



**Figure S1.** Change in TIL levels after NAC, according to the response to NAC, A: Change in TIL levels for the patients that achieved pCR, B: Change in TIL levels for the patients that did not achieve pCR.

**Table S1.** Predictive factors associated with pre-NAC TIL levels in univariate analyses.

	Levels	coefficient	[95% CI]	P-value
<b>Pre-NAC parameters</b>				
<b>Age (class)</b>	<45			
	≥45	-0.3	[-0.73 ; 0.13]	0.173
<b>Pregnancies</b>	0			
	1-3	0.21	[-0.23 ; 0.65]	0.347
	>3	-0.11	[-0.7 ; 0.48]	0.709
<b>Menopausal status</b>	premenopausal			
	postmenopausal	-0.15	[-0.54 ; 0.23]	0.43
<b>Family history</b>	0			
	1	0.11	[-0.39 ; 0.61]	0.67
	≥2	0.47	[-0.16 ; 1.1]	0.14
<b>Clinical tumor stage</b>	T1-T2			
	T3	-0.26	[-0.64 ; 0.13]	0.186
<b>Clinical nodal status</b>	N-			
	N+	0.086	[-0.3 ; 0.47]	0.658
<b>Tumor grade</b>	2			
	3	0.25	[-0.25 ; 0.74]	0.33
<b>LVI</b>	Absence			
	Presence	0.13	[-0.39 ; 0.64]	0.63
<b>SUV (continuous)<sup>a</sup></b>				<b>0.025</b>
<b>Chemotherapy regimen</b>	SIM-1			*

	SIM-2	-0.13	[-0.58 ; 0.32]	0.563
<sup>a</sup> continuous variable modeled with a degree 3 polynomial (coefficients and IC : -0.3 [-0.62 ; 0.025] ; 0.024 [0.0013 ; 0.047] ; -0.0005 [-0.00098 ; -0.000018]).				

**Table S2.** Predictive factors associated with SUV relative variation.

Parameters	Levels	Univariate analyses			Multivariate analysis				
		coefficient	IC 95%	p-value	coefficient	IC 95%	p-value		
Pre-NAC parameters									
Age (class)	<45								
	≥45	-1.4	[-13 ; 9.7]	0.804					
Pregnancies	0								
	1-3	-4.2	[-16 ; 7.4]	0.476					
	>3	3.1	[-13 ; 20]	0.709					
Menopausal status	premenopausal								
	postmenopausal	1.8	[-8.5 ; 12]	0.728					
Family history	0								
	1	3.7	[-8.9 ; 16.2]	0.57					
	≥2	15.7	[-0.85 ; 32.3]	0.063					
Clinical tumor stage	T1-T2					12.3	[3.3 ; 21.4]	0.008	**
	T3	16.4	[6.8 ; 26]	<0.001	***				
Clinical nodal status	N-								
	N+	4.9	[-5.2 ; 15]	0.337					
Tumor grade	2								
	3	-25.3	[-39 ; -12]	<0.001	***	-22.3	[-34.8 ; -9.8]	0.0007	***
LVI	Absence								
	Presence	7	[-6.1 ; 20.1]	0.29					
SUV		-0.66	[-1.6 ; 0.22]	0.14					
TIL levels (continuous) <sup>a</sup>		-0.32	[-0.56 ; -0.079]	0.010	**			0.042	*

<sup>a</sup>continuous variable modeled with a degree 3 polynomial in the multivariate analysis (coefficients and IC : -59.1 [-111 ; -7.1] ; 19.4 [-29.8 ; 68.5] ; -50.6 [-100 ; -1.1]).

**Table S3.** Predictive factors associated with TIL levels absolute variation.

Parameters	Levels	coefficient	[95% CI]	P-value
<b>Pre-NAC parameters</b>				
Age (class)	<45			
	≥45	-3.2	[-14 ; 7.5]	0.555
Pregnancies	0			
	1-3	-6.6	[-18 ; 4.3]	0.234
	>3	1.6	[-13 ; 16]	0.825
Menopausal status	premenopausal			
	postmenopausal	-2.2	[-12 ; 7.4]	0.647
Family history	0			
	1	1.7	[-11.3 ; 14.7]	0.79
	≥2	6.6	[-9.4 ; 22.6]	0.41
Clinical tumor stage	T1-T2			
	T3	9.4	[-0.0091 ; 19]	0.05 .
Clinical nodal status	N-			
	N+	1.9	[-7.7 ; 11]	0.7
Tumor grade	2			
	3	-0.83	[-13 ; 12]	0.895
LVI	Absence			
	Presence	9.2	[-4.4 ; 22.7]	0.18
SUV		-0.93	[-1.7 ; -0.11]	0.027 *
TIL levels (continuous) <sup>a</sup>				<0.0001 ***
Chemotherapy regimen	SIM-1			

