

Supplementray Table S1. NRI, IDI, and AUC of the grading systems

	1 year OS		2 year OS		3 year OS		6-month PFS		12-month PFS		18-month PFS	
	Estimate (95% CI)	P value										
<b>AUC</b>												
<b>D grade</b>	0.812 ( 0.736-0.889 )	Reference	0.786 ( 0.717-0.855 )	Reference	0.802 ( 0.718-0.889 )	Reference	0.830 ( 0.758 - 0.902 )	Reference	0.810 ( 0.754 - 0.865 )	Reference	0.802 ( 0.748 - 0.856 )	Reference
<b>F grade</b>	0.700 ( 0.576-0.824 )	0.061	0.797 ( 0.725-0.868 )	0.743	0.792 ( 0.706-0.877 )	0.810	0.697 ( 0.613 - 0.781 )	0.001	0.690 ( 0.623 - 0.757 )	<0.001	0.690 ( 0.625 - 0.756 )	0.001
<b>S grade</b>	0.609 ( 0.476-0.742 )	0.002	0.552 ( 0.462-0.642 )	<0.001	0.502 ( 0.400-0.605 )	<0.001	0.657 ( 0.557 - 0.757 )	0.002	0.589 ( 0.522 - 0.656 )	<0.001	0.532 ( 0.464 - 0.600 )	<0.001
<b>WHO grade</b>	0.726 ( 0.623-0.829 )	0.100	0.653 ( 0.580-0.727 )	0.003	0.647 ( 0.600-0.739 )	0.005	0.665 ( 0.573 - 0.756 )	0.003	0.613 ( 0.553 - 0.674 )	<0.001	0.632 ( 0.572 - 0.692 )	<0.001
<b>NRI</b>												
<b>D grade</b>	Reference											
<b>F grade</b>	0.017 ( -0.127 - 0.160 )	0.820	-0.120 ( -0.295 - 0.055 )	0.178	-0.042 ( -0.164 - 0.080 )	0.500	-0.311 ( -0.537 -- 0.085 )	0.007	-0.311 ( -0.537 -- 0.085 )	0.007	-0.316 ( -0.493 -- 0.140 )	<0.001
<b>S grade</b>	-0.345 ( -0.471 -- 0.218 )	<0.001	-0.639 ( -0.819 -- 0.459 )	<0.001	-0.306 ( -0.450 -- 0.162 )	<0.001	-0.464 ( -0.651 -- 0.276 )	<0.001	-0.368 ( -0.505 -- 0.232 )	<0.001	-0.700 ( -0.926 -- 0.470 )	<0.001
<b>WHO grade</b>	-0.135 ( -0.265 -- 0.005 )	0.041	-0.525 ( -0.711 -- 0.340 )	<0.001	-0.194 ( -0.335 -- 0.053 )	0.007	-0.135 ( -0.265 -- 0.005 )	0.041	-0.135 ( -0.265 -- 0.005 )	0.041	-0.497 ( -0.715 -- 0.280 )	<0.001
<b>IDI</b>												
<b>D grade</b>	Reference											
<b>F grade</b>	-0.033 ( -0.054 -- 0.013 )	0.001	-0.072 ( -0.118 -- 0.027 )	0.002	-0.086 ( -0.145 -- 0.026 )	0.005	-0.106 ( -0.150 -- 0.061 )	<0.001	-0.146 ( -0.207 -- 0.085 )	<0.001	-0.101 ( -0.148 -- 0.053 )	<0.001
<b>S grade</b>	-0.071 ( -0.092 -- 0.045 )	<0.001	-0.166 ( -0.215 -- 0.118 )	<0.001	-0.223 ( -0.287 -- 0.160 )	<0.001	-0.146 ( -0.192 -- 0.010 )	<0.001	-0.225 ( -0.290 -- 0.160 )	<0.001	-0.189 ( -0.242 -- 0.136 )	<0.001
<b>WHO grade</b>	-0.020 ( -0.049 -- 0.009 )	0.172	-0.070 ( -0.130 -- 0.011 )	0.020	-0.115 ( -0.188 -- 0.041 )	0.002	-0.084 ( -0.134 -- 0.034 )	0.001	-0.142 ( -0.213 -- 0.071 )	<0.001	-0.124 ( -0.182 -- 0.066 )	<0.001

D: dual 18F-FDG and 68Ga-DOTANOC PET-CT semiquantitive grade; F: single 18F-FDG PET-CT semiquantitive grade; S: single 68Ga-DOTANOC PET-CT semiquantitive grade;

**Supplementray Table S2. NRI, IDI, and C-index of the Grading Systems for OS and PFS in Traing Cohort**

	1 year OS		2 year OS		3 year OS		6-month PFS		12-month PFS		18-month PFS	
	Estimate (95% CI)	P value										
<b>AUC</b>												
<b>Nomogram</b>	0.873 (0.797-0.949)	Reference	0.823 (0.733-0.913)	Reference	0.892 (0.806-0.950)	Reference	0.853 (0.755-0.952)	Reference	0.803 (0.729-0.877)	Reference	0.840 (0.772-0.908)	Reference
<b>D grade</b>	0.810 (0.721-0.898)	0.034	0.770 (0.677-0.862)	0.032	0.837 (0.747-0.927)	0.018	0.810 (0.705-0.916)	0.062	0.760 (0.684-0.836)	0.044	0.777 (0.705-0.848)	0.012
<b>F grade</b>	0.711 (0.575-0.846)	<0.001	0.770 (0.673-0.867)	0.121	0.800 (0.700-0.903)	0.077	0.651 (0.537-0.764)	<0.001	0.658 (0.573-0.734)	<0.001	0.671 (0.586-0.756)	<0.001
<b>WHO grade</b>	0.731 (0.613-0.849)	<0.001	0.653 (0.567-0.739)	<0.001	0.681 (0.575-0.787)	<0.001	0.700 (0.594-0.807)	0.009	0.656 (0.588-0.724)	<0.001	0.653 (0.583-0.723)	<0.001
<b>NRI</b>												
<b>Nomogram</b>	Reference											
<b>D grade</b>	-0.225 (-0.388 - 0.062)	0.007	-0.074 (-0.203 - 0.055)	0.263	-0.326 (-0.532 - 0.121)	0.002	-0.102 (-0.193 - 0.010)	0.030	-0.169 (-0.371 - 0.034)	0.102	-0.114 (-0.352 - 0.124)	0.347
<b>F grade</b>	-0.289 (-0.443 - 0.134)	<0.001	-0.605 (-0.812 - 0.398)	<0.001	-0.370 (-0.521 - 0.219)	<0.001	-0.280 (-0.514 - 0.045)	<0.001	-0.488 (-0.740 - 0.235)	<0.001	-0.608 (-0.799 - 0.417)	<0.001

