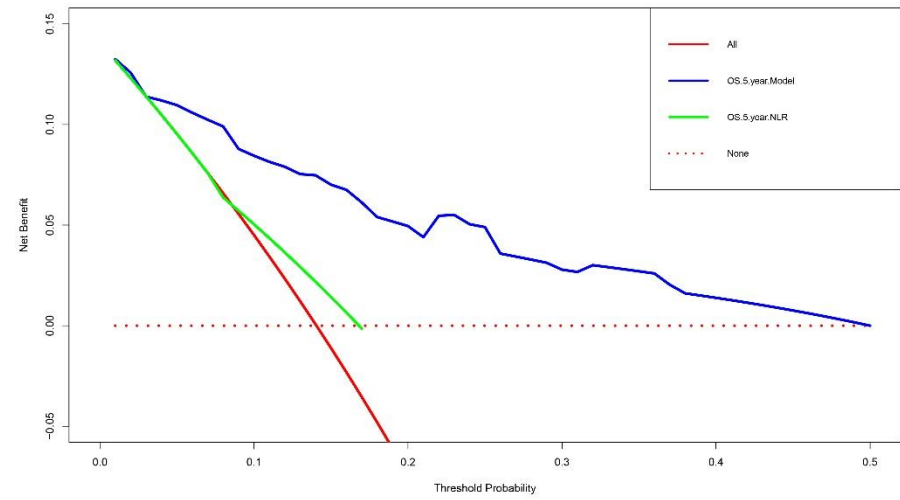
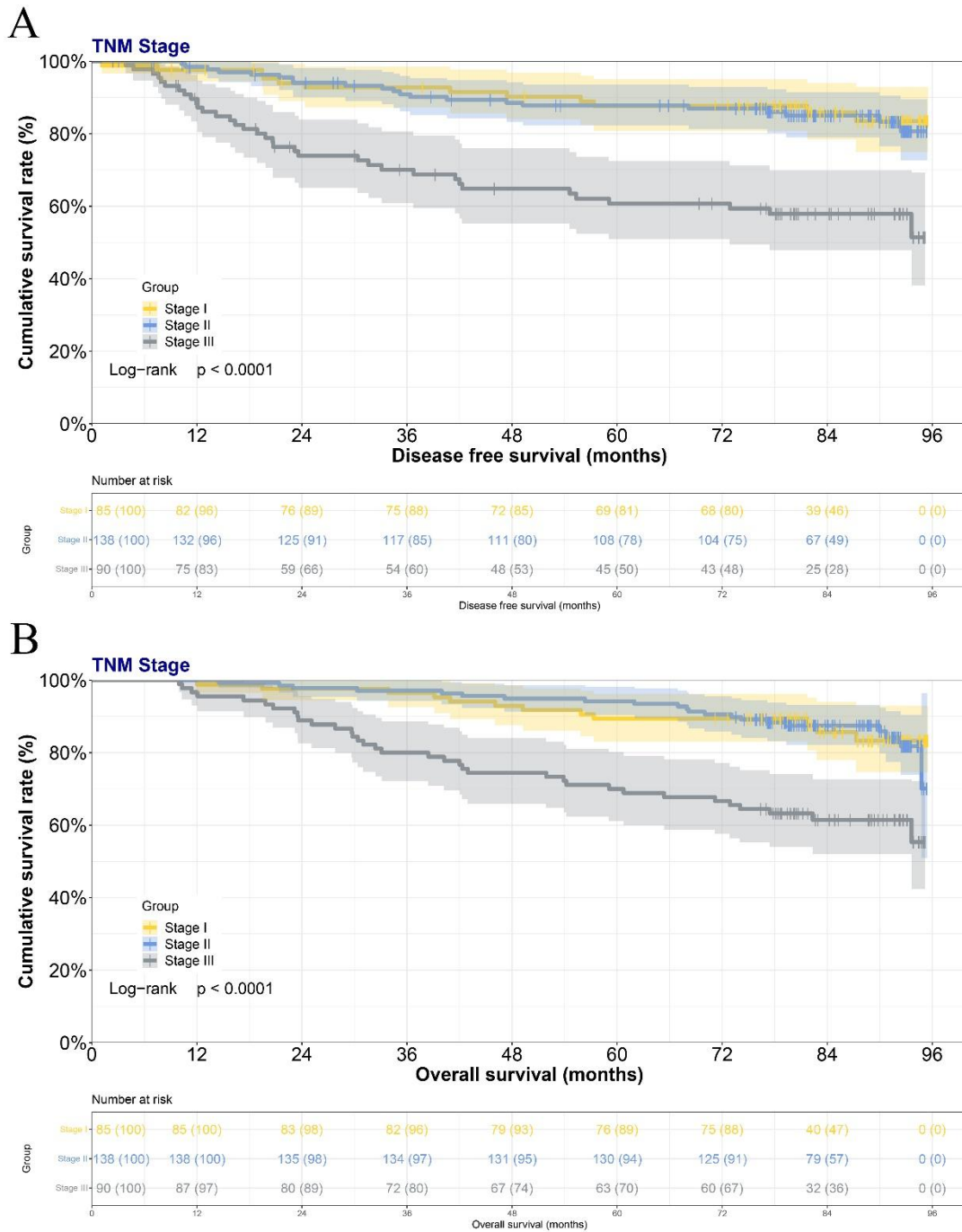