	SIM-2	5.7	[-5.8 ; 17]	0.326	
<b>Post-NAC parameters</b>					
pCR	No pCR				
	pCR	-14.3	[-24 ; -5.1]	0.003	**
Nodal involvement	ypN-				
	ypN+	3.9	[-6.8 ; 14.6]	0.47	
LVI	Absence				
	Presence	3.7	[-13.2 ; 20.6]	0.67	
SUV at 2 cures		0.93	[-0.23 ; 2.1]	0.11	
<b>Variation Pre/Post-NAC parameters</b>					
SUV relative variation <sup>b</sup>					<0.0001 ***
SUV relative variation (class)	< -70%				
	≥ -70%	19.5	[10 ; 29]	<0.0001	***

<sup>a</sup>continuous variable modeled with a degree 2 polynomial (coefficients and IC : -0.46 [-0.9 ; -0.016] ; -0.007 [-0.013 ; 60.0011]), <sup>b</sup>continuous variable modeled with a degree 2 polynomial (coefficients and IC : -0.5 [-1.2 ; 0.22] ; 60.0084 [-0.015 ; -0.0018]).

**Table S4.** Predictive factors associated with pCR status.

Parameters	Levels	OR	Univariate analyses		Multivariate analysis				
			[95% CI]	P-value	OR	[95% CI]	P-value		
Pre-NAC parameters									
Age (class)	<45	1							
	≥45	1.5	[0.65 ; 3.4]	0.36					
Pregnancies	0	1							
	1-3	1.2	[0.51 ; 2.8]	0.67					
	>3	0.98	[0.3 ; 3.2]	0.97					
Menopausal status	premenopausal	1							
	postmenopausal	0.93	[0.44 ; 2]	0.84					
Family history	0	1							
	1	0.99	[0.37 ; 2.6]	0.99					
	≥2	0.67	[0.18 ; 2.4]	0.54					
Clinical tumor stage	T1-T2	1							
	T3	0.49	[0.23 ; 1]	0.064					
Clinical nodal status	N-	1							
	N+	0.7	[0.33 ; 1.5]	0.34					
Tumor grade	2	1							
	3	3.2	[0.99 ; 10.3]	0.053					
LVI	Absence	1							
	Presence	0.62	[0.21 ; 1.8]	0.38					
TIL levels (continuous)		1	[1 ; 1]	0.11					
Chemotherapy regimen	SIM-1	1							
	SIM-2	0.77	[0.32 ; 1.9]	0.56					
Post-NAC parameters									
TIL levels (continuous) <sup>a</sup>		0.29	[0.13 ; 0.64]	0.002	**	0.38	[0.17 ; 0.87]	0.023	*
SUV relative variation		0.93	[0.91 ; 0.96]	<0.0001	***				
SUV relative variation (class)	< -70%	1				1			
	≥ -70%	0.06	[0.022 ; 0.16]	<0.0001	***	0.076	[0.027 ; 0.22]	<0.0001	***
TILs absolute variation	<0	1							
	≥0	0.15	[0.053 ; 0.44]	0.0007	***				

<sup>a</sup> this OR corresponds to difference of 10 units of the variable (for example, the univariate analysis reveals that a patient with post-NAC TIL levels of 15% will have 3.4 (=1/0.29) times the risk of a non pCR than that of a patient with a level of 5%).

