

Table S1 Multiple regression analysis for the response to IC of HI^{hottest} assessed by the hottest lesion on DLBCL

Variables	Non-adjusted		Adjusted I		Adjusted II	
	OR (95% CI)	P value	OR (95% CI)	P value	OR (95% CI)	P value
HI ^{hottest}	1.68 (1.25, 2.26)	<0.001*	1.73 (1.28, 2.34)	<0.001*	1.50 (1.05, 2.13)	0.02*
Tertiles						
Bottom tertile	1.0		1.0		1.0	
Middle tertile	2.35 (1.13, 4.89)	0.02*	2.32 (1.10, 4.86)	0.03*	2.48 (1.00, 6.11)	0.049*
Top tertile	2.96 (1.44, 6.07)	0.003*	3.05 (1.47, 6.33)	0.003*	2.75 (1.11, 6.82)	0.03*
P for trend	1.66 (1.18, 2.34)	0.004*	1.70 (1.20, 2.40)	0.003*	1.59 (1.03, 2.44)	0.04*

Non-adjusted model adjusted for: none; Adjusted I model adjusted for: gender and age; Adjusted II model adjusted for: age, gender, Ann Arbor stage, EN, LDH, β_2 MG, ECOG PS, IPI, NCCN-IPI, COO, TMTV, TLG, and MTV^{hottest}. *, P<0.05. β_2 MG, β_2 microglobulin; CI, confidence interval; COO, cell-of-origin; DLBCL, diffuse large B-cell lymphoma; ECOG PS, Eastern Cooperative Oncology Group performance status; EN, extranodal involvement; HI, heterogeneity index; IC, immunochemotherapy; IPI, International Prognostic Index; LDH, lactate dehydrogenase; NCCN-IPI, National Comprehensive Cancer Network IPI; OR, odds ratio; TLG, total lesion glycolysis; TMTV, total metabolic tumor volume.

Table S2 Multiple regression analysis for the response to IC of HI^{largest} assessed by the largest lesion on DLBCL

Variables	Non-adjusted		Adjusted I		Adjusted II	
	OR (95% CI)	P value	OR (95% CI)	P value	OR (95% CI)	P value
HI ^{largest}	1.47 (1.10, 1.97)	0.009*	1.47 (1.10, 1.97)	0.01*	1.25 (0.88, 1.76)	0.21
Tertiles						
Bottom tertile	1.0		1.0		1.0	
Middle tertile	1.36 (0.68, 2.71)	0.38	1.39 (0.69, 2.79)	0.36	1.37 (0.58, 3.23)	0.47
Top tertile	1.83 (0.94, 3.57)	0.08	1.74 (0.89, 3.42)	0.11	1.29 (0.57, 2.90)	0.54
P for trend	1.35 (0.97, 1.89)	0.07	1.32 (0.94, 1.84)	0.11	1.12 (0.75, 1.66)	0.58

Non-adjusted model adjusted for: none; Adjusted I model adjusted for: gender and age; Adjusted II model adjusted for: age, gender, Ann Arbor stage, EN, LDH, β_2 MG, ECOG PS, IPI, NCCN-IPI, COO, TLG, and MTV^{largest}. *, P<0.05. β_2 MG, β_2 microglobulin; CI, confidence interval; COO, cell-of-origin; DLBCL, diffuse large B-cell lymphoma; ECOG PS, Eastern Cooperative Oncology Group performance status; EN, extranodal involvement; HI, heterogeneity index; IC, immunochemotherapy; IPI, International Prognostic Index; LDH, lactate dehydrogenase; NCCN-IPI, National Comprehensive Cancer Network IPI; OR, odds ratio; TLG, total lesion glycolysis; TMTV, total metabolic tumor volume.

Table S3 Multiple regression analysis for the response to IC of AUC-CSH^{largest} assessed by the largest lesion on DLBCL

Variables	Non-adjusted		Adjusted I		Adjusted II	
	OR (95% CI)	P value	OR (95% CI)	P value	OR (95% CI)	P value
AUC-CSH ^{largest}	0.69 (0.52, 0.93)	0.01*	0.70 (0.52, 0.93)	0.02*	0.81 (0.58, 1.14)	0.22
Tertiles						
Bottom tertile	1.0		1.0		1.0	
Middle tertile	0.80 (0.42, 1.51)	0.50	0.85 (0.44, 1.62)	0.62	1.19 (0.55, 2.58)	0.66
Top tertile	0.58 (0.30, 1.12)	0.10	0.60 (0.31, 1.17)	0.14	0.82 (0.37, 1.85)	0.64
P for trend	0.76 (0.55, 1.06)	0.10	0.78 (0.56, 1.08)	0.14	0.92 (0.62, 1.37)	0.68

