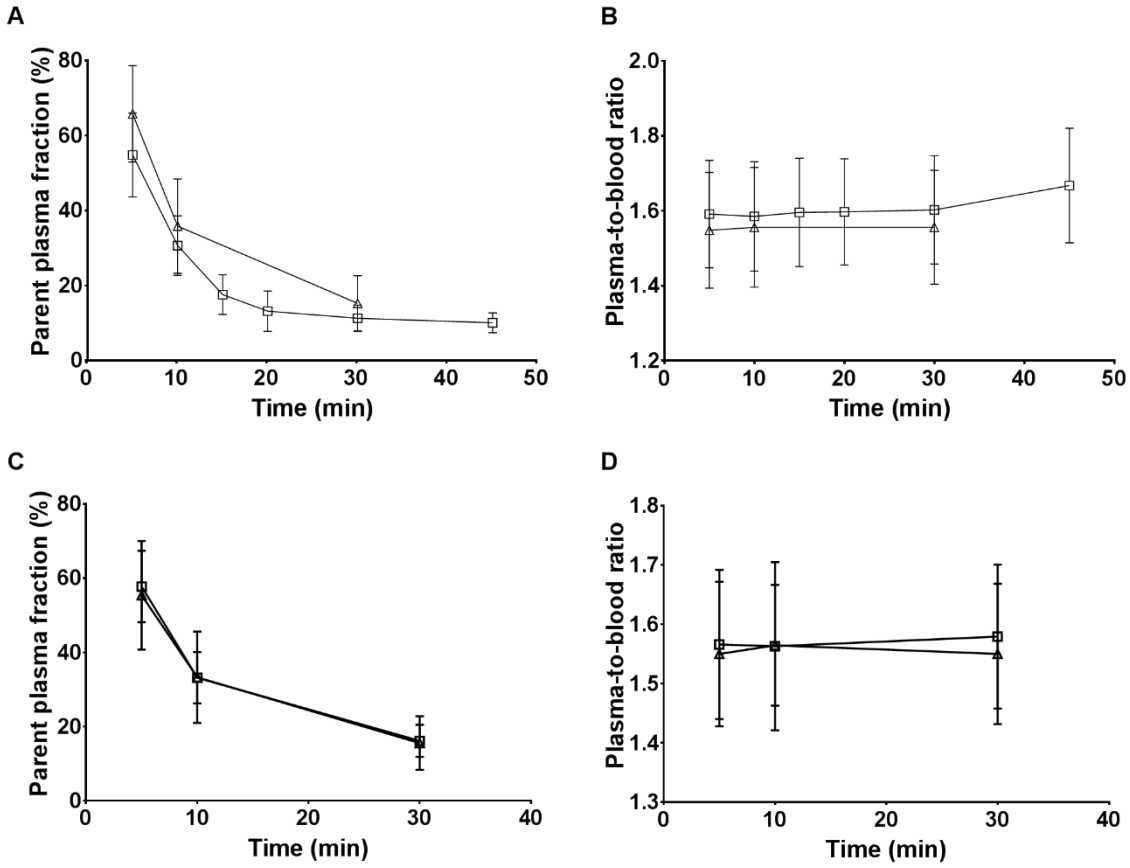
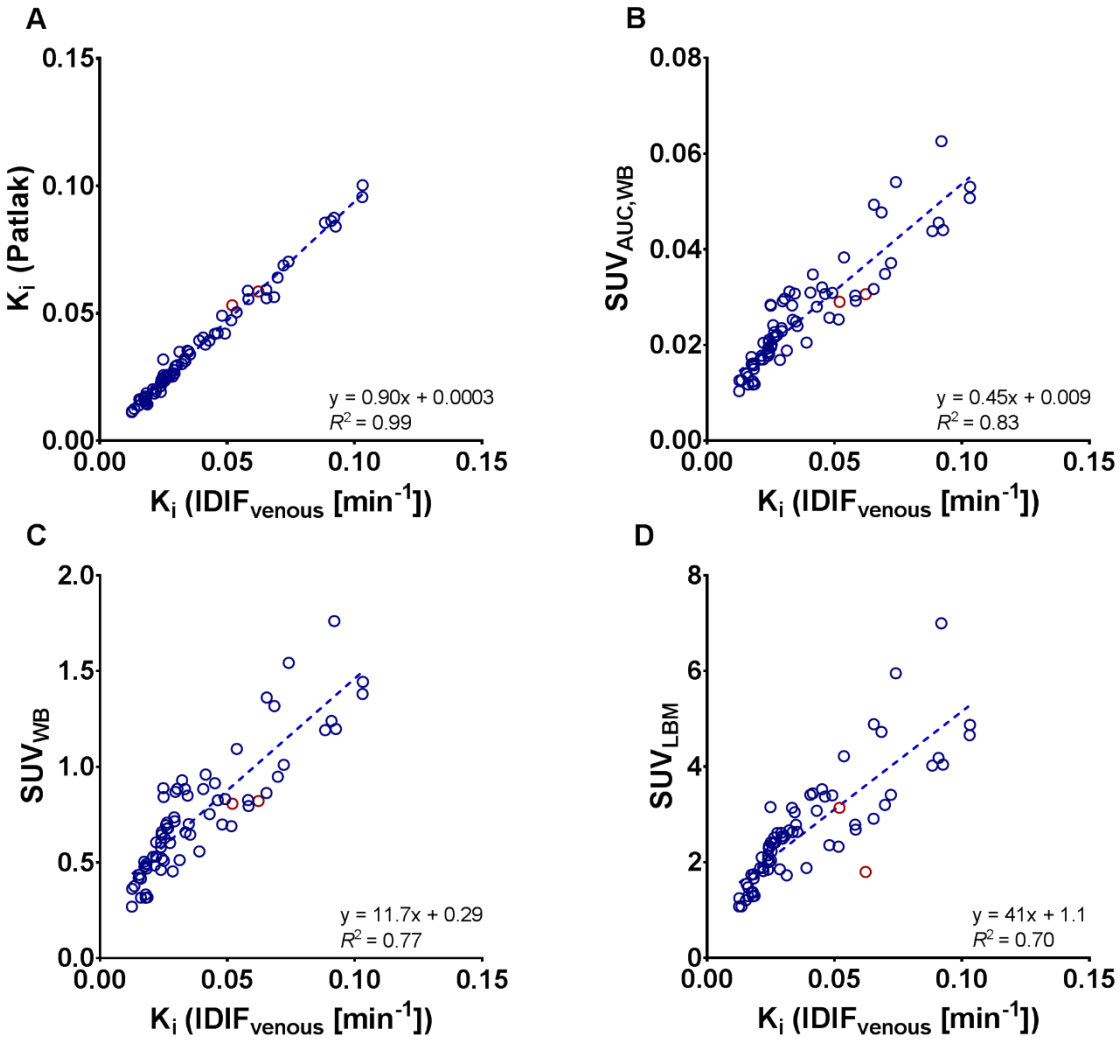
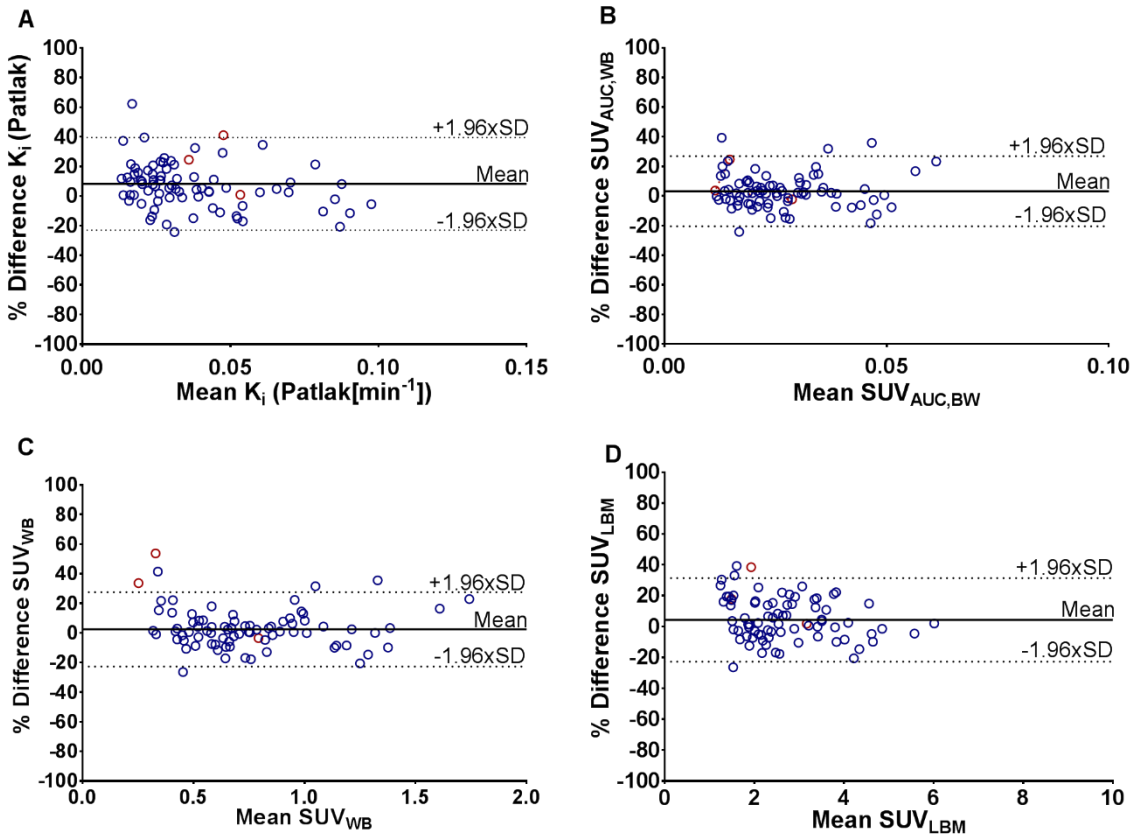