**A****C****B****D**

**Figure S1** Decision curve analyses (DCA) of nomogram and NLR prediction model for predicting the DFS and OS rates in 3- and 5-year. A) DCA of nomogram and GRIm score prediction model for predicting the DFS rates in 3-year; B) DCA of nomogram and GRIm score prediction model for predicting the DFS rates in 5-year; C) DCA of nomogram and GRIm score prediction model for predicting the OS rates in 3-year; D) DCA of nomogram and GRIm score prediction model for predicting the OS rates in 5-year.



**Figure S2** The Kaplan-Meier survival curves illustrating the survival time among breast cancer patients, stratified based on the TNM stage. A) Kaplan-Meier survival curves illustrating the DFS among breast cancer patients, stratified based on the TNM stage; B) Kaplan-Meier survival curves illustrating the OS among breast cancer patients, stratified based on the TNM stage.

**Table S1** Correlation between GRIm score and organ metastasis

Parameters	level	Overall	Low GRIm score	High GRIm score	p
n		313	81	232	
Lung metastasis	No	281 (89.8)	74 (91.4)	207 (89.2)	0.739
	Yes	32 (10.2)	7 (8.6)	25 (10.8)	
Bone metastasis	No	273 (87.2)	72 (88.9)	201 (86.6)	0.742
	Yes	40 (12.8)	9 (11.1)	31 (13.4)	
Liver metastasis	No	284 (90.7)	74 (91.4)	210 (90.5)	0.998
	Yes	29 (9.3)	7 (8.6)	22 (9.5)	
Mediastinal metastasis	No	299 (95.5)	77 (95.1)	222 (95.7)	1.000
	Yes	14 (4.5)	4 (4.9)	10 (4.3)	
Brain metastasis	No	297 (94.9)	77 (95.1)	220 (94.8)	1.000
	Yes	16 (5.1)	4 (4.9)	12 (5.2)	
Pleural metastasis	No	302 (96.5)	78 (96.3)	224 (96.6)	1.000
	Yes	11 (3.5)	3 (3.7)	8 (3.4)	
Chest wall metastasis	No	301 (96.2)	75 (92.6)	226 (97.4)	0.108
	Yes	12 (3.8)	6 (7.4)	6 (2.6)	
Axillary metastasis	No	154 (49.2)	48 (59.3)	106 (45.7)	0.048
	Yes	159 (50.8)	33 (40.7)	126 (54.3)	
Clavicle metastasis	No	264 (84.3)	68 (84.0)	196 (84.5)	1.000
	Yes	49 (15.7)	13 (16.0)	36 (15.5)	

Abbreviation: GRIm score: Gustave Roussy Immune score.

