

Supplementary Data

SUPPLEMENTARY TABLE S1. ATTRIBUTES USED IN MODEL BUILDING

<i>Attribute names</i>	<i>Type</i>
Demographics	
Age	Continuous
Age <65, Age ≥65	Categorical (2 categories: 1=Yes, 0=No)
Gender	Categorical (2 categories: 1=Yes, 0=No)
Body weight	Continuous
Body height	Continuous
BMI	Continuous
BMI <18.5, BMI 18.5 to 24.9, BMI >24.9	Categorical (2 categories: 1=Yes, 0=No)
Clinical	
ECOG Status	Continuous
ECOG Status 0-1	Categorical (2 categories: 1=Yes, 0=No)
ECOG Status 2-4	Categorical (2 categories: 1=Yes, 0=No)
Primary Tumor Sites	
Breast	Categorical (2 categories: 1=Yes, 0=No)
Colorectal	Categorical (2 categories: 1=Yes, 0=No)
Nasopharynx	Categorical (2 categories: 1=Yes, 0=No)
Lung	Categorical (2 categories: 1=Yes, 0=No)
Lymphoma	Categorical (2 categories: 1=Yes, 0=No)
Urogenital	Categorical (2 categories: 1=Yes, 0=No)
Others	Categorical (2 categories: 1=Yes, 0=No)
Number of metastatic sites	Continuous
Number of metastatic sites 0-1	Categorical (2 categories: 1=Yes, 0=No)
Number of metastatic sites ≥2	Categorical (2 categories: 1=Yes, 0=No)
Metastatic sites	
Bones	Categorical (2 categories: 1=Yes, 0=No)
Brain	Categorical (2 categories: 1=Yes, 0=No)
Liver	Categorical (2 categories: 1=Yes, 0=No)
Lung	Categorical (2 categories: 1=Yes, 0=No)
Lymph node	Categorical (2 categories: 1=Yes, 0=No)
Others	Categorical (2 categories: 1=Yes, 0=No)
Years since diagnosed	Continuous
Years since diagnosed <6 years	Categorical (2 categories: 1=Yes, 0=No)
Years since diagnosed ≥6 years	Categorical (2 categories: 1=Yes, 0=No)
Chronic co morbidities	
Diabetes mellitus	Categorical (2 categories: 1=Yes, 0=No)
Dyslipidemia	Categorical (2 categories: 1=Yes, 0=No)
Hypertension	Categorical (2 categories: 1=Yes, 0=No)
Others	Categorical (2 categories: 1=Yes, 0=No)
Number of lines of previous chemotherapy	Continuous
Lines of previous chemotherapy 0-1	Categorical (2 categories: 1=Yes, 0=No)
Lines of previous chemotherapy ≥2	Categorical (2 categories: 1=Yes, 0=No)
Prior surgery	Categorical (2 categories: 1=Yes, 0=No)
Prior radiotherapy	Categorical (2 categories: 1=Yes, 0=No)
Laboratory parameters	
Creatinine (μmol/L)	Continuous
Low creatinine ^a	Categorical (2 categories: 1=Yes, 0=No)
AST	Continuous
AST >ULN	Categorical (2 categories: 1=Yes, 0=No)
ALT	Continuous
ALT >ULN	Categorical (2 categories: 1=Yes, 0=No)
ALP	Continuous
ALP >ULN	Categorical (2 categories: 1=Yes, 0=No)
Bilirubin (μmol/L)	Continuous
Bilirubin >24 μmol/L	Categorical (2 categories: 1=Yes, 0=No)
Albumin (g/L)	Continuous
Albumin <35 g/L	Categorical (2 categories: 1=Yes, 0=No)

(continued)

SUPPLEMENTARY TABLE S1. (CONTINUED)

<i>Attribute names</i>	<i>Type</i>
Hgb (g/dL)	Continuous
Low Hgb ^b	Categorical (2 categories: 1 = Yes, 0 = No)
RBC (L)	Continuous
Low RBC ^c	Categorical (2 categories: 1 = Yes, 0 = No)
WBC (L)	Continuous
WBC <4.1×10 ⁹ L	Categorical (2 categories: 1 = Yes, 0 = No)
WBC >10×10 ⁹ L	Categorical (2 categories: 1 = Yes, 0 = No)
Platelets (L)	Continuous
Platelets <140×10 ⁹ L	Categorical (2 categories: 1 = Yes, 0 = No)
Platelets >440×10 ⁹ L	Categorical (2 categories: 1 = Yes, 0 = No)
Absolute monocyte count (L)	Continuous
Absolute monocyte count <0.2×10 ⁹ L	Categorical (2 categories: 1 = Yes, 0 = No)
Absolute monocyte count >0.8×10 ⁹ L	Categorical (2 categories: 1 = Yes, 0 = No)
Absolute lymphocyte count (L)	Continuous
Absolute lymphocyte count <1×10 ⁹ L	Categorical (2 categories: 1 = Yes, 0 = No)
Absolute lymphocyte count >3×10 ⁹ L	Categorical (2 categories: 1 = Yes, 0 = No)
Absolute neutrophil count (L)	Continuous
Absolute neutrophil count <2×10 ⁹ L	Categorical (2 categories: 1 = Yes, 0 = No)
Absolute neutrophil count >7.5×10 ⁹ L	Categorical (2 categories: 1 = Yes, 0 = No)

^aLow creatinine: <125 μmol/L for males, <90 μmol/L for females.

