Supplemental Table 1: Description of the four response criteria.

Response Criteria	Complete Metabolic Response (CMR)	Partial Metabolic Response (PMR)	Stable Metabolic Disease (SMD)	Progressive Metabolic Disease (PMD)
EORTC (*4*) 1999	Resolution of FDG uptake within the tumor ROI (indistinguishable from surrounding normal tissue)	Decrease of ROI SUV_{BSA} by 15-25% after one cycle of CTx <u>Or</u> Decrease of SUV_{BSA} by >25% after more than one CTx cycle (A reduction in the extent of the tumor FDG uptake is not a requirement)	Increase of ROI SUV_{BSA} by <25% <u>Or</u> Decrease of <15% and no visible increase in extent of FDG tumor uptake (>20% in the longest dimension)	Increase in ROI SUV_{BSA} by >25% <u>Or</u> Visible increase in the extent of FDG tumor uptake (>20% in the longest dimension) <u>Or</u> New FDG-avid lesion(s)
PERCIST (*5,6*) 2009	FDG uptake within the target lesion[1] indistinguishable from surrounding background <u>And</u> SUL_{peak} less than mean liver activity	Decrease of target lesion SUL_{peak} by ≥ 30% and at least 0.8 SUL_{peak} units difference <u>And</u> No increase > 30%, in SUL_{peak} or size, of target and non-target lesion	Increase or decrease of target lesion SUL_{peak} by less than 30%	Increase of target lesion SUL_{peak} by ≥30% and at least 0.8 SUL_{peak} units difference <u>Or</u> Increase in target lesion extent with no decline in SUL <u>Or</u> New FDG-avid lesion(s)
Peter Mac (*7*) 2003	No tumor FDG uptake <u>Or</u> Activity in the target tumor[2] similar to that in the mediastinum	Any appreciable reduction of FDG uptake intensity of target tumor or reduction in tumor volume/extent <u>And</u> Residual FDG uptake within target tumor greater than mediastinum	No appreciable change of FDG uptake intensity of target tumor or tumor volume/extent	Appreciable increase in FDG uptake intensity of target tumor <u>Or</u> Appreciable increase in volume/extent of target tumor sites <u>Or</u> New FDG avid lesion(s)
Deauville (*8-10*) 2009	Deauville scores[3] 1, 2 or 3 irrespective of a persistent mass on CT	Deauville score 4 or 5 <u>And</u> Appreciable decrease in intensity of FDG-tumor uptake <u>And</u> No appreciable increase in tumor volume/extent	Deauville score of 4 or 5 <u>And</u> No significant change in FDG-tumor uptake	Deauville score 4 or 5 and appreciable increase in intensity of FDG-tumor uptake <u>Or</u> Deauville score 4 or 5 and appreciable increase in volume/extent of tumor <u>Or</u> New FDG-avid lesion(s)

Abbreviations: ROI, region of interest defined on the pre-treatment scan as the region(s) of high ^{18}F-FDG uptake representing viable tumor; SUV_{BSA}, mean SUV (standardized uptake value), normalised to body surface area; SUL_{peak}, SUV of local average of voxels in a 1cc spherical volume of interest centered on the maximal uptake pixel and normalised to lean body mass.
[1] Target lesion: hottest lesion with SUL_{peak} value at least 1.5 times SUL_{mean} liver + 2 SD (standard deviation).
[2] Target tumor: lesion with FDG uptake more than mediastinum.
[3] Deauville score 1: no residual uptake, score 2: slight uptake, but below or equal to blood pool (mediastinum), score 3: uptake above mediastinum, but below or equal to the liver, score 4: uptake moderately higher than liver, and score 5: uptake markedly higher than liver or any new lesion.

Supplemental Table 2: Blood sugar levels for compliance with PERCIST 1.0 and EORTC standardization criteria.