**Table S2** Comparison of performance of TNM stage with common hematological parameters

Parameters	level	Overall	Stage I	Stage II	Stage III	p
n		313	85	138	90	
GRIm score	Low	81 (25.9)	25 (29.4)	38 (27.5)	18 (20.0)	0.305
	High	232 (74.1)	60 (70.6)	100 (72.5)	72 (80.0)	
NLR	Low	105 (33.5)	29 (34.1)	51 (37.0)	25 (27.8)	0.354
	High	208 (66.5)	56 (65.9)	87 (63.0)	65 (72.2)	
ALT	<21	142 (45.4)	44 (51.8)	60 (43.5)	38 (42.2)	0.375
	≥21	171 (54.6)	41 (48.2)	78 (56.5)	52 (57.8)	
AST	<23	147 (47.0)	41 (48.2)	67 (48.6)	39 (43.3)	0.715
	≥23	166 (53.0)	44 (51.8)	71 (51.4)	51 (56.7)	
AST/ALT	<1.44	155 (49.5)	73 (85.9)	117 (84.8)	77 (85.6)	0.972
	≥1.44	158 (50.5)	12 (14.1)	21 (15.2)	13 (14.4)	
LDH	<170	156 (49.8)	52 (61.2)	63 (45.7)	41 (45.6)	0.050
	≥170	157 (50.2)	33 (38.8)	75 (54.3)	49 (54.4)	
ALB	<45	145 (46.3)	41 (48.2)	63 (45.7)	41 (45.6)	0.918
	≥45	168 (53.7)	44 (51.8)	75 (54.3)	49 (54.4)	
TBIL	<12.45	156 (49.8)	55 (64.7)	66 (47.8)	35 (38.9)	0.002
	≥12.45	157 (50.2)	30 (35.3)	72 (52.2)	55 (61.1)	
CA153	<9.82	156 (49.8)	52 (61.2)	74 (53.6)	30 (33.3)	0.001
	≥9.82	157 (50.2)	33 (38.8)	64 (46.4)	60 (66.7)	
CEA	<1.49	156 (49.8)	50 (58.8)	74 (53.6)	32 (35.6)	0.004
	≥1.49	157 (50.2)	35 (41.2)	64 (46.4)	58 (64.4)	
D-D	<0.25	151 (48.2)	42 (49.4)	69 (50.0)	40 (44.4)	0.692
	≥0.25	162 (51.8)	43 (50.6)	69 (50.0)	50 (55.6)	
FBG	<2.6	153 (48.9)	39 (45.9)	69 (50.0)	45 (50.0)	0.811
	≥2.6	160 (51.1)	46 (54.1)	69 (50.0)	45 (50.0)	
White blood cell	<5.45	156 (49.8)	50 (58.8)	63 (45.7)	43 (47.8)	0.145

	$\geq 5.45$	157 (50.2)	35 (41.2)	75 (54.3)	47 (52.2)	
Neutrophil	$< 3.23$	155 (49.5)	47 (55.3)	67 (48.6)	41 (45.6)	0.417
	$\geq 3.23$	158 (50.5)	38 (44.7)	71 (51.4)	49 (54.4)	
Lymphocyte	$< 1.70$	154 (49.2)	42 (49.4)	62 (44.9)	50 (55.6)	0.292
	$\geq 1.70$	159 (50.8)	43 (50.6)	76 (55.1)	40 (44.4)	
Monocyte	$< 0.35$	151 (48.2)	47 (55.3)	55 (39.9)	49 (54.4)	0.031
	$\geq 0.35$	162 (51.8)	38 (44.7)	83 (60.1)	41 (45.6)	
Platelet	$< 233$	153 (48.9)	40 (47.1)	60 (43.5)	53 (58.9)	0.070
	$\geq 233$	160 (51.1)	45 (52.9)	78 (56.5)	37 (41.1)	

Abbreviation: GRIm score: Gustave Roussy Immune score; NLR: neutrophil to lymphocyte ratio; ALT: alanine aminotransferase; AST: aspartate aminotransferase; LDH: lactate dehydrogenase; ALB: albumin; TBIL: total bilirubin; CA153: cancer antigen 153; CEA: carcinoembryonic antigen; D-D: D-Dimer; FBG: fibrinogen.