**Table S5.** Predictive factors associated with overall survival.

Parameters	Levels	HR	Univariate analyses		Multivariate analysis					
			[95% CI]	P-value	HR	[95% CI]	P-value			
Pre-NAC parameters										
Age (class)	<45	1								
	≥45	0.53	[0.2 ; 1.4]	0.21						
Pregnancies	0	1								
	1-3	0.72	[0.25 ; 2.1]	0.54						
	>3	0.75	[0.15 ; 3.7]	0.73						
Menopausal status	premenopausal	1								
	postmenopausal	0.33	[0.093 ; 1.2]	0.082	.					
Family history	0	1								
	1	0.8	[0.18 ; 3.6]	0.78						
	≥2	2.6	[0.71 ; 9.2]	0.15						
Clinical tumor stage	T1-T2	1								
	T3	1.7	[0.63 ; 4.8]	0.28						
Clinical nodal status	N-	1								
	N+	2.1	[0.73 ; 6.1]	0.17						
Tumor grade	2	1								
	3	2.2	[0.29 ; 16.9]	0.44						
LVI	Absence	1								
	Presence	2.3	[0.73 ; 7.4]	0.15						
TIL levels (continuous)		0.98	[0.95 ; 1]	0.26						
Post-NAC parameters										
pCR	No pCR	1								
	pCR	0.4	[0.13 ; 1.3]	0.12						
Nodal involment	ypN-	1								
	ypN+	3.1	[1.2 ; 8.4]	0.023	*					
LVI	Absence	1				1				
	Presence	4.4	[1.4 ; 13.8]	0.011	*	4.8	[1.5 ; 15.7]	0.009	**	
TIL levels (continuous) <sup>a</sup>		1.7	[1.3 ; 2.2]	0.0001	***	1.8	[1.3 ; 2.3]	<0.0001	***	
Variation Pre/Post-NAC parameters										
SUV relative variation		1	[0.99 ; 1]	0.35						
SUV relative variation (class)	< -70%	1								
	≥ -70%	3.2	[1 ; 10.2]	0.048	*					
TILs absolute variation	<0	1								
	≥0	3.1	[1.1 ; 8.8]	0.031	*					

<sup>a</sup> this HR corresponds to difference of 10 units of the variable (for example, the univariate analysis reveals that a patient with post-NAC TIL levels of 25% will have 1.7 times the risk of death than that of a patient with a level of 15%).

**Table S6.** Predictive factors associated with overall survival for the Non-pCR subcohort.

Parameters	Levels	HR	Univariate analyses		Multivariate analysis		
			[95% CI]	P-value	HR	[95% CI]	P-value
Pre-NAC parameters							
Age (factor)	<45	1					
	≥45	0.59	[0.19 ; 1.9]	0.38			
Pregnancies	0	1					
	1-3	1.5	[0.38 ; 5.8]	0.57			
	>3	1.6	[0.26 ; 9.4]	0.63			
Menopausal status	premenopausal	1					
	postmenopausal	0.25	[0.054 ; 1.1]	0.071	.		
Family history	0	1					
	1	0.45	[0.057 ; 3.5]	0.45			
	≥2	1.6	[0.35 ; 7.6]	0.53			
Clinical tumor stage	T1-T2	1					
	T3	1.6	[0.48 ; 5.3]	0.45			

Clinical nodal status	N-	1							
	N+	1.7	[0.53 ; 5.8]	0.36					
LVI	Absence	1							
	Presence	2.4	[0.65 ; 9.1]	0.18					
TIL levels		1	[0.97 ; 1]	0.90					
<b>Post-NAC parameters</b>									
Nodal involvement	ypN-	1							
	ypN+	2.5	[0.69 ; 9.4]	0.16					
LVI	Absence	1				1			
	Presence	3.6	[1 ; 12.2]	0.042	*	5.5	[1.4 ; 22.1]	0.016	*
TIL levels (continuous) <sup>a</sup>		1.8	[1.3 ; 2.4]	0.0003	***	2	[1.4 ; 2.8]	0.0001	***
<b>Variation Pre/Post-NAC parameters</b>									
SUV relative variation		1	[0.98 ; 1]	0.74					
SUV relative variation (factor)	< -70%	1							
	≥ -70%	3.9	[0.49 ; 30.8]	0.20					
TILs absolute variation	<0	1							
	≥0	3.8	[1 ; 14.3]	0.048	*				

<sup>a</sup> this HR corresponds to difference of 10 units of the variable (for example, the univariate analysis reveals that a patient with post-NAC TIL levels of 20% will have 1.8 times the risk of death than that of a patient with a level of 10%).