Non-adjusted model adjusted for: none; Adjusted I model adjusted for: gender and age; Adjusted II model adjusted for: age, gender, Ann Arbor stage, EN, LDH, β_2 MG, ECOG PS, IPI, NCCN-IPI, COO, TLG, and MTV^{largest}. *, P<0.05. AUC-CSH, area under the curve of cumulative standardized uptake value volume histogram; β_2 MG, β_2 microglobulin; CI, confidence interval; COO, cell-of-origin; DLBCL, diffuse large B-cell lymphoma; EN, extranodal involvement; ECOG PS, Eastern Cooperative Oncology Group performance status; IC, immunochemotherapy; IPI, International Prognostic Index; LDH, lactate dehydrogenase; MTV, metabolic tumor volume; NCCN-IPI, National Comprehensive Cancer Network IPI; OR, odds ratio; TLG, total lesion glycolysis.

Table S4 Intraclass correlation coefficient to evaluate the consistency of conventional metabolic parameters between two observers

Parameter	Measurement method	Homogeneous correlation ^b	95% CI		F-test using true value 0			
			Upper limit	Low limit	Value	Degree of Freedom 1	Degree of Freedom 2	Significance
TMTV	Single measurement	0.995 ^a	0.993	0.996	381.127	144	144	0.000
	Average measurement	0.997	0.996	0.998	381.127	144	144	0.000
TLG	Single measurement	0.999 ^a	0.998	0.999	1563.876	143	143	0.000
	Average measurement	0.999	0.999	1.000	1563.876	143	143	0.000
SUVmax	Single measurement	0.994 ^a	0.992	0.996	337.990	144	144	0.000
	Average measurement	0.997	0.996	0.998	337.990	144	144	0.000
SUVmean	Single measurement	0.977 ^a	0.969	0.984	86.514	144	144	0.000
	Average measurement	0.989	0.984	0.992	86.514	144	144	0.000
AUC-CSH	Single measurement	0.896 ^a	0.859	0.924	18.193	144	144	0.000
	Average measurement	0.945	0.924	0.961	18.193	144	144	0.000

A bidirectional random effects model with both personnel effects and measurement effects being random. ^a, the estimated quantity remains the same regardless of the presence or absence of interaction effects. ^b, A-class correlation coefficient defined using absolute protocol. AUC-CSH, area under the curve of cumulative SUV volume histogram; CI, confidence interval; SUVmax, maximum standardized uptake value; SUVmean, mean standardized uptake value; TLG, total lesion glycolysis; TMTV, total metabolic tumor volume.

Table S5 Collinearity detection among the significant independent variables in multivariate logistic regression models

Constant	Step 1 (VIF)	Step 2 (VIF)	Step 3 (VIF)
AUC-CSH ^{hottest}	4	4	1.3
Gender	1	1	1
Age	2	2	2
Ann Arbor stage	3	3	3
B symptom	1.3	1.3	1.3
EN	2.4	2.4	2.4
LDH	2	2	2
β_2 MG	1.6	1.5	1.5
ECOG PS	2.2	2.2	2.2
IPI	6.6	6.6	6.5
NCCN-IPI	4.9	4.8	4.8
COO	1.1	1.1	1.1
TMTV	12.2	8.2	8
TLG	15.1	8.9	8.7
SUVmax ^{hottest}	12.2	12	NA
SUVmean ^{hottest}	7.5	7.2	1.7
MTV ^{hottest}	16.2	3.3	3.3
TLG ^{hottest}	19.6	NA	NA

Dependent variable: response. Variables with a VIF <10 should be included the model. AUC-CSH, area under the curve of cumulative SUV volume histogram; β_2 MG, β_2 microglobulin; COO, cell-of-origin; ECOG PS, Eastern Cooperative Oncology Group performance status; EN, extranodal involvement; IPI, International Prognostic Index; LDH, lactate dehydrogenase; NCCN-IPI, National Comprehensive Cancer Network IPI; SUVmax, maximum standardized uptake value; SUVmean, mean standardized uptake value; TLG, total lesion glycolysis; TMTV, total metabolic tumor volume; VIF, variance inflation factor.