^bLow Hgb: <14 g/dL for males, <12 g/dL for females.

^cLow RBC: <4.3×10¹² L for males, <3.5×10¹² L for females.

ALT, alanine aminotransferase; AST, aspartate aminotransferase; BMI, body mass index; RCB, red blood cell count; ULN, upper limit of the normal range; WBC, white blood cell count.

SUPPLEMENTARY TABLE S2. PATIENT DEMOGRAPHICS

<i>Attributes</i>	<i>Category</i>	<i>Training Set (N=225)</i>		<i>Validation Set (N=100)</i>	
Age (years)	Mean [range]	62.06	[22–89]	57.93	[20–84]
	Standard deviation	12.320		12.517	
	Age <65	116	(51.6%)	73	(73%)
Race	Age ≥65	109	(48.4%)	27	(27%)
	Chinese	200	(88.9%)	85	(85%)
	Malay	17	(7.6%)	10	(10%)
	Indian	4	(1.8%)	4	(4%)
	Others	4	(1.8%)	1	(1%)
Gender	Male	125	(55.6%)	52	(52%)
	Female	100	(44.4%)	48	(48%)
Body weight (kg)	Mean [range]	54.65	[30.1–98.6]	55.03	[32.3–82.8]
	Standard deviation	10.752		11.243	
Body height (cm)	Mean [range]	160.23	[140–184]	159.89	[140–178]
	Standard deviation	8.028		8.239	
BMI	Mean [range]	21.29	[13.09–36.00]	21.46	[13.93–31.25]
	Standard deviation	3.988	(23.1%)	3.816	
	BMI <18.5	52	(60%)	24	(24%)
	BMI 18.5 to 24.9	135	(16.9%)	59	(59%)
	BMI >24.9	38		17	(17%)

BMI, body mass index; ECOG, Eastern Cooperative Oncology Group.

SUPPLEMENTARY TABLE S3. PATIENT CLINICAL INFORMATION

<i>Attributes</i>	<i>Category</i>	<i>Training set</i> (N = 225)		<i>Validation set</i> (N = 100)	
ECOG status	0-1	169	(75.1%)	65	(65%)
	2-4	56	(24.9%)	35	(35%)
Survive beyond 120 days?	Yes	115	(51.1%)	50	(50%)
	No	110	(48.9%)	50	(50%)
Primary tumor sites	Breast	37	(16.4%)	16	(16%)
	Colorectal	39	(17.3%)	14	(14%)
	Nasopharynx	17	(7.6%)	9	(9%)
	Lung	56	(24.9%)	29	(29%)
	Lymphoma	10	(4.4%)	4	(4%)
	Urogenital	14	(6.2%)	6	(6%)
	Other	52	(23.1%)	22	(22%)
Number of metastatic sites	0-1	133	(59.1%)	50	(50%)
	≥ 2	92	(40.9%)	50	(50%)
Metastatic sites	Bones	55	(16.2%)	30	(17.6%)
	Brain	32	(9.4%)	12	(7.1%)
	Liver	77	(22.6%)	43	(25.3%)
	Lung	79	(23.2%)	40	(23.5%)
	Lymph node	30	(8.8%)	17	(10%)
	Others	67	(19.7%)	28	(16.5%)
Years since diagnosed	< 6	212	(94.2%)	92	(92%)
	≥ 6	13	(5.8%)	8	(8%)
Chronic co-morbidities	Diabetes mellitus	16	(7.1%)	17	(19.8%)
	Dyslipidemia	60	(26.5%)	21	(24.4%)
	Hypertension	99	(43.8%)	32	(37.2%)
	Other	51	(22.6%)	16	(18.6%)
Prior surgery	Yes	80	(35.6%)	29	(29%)
	No	145	(64.4%)	71	(71%)
Prior radiotherapy	Yes	103	(45.8%)	46	(46%)
	No	122	(54.2%)	54	(54%)
Lines of previous chemotherapy	0-1	186	(82.7%)	78	(78%)
	≥ 2	39	(17.4%)	22	22%

ECOG, Eastern Cooperative Oncology Group.