<b>WHO grade</b>	-0.367 (-0.532 --) 0.202	<0.001	-0.430 (-0.647 --) 0.213	<0.001	-0.468 (-0.694 --) 0.242	<0.001	-0.273 (-0.362 --) 0.185	<0.001	-0.294 (-0.503 --) 0.085	0.006	-0.534 (-0.902 --0.167) 0.004
<b>IDI Nomogram</b>											
<b>D grade</b>	Reference		Reference		Reference		Reference		Reference		Reference
<b>D grade</b>	-0.028 (-0.0549 --) 0.001	0.042	-0.046 (-0.089 --) 0.002	0.039	-0.058 (-0.109 --) 0.007	0.027	-0.048 (-0.076 --) 0.021	<0.001	-0.071 (-0.114 --) 0.027	0.001	-0.074 (-0.130 --0.018) 0.010
<b>F grade</b>	-0.086 (-0.119 --) 0.052	<0.001	-0.154 (-0.210 --) 0.099	<0.001	-0.19 (-0.257 --) 0.124	<0.001	-0.128 (-0.172 --) 0.084	0.019	-0.186 (-0.244 --) 0.128	<0.001	-0.074 (-0.130 --) 0.018
<b>WHO grade</b>	-0.061 (-0.093 --) 0.030	<0.001	-0.124 (-0.182 --) 0.066	<0.001	-0.172 (-0.249 --) 0.094	<0.001	-0.093 (-0.127 --) 0.058	<0.001	-0.146 (-0.203 --) 0.088	<0.001	-0.139 (-0.209 --) 0.067

D: dual 18F-FDG and 68Ga-DOTANOC PET-CT semiquantitative grade; F: single 18F-FDG PET-CT semiquantitative grade; S: single 68Ga-DOTANOC PET-CT semiquantitative grade;

**Supplementray Table S3. NRI, IDI, and C-index of the Grading Systems for OS and PFS in Internal Validation Cohort**

	1 year OS		2 year OS		3 year OS		6-month PFS		12-month PFS		18-month PFS	
	Estimate (95% CI)	P value	Estimate (95% CI)	P value								
<b>AUC</b>												
<b>Nomogram</b>	0.889 (0.793-0.986)	Reference	0.892 (0.808-0.975)	Reference	0.821 (0.673-0.969)	Reference	0.899 (0.820-0.978)	Reference	0.919 (0.858-0.980)	Reference	0.914 (0.815-0.977)	Reference
<b>D grade</b>	0.826 (0.675-0.977)	0.753	0.815 (0.712-0.918)	0.188	0.745 (0.584-0.906)	0.109	0.860 (0.779-0.942)	0.124	0.899 (0.829-0.968)	0.469	0.852 (0.776-0.929)	0.040
<b>F grade</b>	0.640 (0.336-0.944)	0.050	0.832 (0.726-0.937)	0.692	0.779 (0.630-0.927)	0.868	0.759 (0.642-0.875)	0.004	0.732 (0.621-0.842)	<0.001	0.717 (0.617-0.818)	<0.001
<b>WHO grade</b>	0.703 (0.487-0.919)	0.236	0.654 (0.518-0.790)	0.003	0.588 (0.427-0.794)	0.028	0.606 (0.443-0.769)	<0.001	0.528 (0.413-0.643)	<0.001	0.593 (0.482-0.704)	<0.001
<b>NRI</b>												
<b>Nomogram</b>	Reference	Reference										
<b>D grade</b>	-0.164 (-0.382 - 0.054)	0.141	-0.217 (-0.496 - 0.061)	0.126	-0.321 (-0.550 -- 0.092)	0.006	0 (-0.110 - 0.110)	1.000	-0.541 (-0.885 -- 0.197)	0.002	-0.075 (-0.579 - 0.430)	0.772
<b>F grade</b>	-0.008 (-0.256 - 0.239)	0.947	-0.014 (-0.287 - 0.259)	0.919	-0.312 (-0.545 -- 0.078)	0.009	-0.285 (-0.652 -- 0.081)	0.127	-0.950 (-1.259 -- 0.640)	<0.001	-0.675 (-1.014 -- 0.337)	<0.001
<b>WHO grade</b>	-0.285 (-0.484 -- 0.086)	0.005	-0.804 (-1.121 -- 0.488)	<0.001	-0.589 (-0.870 -- 0.307)	<0.001	-0.224 (-0.340 -- 0.108)	<0.001	-0.715 (-1.104 -- 0.325)	<0.001	-0.784 (-1.312 -- 0.255)	0.004
<b>IDI</b>												
<b>Nomogram</b>	Reference	Reference										
<b>D grade</b>	-0.063 (-0.119 -- 0.006)	0.029	-0.151 (-0.258 -- 0.045)	0.005	-0.141 (-0.245 -- 0.036)	0.009	-0.041 (-0.083 -- 0.001)	0.057	-0.085 (-0.185 -- 0.015)	0.097	-0.090 (-0.2493 -- 0.069)	<0.001
<b>F grade</b>	-0.066 (-0.123 -- 0.008)	0.025	-0.160 (-0.266 -- 0.054)	0.003	-0.152 (-0.256 -- 0.047)	0.004	-0.167 (-0.249 -- 0.085)	<0.001	-0.324 (-0.463 -- 0.185)	<0.001	-0.303 (-0.474 -- 0.132)	<0.001
<b>WHO grade</b>	-0.065 (-0.096 -- 0.033)	<0.001	-0.216 (-0.305 -- 0.127)	<0.001	-0.268 (-0.388 -- 0.149)	<0.001	-0.148 (-0.211 -- 0.086)	<0.001	-0.295 (-0.415 -- 0.175)	<0.001	-0.279 (-0.458 -- 0.100)	0.004