Glucose level	Baseline FDG-PET/CT *mmol/L*	Follow up FDG-PET/CT *mmol/L*	PERCIST 1.0 *mmol/L*	Follow up FDG-PET/CT adherence
Mean	6.3	6.3	< 11.1	100% (87/87)
Range	3.2-12.4*	4.1-10.4		

*A single patient had a blood glucose level (BGL) of 12.4 mmol/L at the baseline FDG-PET/CT which was above the accepted range for PERCIST 1.0 criteria. This patient was diabetic on oral hypoglycemic. His BGL at time of follow-up PET/CT was 10.4 mmol/L (in the accepted range). Given only a small absolute BGL difference (2mmol/L) between scans, this patient was not excluded from the final analysis.

Supplemental Table 3: Overall survival model fit by response.

Criteria	Level	N	Unadjusted HR (95% CI)	p	c	r^2	AIC	Adjusted for all variables HR (95% CI)	p	c	r^2	AIC
EORTC	Per category	87	1.5 (1.1-2.0)	0.013	0.61	0.07	363.1	1.6 (1.2-2.2)	0.006	0.66	0.14	374.2
	CMR	24	1	0.001	0.63	0.13	360.8	1	0.006	0.67	0.19	373.4
	PMR	37	1.2 (0.6- 2.5)						1.4 (0.6- 3.1)				
	SMD	9	0.8 (0.2- 2.4)						0.9 (0.3- 3.1)				
	PMD	17	4.4 (1.9-10.6)						5.3 (2.0-14.1)				
	CMR	24	1	0.285	0.55	0.01	368.0	1	0.197	0.63	0.08	380.1
	Non-CMR	63	1.4 (0.7-2.7)						1.6 (0.8-3.5)				
PERCIST	Per category	86	1.5 (1.1-2.0)	0.015	0.60	0.07	362.3	1.6 (1.2-2.2)	0.005	0.65	0.14	372.9
	CMR	24	1	0.001	0.64	0.14	359.3	1	0.006	0.67	0.19	372.3
	PMR	38	1.3 (0.7- 2.6)						1.4 (0.6- 3.2)				
	SMD	7	0.6 (0.2- 2.2)						0.8 (0.2- 3.1)				
	PMD	17	4.5 (1.9-10.6)						5.4 (2.0-14.4)				
	CMR	24	1	0.266	0.55	0.02	366.9	1	0.187	0.63	0.08	378.9
	Non-CMR	62	1.4 (0.8-2.7)						1.6 (0.8-3.5)				
Deauville	Per category	87	1.6 (1.2-2.2)	0.001	0.63	0.11	358.8	1.8 (1.3-2.5)	<0.001	0.70	0.19	369.0
	CMR	31	1	0.001	0.65	0.13	360.8	1	0.005	0.70	0.19	372.8
	PMR	38	1.4 (0.7- 2.7)						1.6 (0.7- 3.5)				
	SMD	1	0.9 (0.1- 6.7)						2.4 (0.2-31.2)				
	PMD	17	4.8 (2.1-11.1)						5.7 (2.3-14.5)				
	CMR	31	1	0.081	0.59	0.04	366.1	1	0.021	0.68	0.12	376.4
	Non-CMR	56	1.7 (0.9-3.1)						2.3 (1.1-4.8)				
Peter Mac	Per category	87	1.7 (1.3-2.2)	0.001	0.64	0.12	357.9	1.8 (1.3-2.5)	<0.001	0.70	0.20	368.0
	CMR	30	1	0.001	0.66	0.14	360.1	1	0.003	0.71	0.20	372.0
	PMR	39	1.5 (0.8- 3.0)						1.8 (0.8- 4.1)				
	SMD	1	0.9 (0.1- 7.2)						2.6 (0.2-33.9)				
	PMD	17	5.2 (2.2-12.0)						6.3 (2.4-16.2)				
	CMR	30	1	0.047	0.60	0.05	365.1	1	0.010	0.69	0.13	375.1
	Non-CMR	57	1.9 (1.0-3.4)						2.6 (1.2-5.7)				

Abbreviations: N, number of patients; HR, hazards ratio; CI, confidence interval; p, p-value; c, c-statistic; AIC, Akaike Information Criteria; CMR, complete metabolic response; PMR, partial metabolic response; SMD, stable metabolic disease; PMD, progressive metabolic disease.