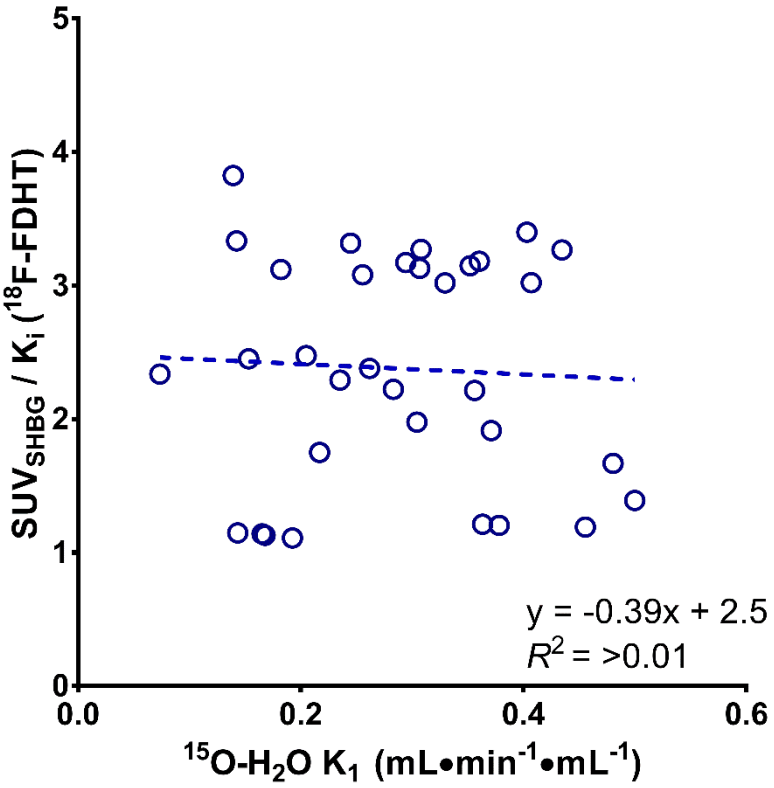
Supplemental figure 1: ^{18}F-FDHT parent plasma fractions (A) and plasma-to-blood ratios (B) as function of time for arterial (squares) and venous (triangles) blood samples. Corresponding test-retest results for venous blood samples are shown in subplots C and D.