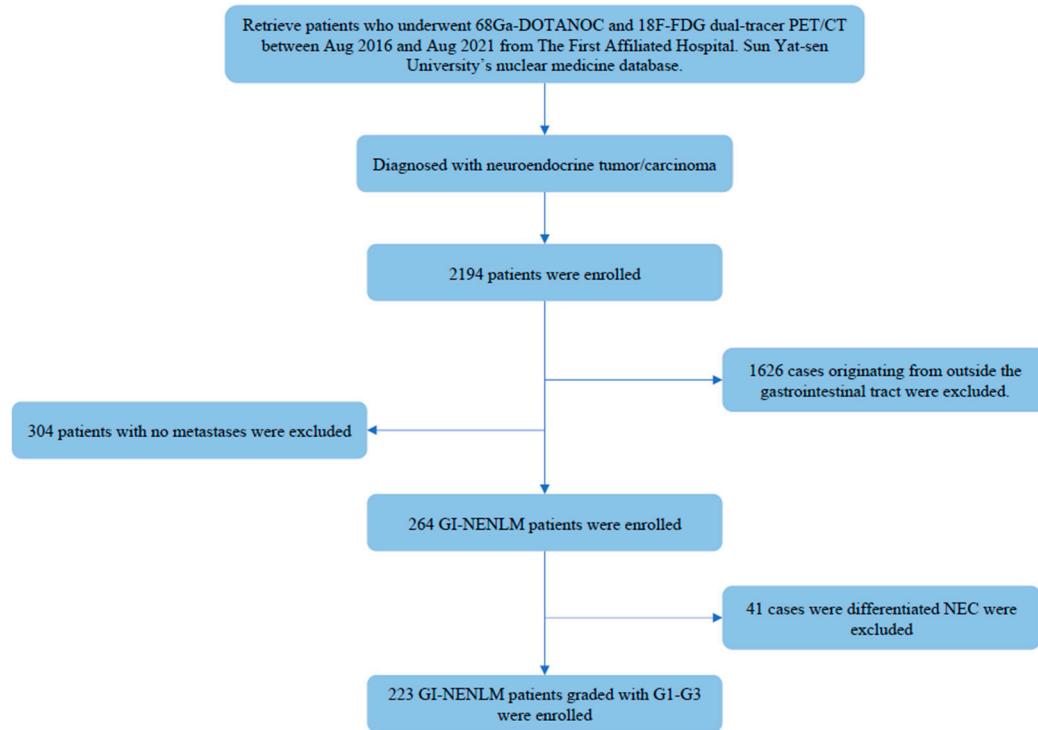
D: dual 18F-FDG and 68Ga-DOTANOC PET-CT semiquantitative grade; F: single 18F-FDG PET-CT semiquantitative grade; S: single 68Ga-DOTANOC PET-CT semiquantitative grade;

**Supplementary Table S4. C-index (95% CI) of Nomogram from Subgroup Analysis by Primary Site**

Original	Train		internal test	
	OS	PFS	OS	PFS
<b>Stomach</b>	0.78 (0.60-0.96)	1.00	0.79 (0.70-0.89)	0.84 (0.60-1.00)
<b>Small intestine</b>	0.87 (0.78-0.96)	0.82 (0.72-0.92)	0.77 (0.66-0.87)	1.00
<b>Colorectum</b>	0.82 (0.73-0.92)	0.85 (0.81-0.90)	0.72 (0.65-0.79)	0.85 (0.75-0.95)

**Supplementary Table S5. C-index (95% CI) of Nomogram from Subgroup Analysis by Treatment**

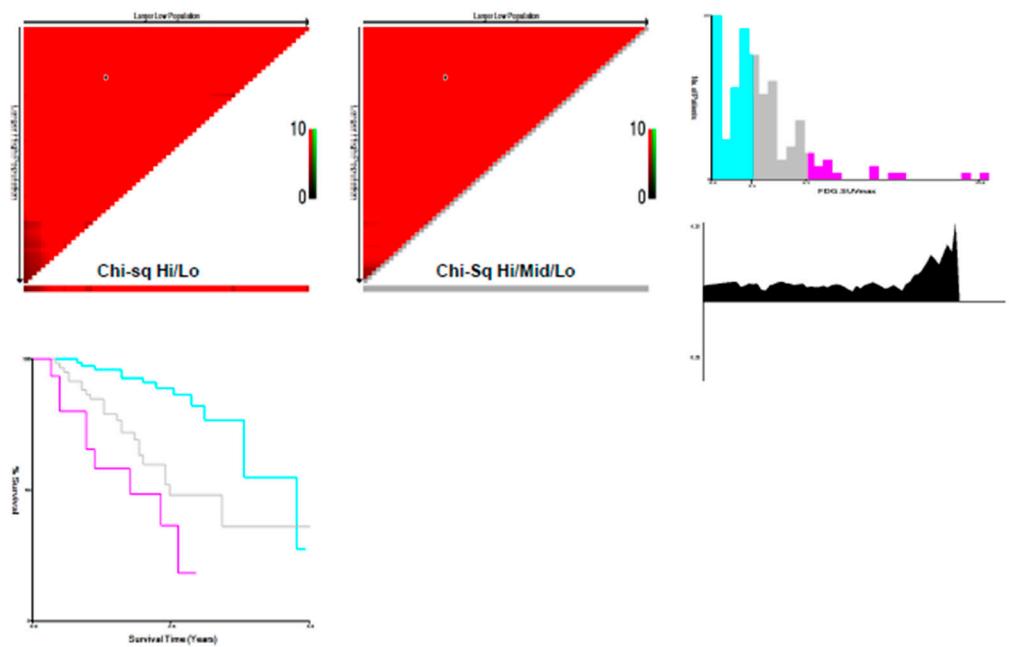
Treatment	Train		internal test	
	OS	PFS	OS	PFS
<b>Surgery</b>	0.83 (0.75-0.91)	0.70 (0.63-0.77)	0.88 (0.80-0.97)	0.79 (0.73-0.86)
<b>Without Surgery</b>	0.79 (0.70-0.88)	0.76 (0.70-0.69)	0.82 (0.70-0.94)	0.84 (0.77-0.91)



**Figure S1.** Patient Selection Flowchart.

### Survival Analysis: FDG.SUVmax

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#### Subpopulation Cutpoints:

Pt No	% Total	Events	Rate	Rank	Range
74	50.00	13	17.57	0 to 19	0.00 thru 3.50
59	39.86	23	38.98	20 to 53	3.60 thru 8.30
15	10.14	9	60.00	54 to 66	8.50 thru 23.80
148	100.00	45	30.41	0 to 66	0.00 thru 23.80

