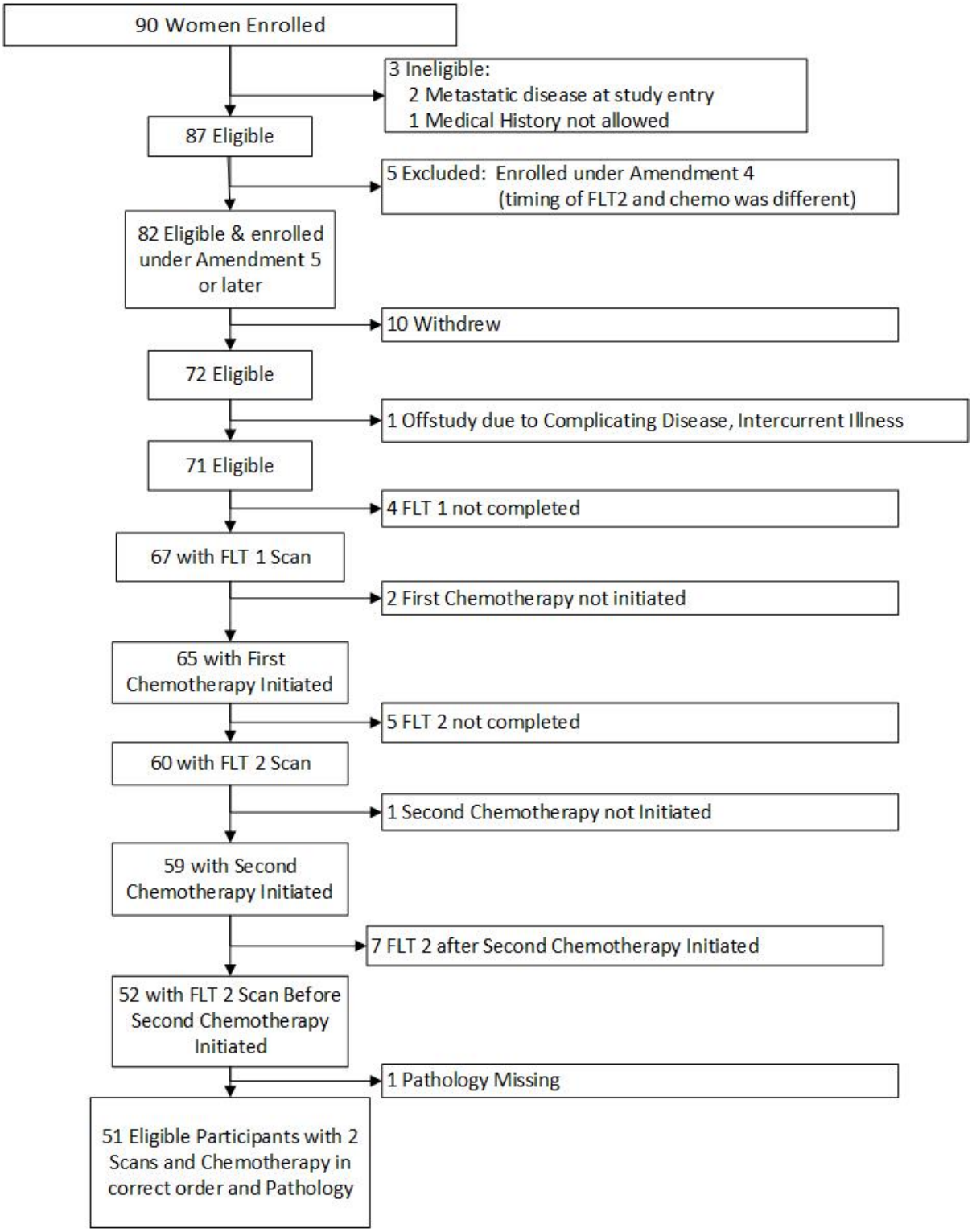
Supplemental Table 1. Participating institutions and institutional primary investigators (PIs)