**Table S3** Comparison of prognostic effect of the GRIm score and its components by different TNM stage

Parameters	level	Stage I			p	Stage II			p	Stage III			p
		Overall	Low GRIm score	High GRIm score		Overall	Low GRIm score	High GRIm score		Overall	Low GRIm score	High GRIm score	
n		85	25	60		138	38	100		90	18	72	
NLR	Low	29 (34.1)	25 (100.0)	4 (6.7)	<0.001	51 (37.0)	38 (100.0)	13 (13.0)	<0.001	25 (27.8)	17 (94.4)	8 (11.1)	<0.001
	High	56 (65.9)	0 (0.0)	56 (93.3)		87 (63.0)	0 (0.0)	87 (87.0)		65 (72.2)	1 (5.6)	64 (88.9)	
ALT	<21	44 (51.8)	13 (52.0)	31 (51.7)	1.000	60 (43.5)	16 (42.1)	44 (44.0)	0.993	38 (42.2)	4 (22.2)	34 (47.2)	0.098
	≥21	41 (48.2)	12 (48.0)	29 (48.3)		78 (56.5)	22 (57.9)	56 (56.0)		52 (57.8)	14 (77.8)	38 (52.8)	
AST	<23	41 (48.2)	10 (40.0)	31 (51.7)	0.458	67 (48.6)	19 (50.0)	48 (48.0)	0.985	39 (43.3)	7 (38.9)	32 (44.4)	0.873
	≥23	44 (51.8)	15 (60.0)	29 (48.3)		71 (51.4)	19 (50.0)	52 (52.0)		51 (56.7)	11 (61.1)	40 (55.6)	
AST/ALT	<1.1	38 (44.7)	13 (52.0)	25 (41.7)	0.526	70 (50.7)	20 (52.6)	50 (50.0)	0.932	47 (52.2)	13 (72.2)	34 (47.2)	0.102
	≥1.1	47 (55.3)	12 (48.0)	35 (58.3)		68 (49.3)	18 (47.4)	50 (50.0)		43 (47.8)	5 (27.8)	38 (52.8)	
LDH	<170	52 (61.2)	13 (52.0)	39 (65.0)	0.381	63 (45.7)	16 (42.1)	47 (47.0)	0.746	41 (45.6)	9 (50.0)	32 (44.4)	0.874
	≥170	33 (38.8)	12 (48.0)	21 (35.0)		75 (54.3)	22 (57.9)	53 (53.0)		49 (54.4)	9 (50.0)	40 (55.6)	
ALB	<45	41 (48.2)	12 (48.0)	29 (48.3)	1.000	63 (45.7)	20 (52.6)	43 (43.0)	0.410	41 (45.6)	11 (61.1)	30 (41.7)	0.224
	≥45	44 (51.8)	13 (52.0)	31 (51.7)		75 (54.3)	18 (47.4)	57 (57.0)		49 (54.4)	7 (38.9)	42 (58.3)	
TBIL	<12.45	55 (64.7)	16 (64.0)	39 (65.0)	1.000	66 (47.8)	21 (55.3)	45 (45.0)	0.375	35 (38.9)	7 (38.9)	28 (38.9)	1.000
	≥12.45	30 (35.3)	9 (36.0)	21 (35.0)		72 (52.2)	17 (44.7)	55 (55.0)		55 (61.1)	11 (61.1)	44 (61.1)	
CA153	<9.82	52 (61.2)	16 (64.0)	36 (60.0)	0.920	74 (53.6)	22 (57.9)	52 (52.0)	0.668	30 (33.3)	6 (33.3)	24 (33.3)	1.000
	≥9.82	33 (38.8)	9 (36.0)	24 (40.0)		64 (46.4)	16 (42.1)	48 (48.0)		60 (66.7)	12 (66.7)	48 (66.7)	
CEA	<1.49	50 (58.8)	14 (56.0)	36 (60.0)	0.921	74 (53.6)	17 (44.7)	57 (57.0)	0.272	32 (35.6)	4 (22.2)	28 (38.9)	0.296
	≥1.49	35 (41.2)	11 (44.0)	24 (40.0)		64 (46.4)	21 (55.3)	43 (43.0)		58 (64.4)	14 (77.8)	44 (61.1)	
D-D	<0.25	42 (49.4)	15 (60.0)	27 (45.0)	0.307	69 (50.0)	17 (44.7)	52 (52.0)	0.568	40 (44.4)	9 (50.0)	31 (43.1)	0.791
	≥0.25	43 (50.6)	10 (40.0)	33 (55.0)		69 (50.0)	21 (55.3)	48 (48.0)		50 (55.6)	9 (50.0)	41 (56.9)	
FBG	<2.6	39 (45.9)	15 (60.0)	24 (40.0)	0.148	69 (50.0)	22 (57.9)	47 (47.0)	0.341	45 (50.0)	11 (61.1)	34 (47.2)	0.429