#### Statistics:

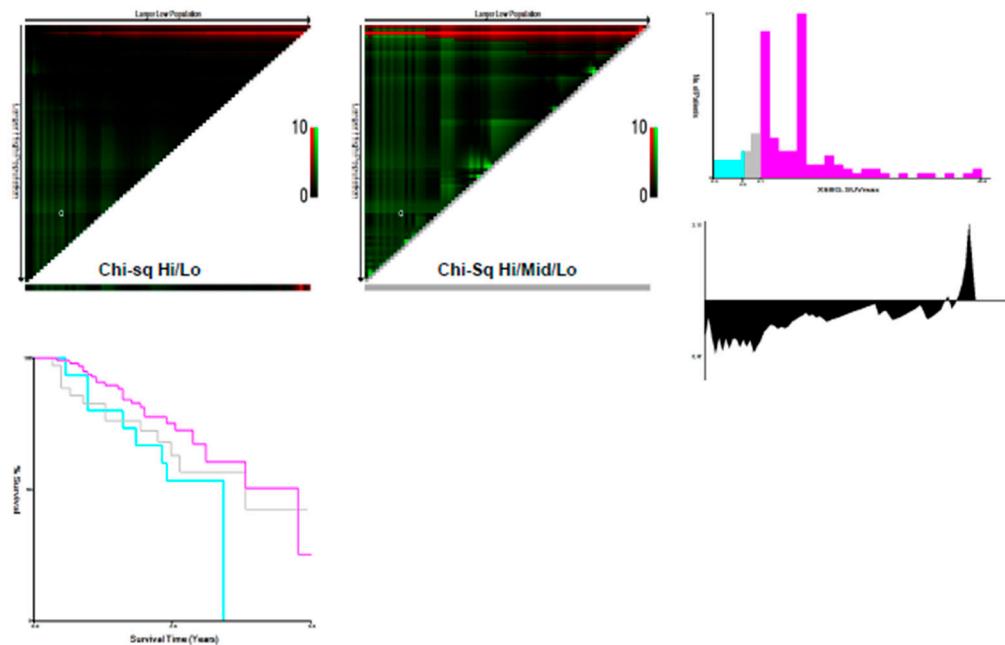
Variable	Value
Chi-Sq Hi/Mid/Lo	24.7895
Lo vs Mid	12.9525
Mid vs Hi	2.6794
Lo vs Hi	28.0522
Relative Risk 1 vs 2 vs 3	1.00 / 2.22 / 3.42

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**Figure S2.** The process of X-tile software for stratification of 18F FDG SUVmax values.

### Survival Analysis: X68G.SUVmax

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#### Subpopulation Cutpoints:

Pt No	% Total	Events	Rate	Rank	Range
15	10.14	8	53.33	0 to 10	0.00 thru 5.00
35	23.65	13	37.14	11 to 21	5.40 thru 8.10
98	66.22	24	24.49	22 to 79	8.20 thru 46.80
148	100.00	45	30.41	0 to 79	0.00 thru 46.80

#### Statistics:

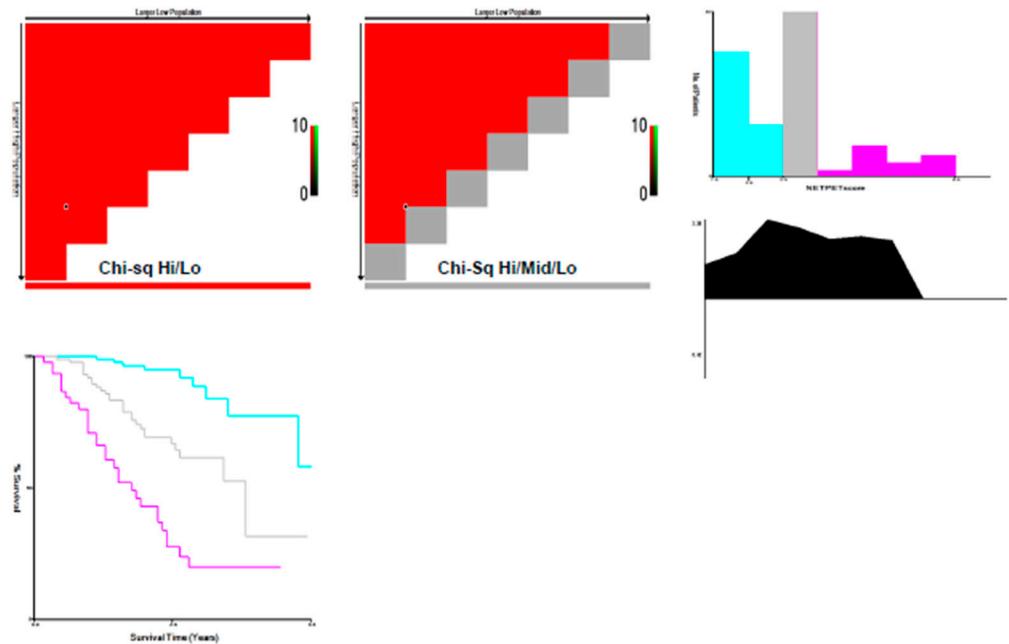
Variable	Value	
Chi-Sq Hi/Mid/Lo	3.0317	Max: 3.8565
Lo vs Mid	0.3963	
Mid vs Hi	1.0833	
Lo vs Hi	2.8251	
Relative Risk 1 vs 2 vs 3	2.18 / 1.52 / 1.00	

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**Figure S3.** The process of X-tile software for stratification of FDG 68G DOTANOC SUVmax values.

### Survival Analysis: NETPETscore

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#### Subpopulation Cutpoints:

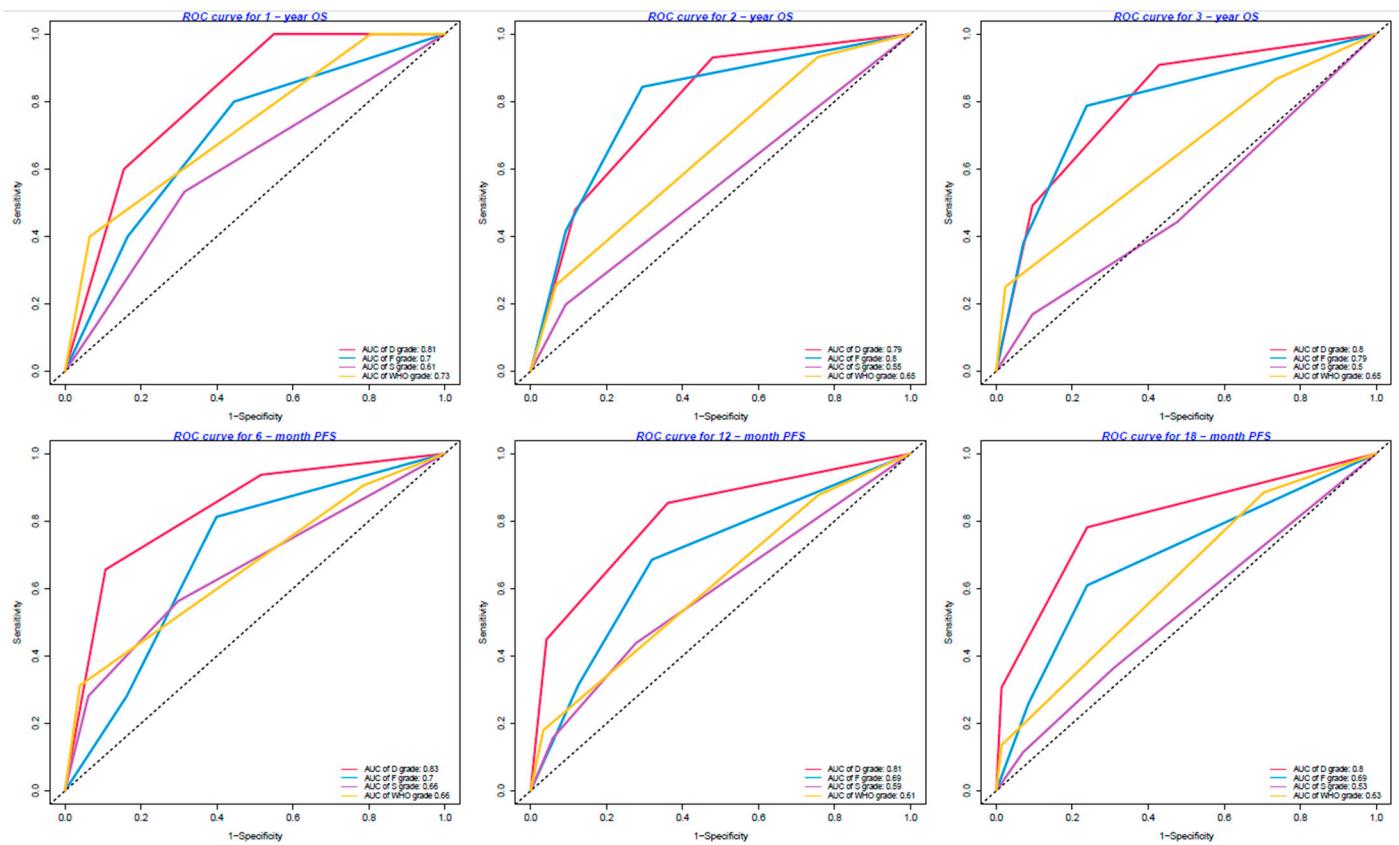
Pt No	% Total	Events	Rate	Rank	Range
92	41.26	9	9.78	0 to 1	1.00 thru 2.00
86	38.57	29	33.72	2 to 2	3.00 thru 3.00
45	20.18	30	66.67	3 to 7	4.00 thru 8.00
223	100.00	68	30.49	0 to 7	1.00 thru 8.00

#### Statistics:

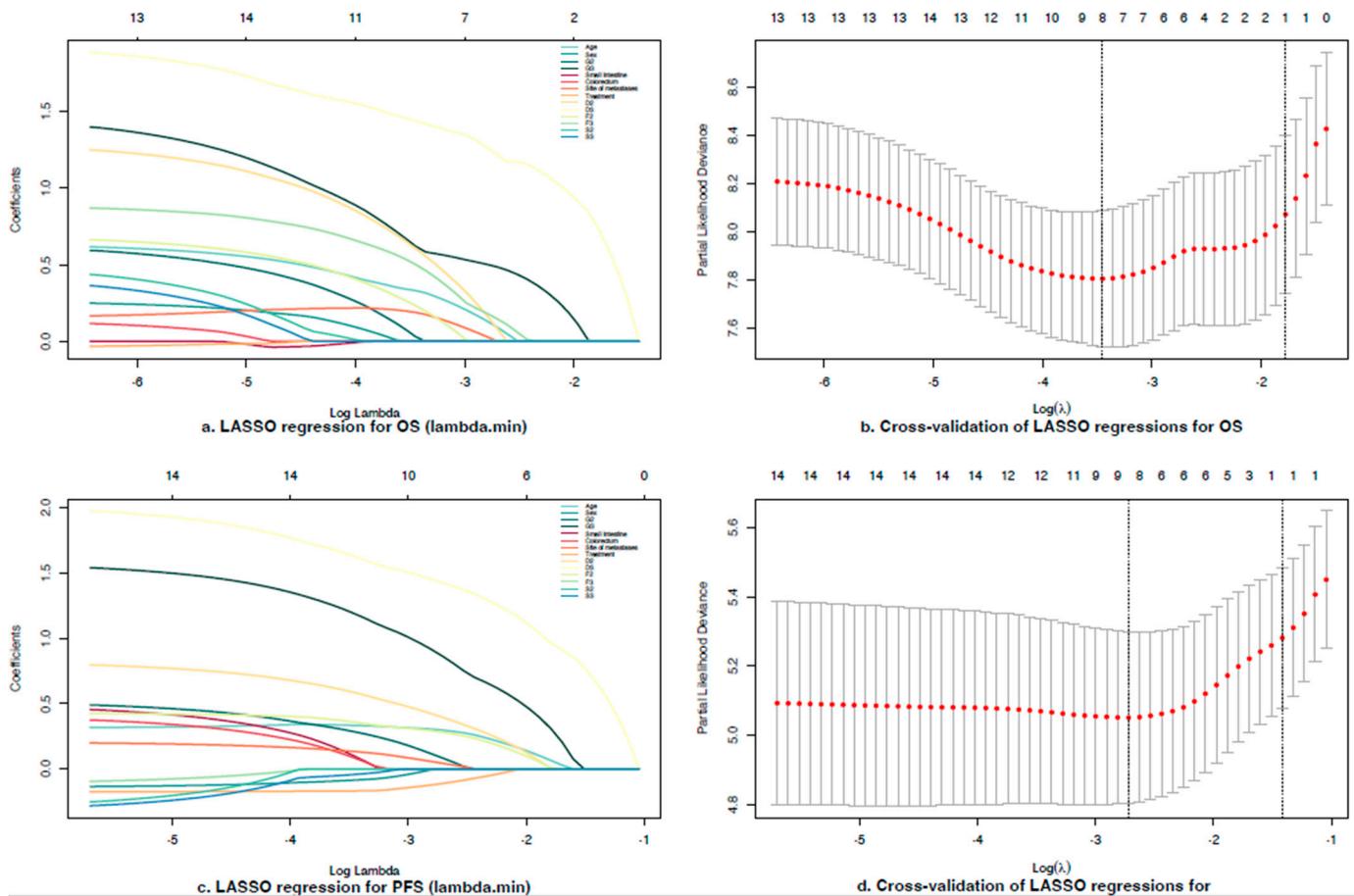
Variable	Value	
Chi-Sq Hi/Mid/Lo	66.8310	Max: 66.8310
Lo vs Mid	18.8911	
Mid vs Hi	17.3412	
Lo vs Hi	68.5812	
Relative Risk 1 vs 2 vs 3	1.00 / 3.45 / 6.81	

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**Figure S4.** The process of X-tile software for stratification of NETPET score.