Institution	Primary Investigator(s)
Hospital of the University of Pennsylvania	Daniel Pryma, MD; Julia Tchou, MD
Washington University Medical School	Farrokh Dehdashti, MD
Thomas Jefferson University Hospital	Charles Intenzo, MD
University of North Carolina	Amir Khandani, MD
University of Washington	David Mankoff, MD, PhD; Jennifer Specht, MD
Wake Forest University	Akiva Mintz, MD, PhD
Medical University of South Carolina	Amy Campbell. MD
Virginia Commonwealth University	Paul Jolles, MD
Scottsdale Medical Imaging, LTD	Ronald Korm, MD, PhD
University of Arkansas for Medical Sciences	Twyla Bartel, DO
University of Southern California	Linda Hovanessian-Larsen, MD
University of Wisconsin Hospital	Lance Hall, MD
Morton Plant Mease Health Care, Inc.	John Miliziano, MD
Excel Diagnostics Imaging Clinics	Ebrahim S. Delpassand, MD
Wayne State University	Anthony Shields, MD
Mount Sinai Medical Center	Lale Kostakoglu, MD
Fox Chase Cancer Center	Michael Yu, MD

Supplemental Table 2. Eligibility status

Reason for ineligibility	Number	%	Cumulative Frequency
	51	56.67	51
Ineligible (Not eligible per medical history)	1	1.11	52
Ineligible (Metastatic disease at study entry)	2	2.22	54
Amendment 4	5	5.56	59
Patient withdrew	10	11.11	69
Complicating or intercurrent illness	1	1.11	70
FLT1 not completed	4	4.44	74
First cycle chemotherapy not initiated	2	2.22	76
FLT2 not completed	5	5.56	81
Second cycle chemotherapy not initiated	1	1.11	82
Chemo timing: FLT2 after cycle-2 initiated	7	7.78	89
No pathology data	1	1.11	90

Supplemental Table 3. Flow Diagram from the enrollment to follow-up



Supplemental Table 4. Chemotherapy regimens used in this study

CYCKIOGISOGANUDE
FLUOROURACIL
ABRAXANE
ALOXI
AVASTIN
BENADRYL
BEVACIZUMAB
CAPECITABINE
CARBOPLATIN
CYCLOPHOSPHAMIDE
CYTOXAN
DOCETAXEL
DOXORUBICIN
EPIRUBICIN
FLUOROURACIL
HERCEPTIN
LAPATANIB
PACLITAXEL
TAXOL
TAXOTERE
TRASTUZUMAB

Supplemental Table 5. Summary statistics of Uptake time from three serial scans.

	FLT-1	FLT-2	FLT-3	Δ1to2	Δ1to3
Mean	71	70	70	0	1
SD	8.7	7.4	6.9	7.6	10.6
Min	51	55	60	-23	-32
Max	101	92	92	29	36

Supplemental Table 6. Summary of SUVs and Ki-67 data from different time points

Time point	Aim	SUV Parameter	pCR Status	Number of Evaluable Participants	Range	Mean	SD	P value+
Baseline (FLT1)	For Primary Aim	SUVmax	all data	51	0.87-11.76	5.65	2.97	
			pCR	9	1.86-11.76	6.09	3.17	0.62
			no-pCR	42	0.87-11.68	5.55	2.95	
		SUVpeak	all data	51	0.71-10.65	4.57	2.53	
			pCR	9	1.52-10.65	4.97	2.96	0.74
			no-pCR	42	0.71-9.64	4.49	2.46	
		SUVmean	all data	51	0.67-9.53	4.20	2.38	
			pCR	9	1.27-9.53	4.71	2.81	0.62
			no-pCR	42	0.67-9.1	4.09	2.30	
	For FLT3 Secondary Aim	SUVmax	all data	43	0.87-11.76	5.78	3.09	
			pCR	8	1.86-11.76	5.99	3.37	0.89
			no-pCR	35	0.87-11.68	5.74	3.07	
		SUVpeak	all data	43	0.71-10.65	4.69	2.65	
			pCR	8	1.52-10.65	4.94	3.16	0.96
			no-pCR	35	0.71-9.64	4.64	2.57	
		SUVmean	all data	43	0.67-9.53	4.29	2.50	
			pCR	8	1.27-9.53	4.56	2.97	0.84
			no-pCR	35	0.67-9.1	4.23	2.43	
	For Ki-67 Secondary Aim	SUVmax	all data	72*	0.87-16.36	5.71	3.20	
			pCR	12	1.86-11.76	6.17	3.30	0.59
			no-pCR	49	0.87-11.68	5.60	2.96	
			Missing-pCR	11	1.42-16.36	5.67	4.30	
		SUVpeak	all data	72	0.71-13.34	4.68	2.71	
			pCR	12	1.52-10.65	5.22	3.17	0.59
			no-pCR	49	0.71-9.64	4.54	2.45	
			Missing-pCR	11	1.31-13.34	4.74	3.43	
		SUVmean	all data	72	0.67-10.84	4.23	2.45	
			pCR	12	1.27-9.77	4.90	3.01	0.51
			no-pCR	49	0.67-9.1	4.10	2.26	
			Missing-pCR	11	1.17-10.84	4.05	2.74	
		KI-67	all data	72*	15-944	331.74	233.27	
			pCR	12	89-701	350.75	233.46	0.86
			no-pCR	49	15-944	330.47	222.59	
			Missing-pCR	11	24-883	316.60	296.48	
After one cycle of NAC (FLT2)	For Primary Aim	SUVmax	all data	51	0.44-8.29	3.21	1.84	
			pCR	9	0.92-8.29	3.00	2.54	0.35
			no-pCR	42	0.44-6.43	3.25	1.69	
		SUVpeak	all data	51	0.34-7.41	2.62	1.64	
			pCR	9	0.73-7.41	2.39	2.18	0.31
			no-pCR	42	0.34-6.17	2.67	1.53	
		SUVmean	all data	51	0.26-6.63	2.37	1.48	
			pCR	9	0.62-6.63	2.17	1.95	0.29
			no-pCR	42	0.26-5.15	2.41	1.38	
After completion of NAC (FLT3)	For FLT3 Secondary Aim	SUVmax	all data	43	0.33-7.46	1.74	1.81	
			pCR	8	0.37-1.08	0.62	0.27	0.0047
			no-pCR	35	0.33-7.46	2.00	1.92	