SUPPLEMENTARY TABLE S4. PATIENT LABORATORY PARAMETERS

<i>Attributes</i>	<i>Category</i>	<i>Training set (N=225)</i>		<i>Validation set (N=100)</i>	
Creatinine ($\mu\text{mol/L}$)	Mean [range]	60.97	[7–99]	76.49	[37–342]
	Standard deviation	22.837		47.896	
Low creatinine	Yes	18	(8%)	9	(9%)
	No	207	(92%)	91	(91%)
AST	Mean [range]	39.00	[12–213]	43.05	[1.9–409.0]
	Standard deviation	36.574		52.938	
AST >ULN	Yes	76	(33.8%)	32	(32%)
	No	149	(66.2%)	68	(68%)
ALT	Mean [range]	28.04	[6–201]	32.24	[7–142]
	Standard deviation	23.814		26.475	
ALT >ULN	Yes	36	(16%)	28	(28%)
	No	189	(84%)	72	(72%)
ALP	Mean [range]	137.99	[15–1636]	151.54	[24–1140]
	Standard deviation	167.82		189.92	
ALP >ULN	Yes	60	(26.7%)	24	(24%)
	No	165	(73.3%)	76	(76%)
Bilirubin ($\mu\text{mol/L}$)	Mean [range]	20.99	[2–697]	18.12	[5–178]
	Standard deviation	55.484		19.044	
Bilirubin >24 $\mu\text{mol/L}$	Yes	27	(12%)	13	(13%)
	No	198	(88%)	87	(87%)
Albumin (g/L)	Mean [range]	32.24	[15–44]	33.09	[22–61]
	Standard deviation	5.703		5.822	
Albumin <35 g/L	Yes	138	(61.3%)	56	(56%)
	No	87	(38.7%)	44	(44%)
Hgb (g/dL)	Mean [range]	11.08	[6.8–16.7]	11.11	[7.8–17.4]
	Standard deviation	1.799		1.782	
Low Hgb	Yes	189	(84%)	87	(87%)
	No	36	(16%)	13	(13%)
RBC (L)	Mean [range]	3.74	[2.06–37.0]	3.58	[2.08–5.59]
	Standard deviation	2.333		0.661	
Low RBC	Yes	153	(68%)	65	(65%)
	No	72	(32%)	35	(35%)
WBC (L)	Mean [range]	6.39	[1.2–25.4]	6.87	[2.4–22]
	Standard deviation	3.929		4.039	
WBC <4.1 $\times 10^9$ L	Yes	59	(26.2%)	27	(27%)
	No	166	(73.8%)	73	(73%)
WBC >10 $\times 10^9$ L	Yes	28	(12.4%)	19	(19%)
	No	197	(87.6%)	81	(81%)
Platelets (L)	Mean [range]	267.61	[1.91–886.00]	272.78	[62.00–865.00]
	Standard deviation	129.55		158.34	
Platelets <140 $\times 10^9$ L	Yes	38	(16.9%)	17	(17%)
	No	187	(83.1%)	83	(83%)
Platelets >440 $\times 10^9$ L	Yes	19	(8.4%)	11	(11%)
	No	206	(91.6%)	89	(89%)
Absolute monocyte count (L)	Mean [range]	0.66	[0.02–9.20]	0.61	[0.01–2.29]
	Standard deviation	0.792		0.395	
Absolute monocyte count <0.2 $\times 10^9$ L	Yes	21	(9.3%)	4	(4%)
	No	204	(90.7%)	96	(96%)
Absolute monocyte count >0.8 $\times 10^9$ L	Yes	53	(23.6%)	21	(21%)
	No	172	(76.4%)	79	(79%)
Absolute lymphocyte count (L)	Mean [range]	1.14	[0.05–5.60]	1.30	[0.25–7.4]
	Standard deviation	0.728		0.910	
Absolute lymphocyte count <1 $\times 10^9$ L	Yes	106	(47.1%)	38	(38%)
	No	119	(52.9%)	62	(62%)
Absolute lymphocyte count >3 $\times 10^9$ L	Yes	3	(1.3%)	5	(5%)
	No	222	(98.7%)	95	(95%)
Absolute neutrophil count (L)	Mean [range]	4.88	[0.72–87.30]	5.38	[0.59–58.70]
	Standard deviation	6.532		6.553	
Absolute neutrophil count <2 $\times 10^9$ L	Yes	36	(16%)	18	(18%)
	No	189	(84%)	82	(82%)
Absolute neutrophil count >7.5 $\times 10^9$ L	Yes	30	(13.3%)	17	(17%)
	No	195	(86.7%)	83	(83%)

ALP, alkaline phosphatase; ALT, alanine transaminase; AST, aspartate aminotransferase; RCB, red blood cell count; ULN, upper limit of the normal range; WBC, white blood cell count.