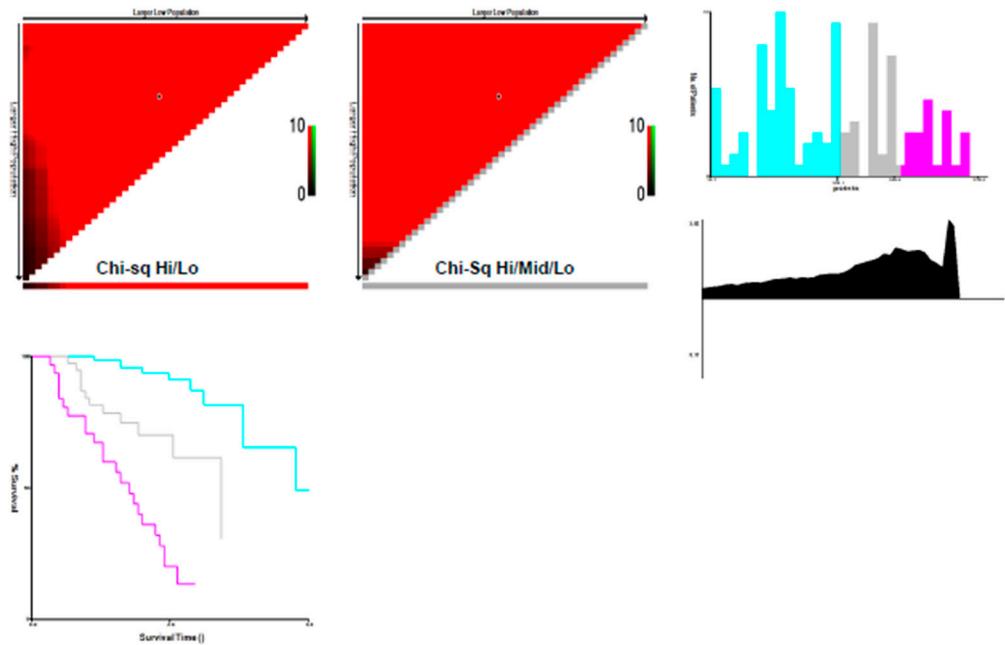
**Figure S5.** ROC curves for dual 18F-FDG and 68Ga DOTANOC PETCT visual grade (D grade) and examples of D grade, semiquantitative 18F-FDG PETCT grade (F grade), and semiquantitative 68Ga-DOTANOC PETCT grade (S grade) predicting 1-, 2-, 3-year OS and 6-, 12-, 18-month PFS in the overall cohort.



**Figure S6.** LASSO regression for OS and PFS. **a** LASSO regression for OS. **b** the cross-validation for LASSO regression for OS (lambda min). **c** LASSO regression for PFS. **d** the cross-validation for LASSO regression for PFS (lambda min).

### Survival Analysis: points

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#### Subpopulation Cutpoints:

Pt No	% Total	Events	Rate	Rank	Range
79	53.38	10	12.66	0 to 22	14.69 thru 135.14
38	25.68	12	31.58	23 to 33	137.95 thru 189.52
31	20.95	23	74.19	34 to 46	195.85 thru 270.40
148	100.00	45	30.41	0 to 46	14.69 thru 270.40

#### Statistics:

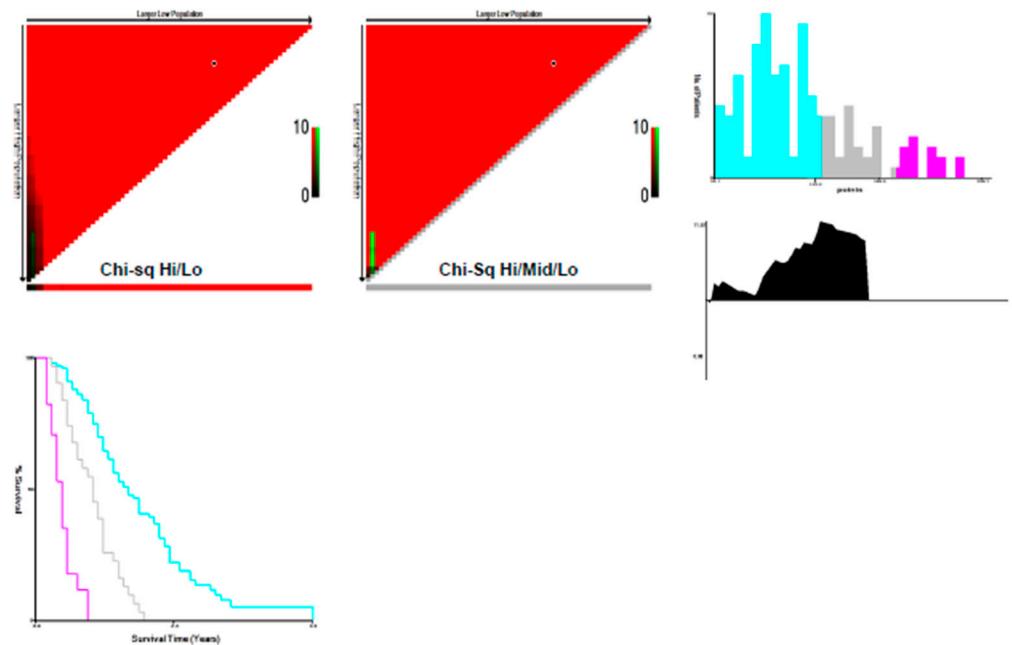
Variable	Value
Chi-Sq Hi/Mid/Lo	63.1852
Lo vs Mid	14.5734
Mid vs Hi	9.6645
Lo vs Hi	66.7341
Relative Risk 1 vs 2 vs 3	1.00 / 2.49 / 5.86

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**Figure S7.** The process of X-tile software for stratification of nomogram output scores for OS.