Time point	Aim	SUV Parameter	pCR Status	Number of Evaluable Participants	Range	Mean	SD	P value+
		SUVpeak	all data	43	0.19-5.5	1.35	1.42	
			pCR	8	0.19-0.89	0.45	0.23	0.0038
			no-pCR	35	0.25-5.5	1.56	1.50	
		SUVmean	all data	43	0.21-5.18	1.17	1.30	
			pCR	8	0.24-0.8	0.41	0.18	0.0053
			no-pCR	35	0.21-5.18	1.35	1.38	
	For Ki-67 Secondary Aim	SUVmax	all data	43	0.33-7.46	1.88	1.88	
			pCR	8	0.37-1.08	0.62	0.27	0.0020
			no-pCR	35	0.33-7.46	2.17	1.98	
		SUVpeak	all data	43	0.19-5.5	1.47	1.47	
			pCR	8	0.19-0.89	0.45	0.23	0.0018
			no-pCR	35	0.25-5.5	1.70	1.54	
		SUVmean	all data	43	0.21-5.18	1.24	1.31	
			pCR	8	0.24-0.8	0.41	0.18	0.0026
			no-pCR	35	0.21-5.18	1.43	1.38	
		Ki-67	all data	43	0-738	184.14	220.16	
			pCR	8	0-0	0.00	0.00	<0.001
			no-pCR	35	0-738	226.23	223.77	

***One participant did not have FLT1 SUV data**

+Two-sided exact p value from Wilcoxon two-sample test

Supplemental Table 7. Distributions of baseline SUV and Ki-67 for secondary aims

Time point	Aim	Parameter Tested	pCR Status	Number of Evaluable Participants	Range	Mean	SD	P value+
Baseline (FLT1)	FLT3 Secondary Aim	SUVmax	all data	43	0.87-11.76	5.78	3.09	
			pCR	8	1.86-11.76	5.99	3.37	0.89
			no-pCR	35	0.87-11.68	5.74	3.07	
	Ki-67 Secondary Aim	SUVmax	all data	72*	0.87-16.36	5.71	3.20	
			pCR	12	1.86-11.76	6.17	3.30	0.59
			no-pCR	49	0.87-11.68	5.60	2.96	
			Missing-pCR	11	1.42-16.36	5.67	4.30	
		Ki-67	all data	72*	15-944	331.74	233.27	
			pCR	12	89-701	350.75	233.46	0.86
			no-pCR	49	15-944	330.47	222.59	
			Missing-pCR	11	24-883	316.60	296.48	
			no-pCR	35	0-738	226.23	223.77	

***One Participant did not have FLT1 SUV measurement.**
+Two-sided exact p value from Wilcoxon two-sample test.

Supplemental Table 8. Distributional Summary of SUVs by time point and lymph node status at surgery