	≥2.6	46 (54.1)	10 (40.0)	36 (60.0)		69 (50.0)	16 (42.1)	53 (53.0)		45 (50.0)	7 (38.9)	38 (52.8)	
White blood cell	<5.45	50 (58.8)	17 (68.0)	33 (55.0)	0.386	63 (45.7)	28 (73.7)	35 (35.0)	<0.001	43 (47.8)	8 (44.4)	35 (48.6)	0.958
	≥5.45	35 (41.2)	8 (32.0)	27 (45.0)		75 (54.3)	10 (26.3)	65 (65.0)		47 (52.2)	10 (55.6)	37 (51.4)	
Neutrophil	<3.23	47 (55.3)	21 (84.0)	26 (43.3)	0.001	67 (48.6)	32 (84.2)	35 (35.0)	<0.001	41 (45.6)	15 (83.3)	26 (36.1)	0.001
	≥3.23	38 (44.7)	4 (16.0)	34 (56.7)		71 (51.4)	6 (15.8)	65 (65.0)		49 (54.4)	3 (16.7)	46 (63.9)	
Lymphocyte	<1.70	42 (49.4)	4 (16.0)	38 (63.3)	<0.001	62 (44.9)	10 (26.3)	52 (52.0)	0.012	50 (55.6)	5 (27.8)	45 (62.5)	0.017
	≥1.70	43 (50.6)	21 (84.0)	22 (36.7)		76 (55.1)	28 (73.7)	48 (48.0)		40 (44.4)	13 (72.2)	27 (37.5)	
Monocyte	<0.35	47 (55.3)	13 (52.0)	34 (56.7)	0.877	55 (39.9)	21 (55.3)	34 (34.0)	0.037	49 (54.4)	14 (77.8)	35 (48.6)	0.050
	≥0.35	38 (44.7)	12 (48.0)	26 (43.3)		83 (60.1)	17 (44.7)	66 (66.0)		41 (45.6)	4 (22.2)	37 (51.4)	
Platelet	<233	40 (47.1)	13 (52.0)	27 (45.0)	0.726	60 (43.5)	15 (39.5)	45 (45.0)	0.694	53 (58.9)	9 (50.0)	44 (61.1)	0.556
	≥233	45 (52.9)	12 (48.0)	33 (55.0)		78 (56.5)	23 (60.5)	55 (55.0)		37 (41.1)	9 (50.0)	28 (38.9)	

Abbreviation: GRIm score: Gustave Roussy Immune score; NLR: neutrophil to lymphocyte ratio; ALT: alanine aminotransferase; AST: aspartate aminotransferase; LDH: lactate dehydrogenase; ALB: albumin; TBIL: total bilirubin; CA153: cancer antigen 153; CEA: carcinoembryonic antigen; D-D: D-Dimer; FBG: fibrinogen.