### Survival Analysis: points

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#### Subpopulation Cutpoints:

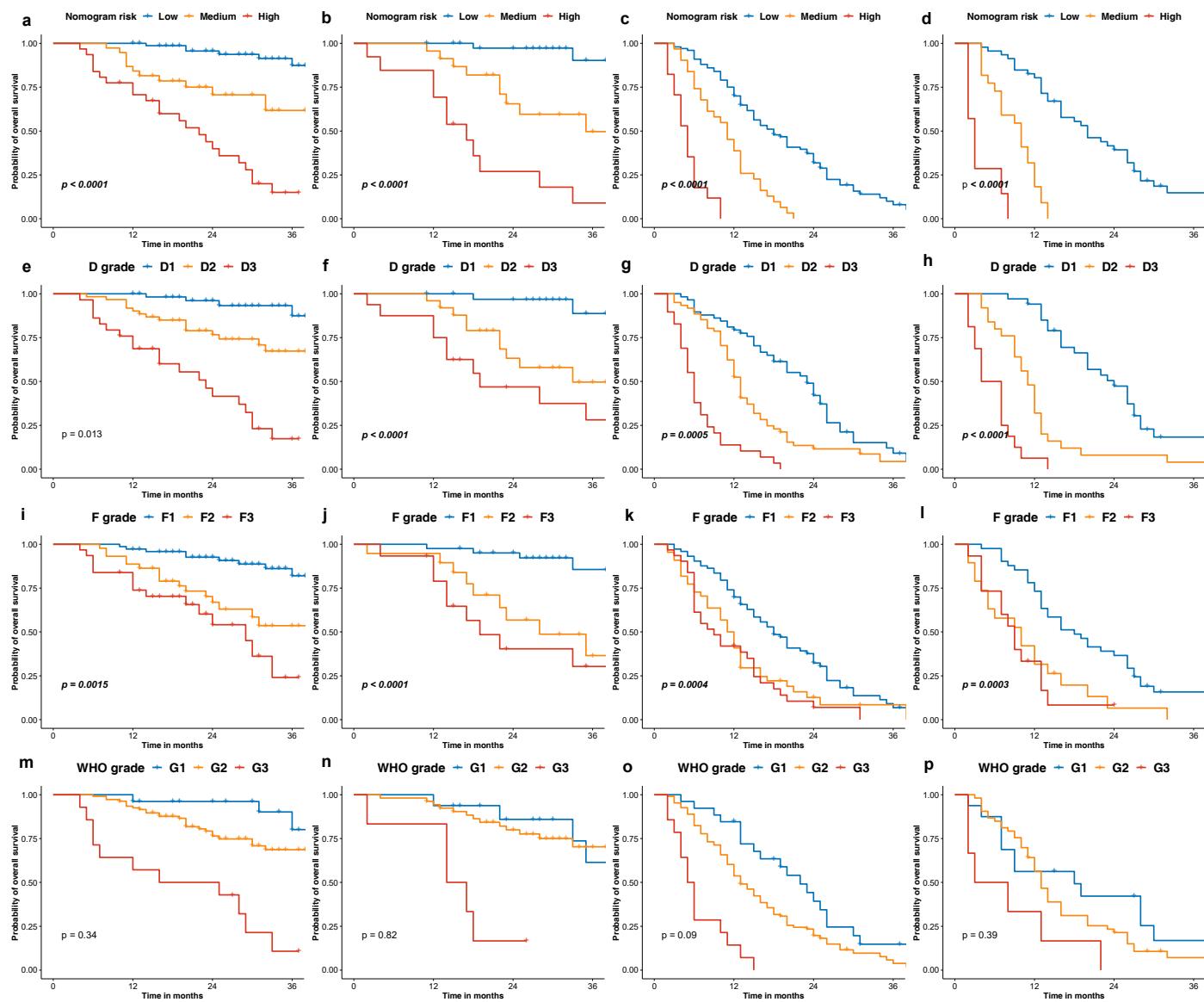
Pt No	% Total	Events	Rate	Rank	Range
100	67.57	80	80.00	0 to 44	24.07 thru 112.24
31	20.95	31	100.00	45 to 57	117.67 thru 168.50
17	11.49	17	100.00	58 to 67	183.38 thru 259.73
148	100.00	128	86.49	0 to 67	24.07 thru 259.73