Time point	SUV Parameter	Lymph Node Status[+]	Number of Evaluable Patients	Range	Mean (SD)	P value**
Baseline (FLT1)	SUVmax	ALL DATA	38	1.1-20.0	5.9 (3.9)	
		0 POSITIVE NODES	14	1.1-11.3	4.4 (3.0)	0.12
		1~3 POSITIVE NODE(S)	15	2,0-14.7	6.6 (3.6)	
		>3 POSITIVE NODE(S)	9	3.0--19.9	7.23(5.1)	
After one cycle of NAC (FLT2)	SUVmax	ALL DATA	38	0.7-14.7	3.1 (2.7)	
		0 POSITIVE NODES	14	0.7-6.7	2.0 (1.8)	0.062
		1~3 POSITIVE NODE(S)	15	0.9-14.7	3.9 (3.6)	
		>3 POSITIVE NODE(S)	9	1.0-7.3	3.5 (1.8)	
After completion of NAC (FLT3)	SUVmax	ALL DATA	30	0.2-6.1	1.3 (1.2)	
		0 POSITIVE NODES	11	0.4-1.5	0.8 (0.4)	0.11
		1~3 POSITIVE NODE(S)	13	0.2-2.9	1.23(0.7)	
		>3 POSITIVE NODE(S)	6	0.5-6.1	2.5 (2.2)	

SUV, standardized uptake value; NAC, neoadjuvant chemotherapy ; [+]Lymph Node Status at Surgery; **two-sided p value from Kruskal-Wallis one-way ANOVA

Supplemental Table 9. Distributional Summary of SUV differences by time points and lymph node status at surgery

Time point	Lymph Node Status+	Number of Evaluable Patients	Range	Mean (SD)	Two-sided p**
$\%SUV_{max\ FLT1\text{-}FLT2}$	ALL DATA	38	-5.0-88.5	44.9 (26.0)	
	0 POSITIVE NODES	14	-5.0-88.5	47.7 (29.0)	0.86
	1~3 POSITIVE NODE(S)	15	0.1-88.2	43.8 (23.8)	
	3+ POSITIVE NODE(S)	9	-2.9-86.4	42.6 (27.4)	
$\%SUV_{max\ FLT1\text{-}FLT3}$	ALL DATA	30	-35.1-93.8	71.4 (29.1)	
	0 POSITIVE NODES	11	-35.1-93.8	65.2 (42.2)	0.67
	1~3 POSITIVE NODE(S)	13	23.6-91.6	77.6 (18.1)	
	3+ POSITIVE NODE(S)	6	42.9-89.3	69.5 (19.5)	

SUV, standardized uptake value; NAC, neoadjuvant chemotherapy ; +Lymph Node Status at Surgery; **two-sided p value from Kruskal-Wallis one-way ANOVA

Supplemental Table 10. Distributional Summary of SUVs by time point and residual cancer burden

Time point	SUV Parameter	RCB Status	Number of Evaluable Patients	Range	Mean (SD)	P value*
Baseline (FLT1)	SUVmax	ALL DATA	35	0.9-11.8	5.9 (3.2)	
		RCB 0,I	14	1.9-11.8	6.2 (2.9)	0.66
		RCB II,III	21	0.9-11.7	5.8 (3.5)	
After one cycle of NAC (FLT2)	SUVmax	ALL DATA	35	0.4-8.3	3.3 (2.0)	
		RCB 0,I	14	0.9-8.3	3.5 (2.3)	0.86
		RCB II,III	21	0.4-6.4	3.2 (1.9)	
After completion of NAC (FLT3)	SUVmax	ALL DATA	31	0.3-6.4	1.8 (1.8)	
		RCB 0,I	11	0.4-1.2	0.7 (0.3)	0.010
		RCB II,III	20	0.3-6.4	2.4 (2.0)	

SUV, standardized uptake value; RCB, residual cancer burden; NAC, neoadjuvant chemotherapy ; *two-sided exact p value from Wilcoxon two-sample test

Supplemental Table 11. Distributional Summary of SUV differences between time points by residual cancer burden

Difference	RCB Status	Number of Evaluable Patients	Range	Mean (SD)	P value*
$\%SUV_{max\ FLT1\text{-}FLT2}$	ALL DATA	35	-13.8-84.3	40.4 (24.1)	
	RCB 0,I	14	-1.7-84.3	43.6 (24.0)	0.56
	RCB II,III	21	-13.8-83.3	38.3 (24.5)	
$\%SUV_{max\ FLT1\text{-}FLT3}$	ALL DATA	31	10.4-96.1	66.0 (25.7)	
	RCB 0,I	11	74.5-96.1	87.3 (6.4)	<0.001
	RCB II,III	20	10.4-95.1	54.4 (24.8)	

SUV, standardized uptake value; RCB, residual cancer burden; *two-sided exact p value from Wilcoxon two-sample test.