#### Statistics:

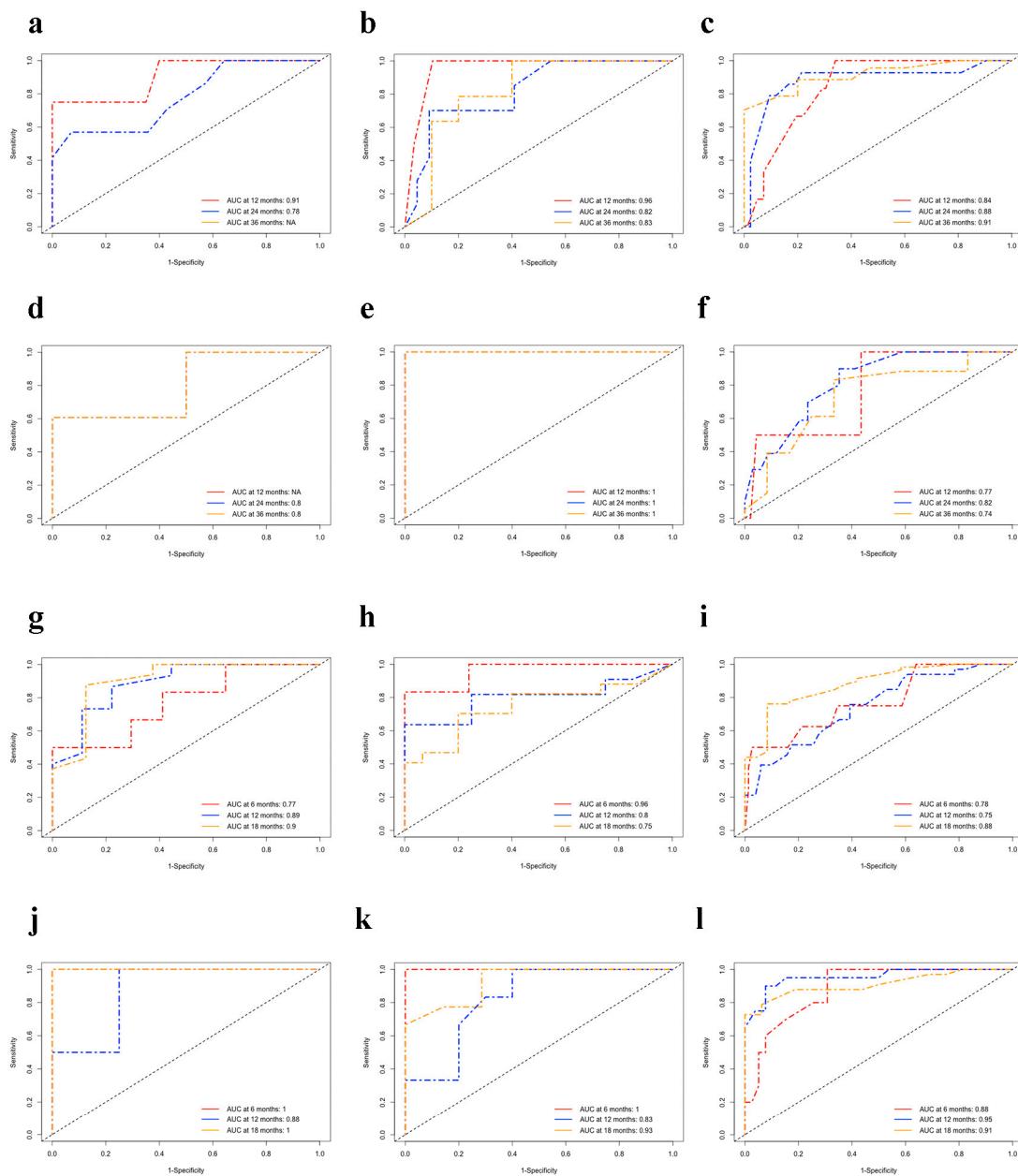
Variable	Value	
Chi-Sq Hi/Mid/Lo	105.9464	Max: 110.2269
Lo vs Mid	28.2836	
Mid vs Hi	20.5563	
Lo vs Hi	93.3066	
Relative Risk 1 vs 2 vs 3	1.00 / 0.00 / 0.00	

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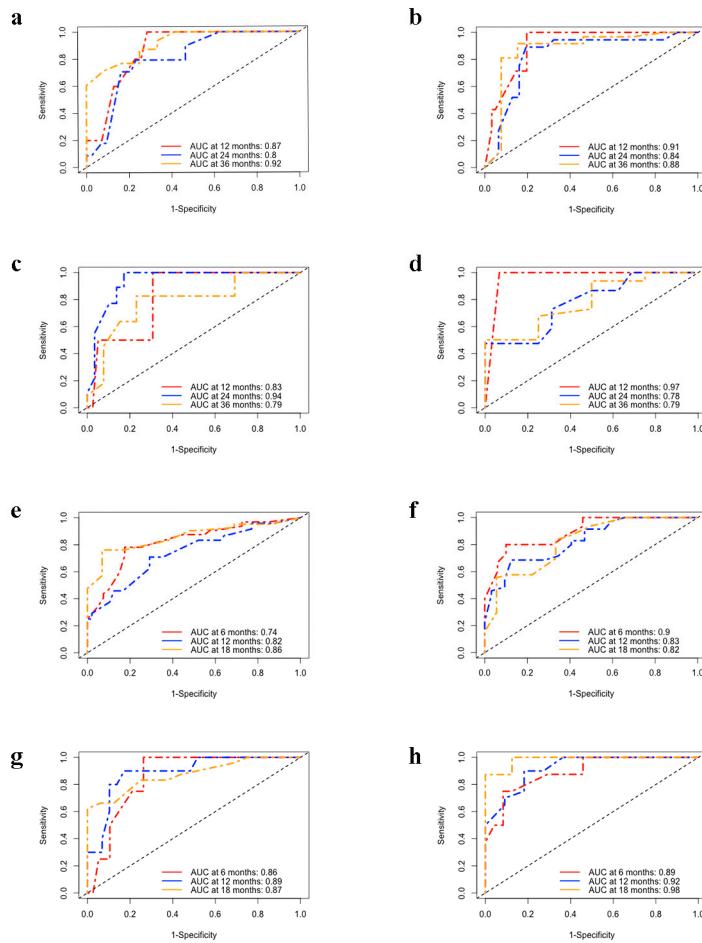
**Figure S8.** The process of X-tile software for stratification of nomogram output scores for PFS.



**Figure S9.** (a-b) The Kaplan Meier curves for risk Stratification Scale of the nomogram for OS in the training and internal validation cohort. (c-d) the Kaplan Meier curves for risk Stratification Scale of the nomogram for PFS in the training and internal validation cohort. (e-f) the Kaplan Meier curves for dual-scan visual grading for OS in the training and internal validation cohort. (g-h) the Kaplan Meier curves for dual-scan visual grading for PFS in the training and internal validation cohort. (i-j) the Kaplan Meier curves for semiquantitative 18F-FDG PETCT grading system for OS in the training and internal validation cohort. (k-l) the Kaplan Meier curves for semiquantitative 18F-FDG PETCT grading system for PFS in the training and internal validation cohort. (m-n) the Kaplan Meier curves for the WHO grading system for OS in the training and internal validation cohort. (o-p) the Kaplan Meier curves for the WHO grading system for PFS in the training and internal validation cohort.



**Figure S10.** (a-l). Time ROC curve for OS. a The subgroup of stomach in Modelling cohort; b The subgroup of small intestine in Modelling cohort; c The subgroup of colorectum in Modelling cohort; d The subgroup of stomach in internal test cohort; e The subgroup of small intestine in internal test cohort; f The subgroup of colorectum in internal test cohort. Time ROC curve for PFS; g the subgroup of stomach in Modelling cohort; h The subgroup of small intestine in Modelling cohort; i The subgroup of colorectum in Modelling cohort; j The subgroup of stomach in internal test cohort; k The subgroup of small intestine in internal test cohort; l The subgroup of colorectum in internal test cohort.



**Figure S11.** Time ROC curve for OS. a The subgroup of post-surgery in Modeling cohort; b The subgroup of no-surgery in Modeling cohort; c The subgroup of post-surgery in internal test cohort; d The subgroup of no-surgery in internal test cohort. Time ROC curve for PFS. e The subgroup of post-surgery in Modeling cohort; f The subgroup of no-surgery in Modeling cohort; g The subgroup of post-surgery in internal test cohort; h The subgroup of no-surgery in internal test cohort.