Supplemental figure 2: Scatterplots showing the correlation of ^{18}F-FDHT Patlak based K_i (A), $SUV_{AUC, WB}$ (B), SUV_{WB} (C) and SUV_{LBM} (D) with K_i obtained using an image derived input function corrected using venous blood samples.



Supplemental figure 3: Bland-Altman plots showing the relative differences in ^{18}F-FDHT uptake between test and retest scans of Patlak (A), $SUV_{AUC, WB}$ (B), SUV_{WB} (C) and SUV_{LBM} (D) plotted against the mean of test and retest uptake values.



Supplemental figure 4: Discrepancies between NLR based K_i using venous blood sampling and SUV_{BW} cannot be explained by differences in perfusion as assessed in this scatterplot using ^{15}O-H_2O based K_1.

Supplemental table 1: Quantitative ^{18}F-FDHT uptake metrics

Continuous arterial sampling	Test		Retest	
	Median	IQR	Median	IQR
K_1	0.12	0.05	-*	-*
K_2	0.29	0.37	-*	-*
K_3	0.21	0.15	-*	-*
V_b	0.07	0.05	-*	-*
K_i	0.05	0.04	-*	-*
$IDIF_{venous}$				
K_1	0.11	0.09	0.11	0.06
K_2	0.28	0.34	0.29	0.41
K_3	0.15	0.10	0.16	0.17
V_b	0.06	0.05	0.07	0.05
K_i	0.03	0.03	0.03	0.03
Simplified models				
Patlak K_i	0.03	0.03	0.03	0.02
$SUV_{AUC,PP}$	0.03	0.03	0.04	0.03
$SUV_{AUC,WB}$	0.02	0.01	0.02	0.02
SUV_{PP}	2.27	3.08	3.20	2.54
SUV_{WB}	0.69	0.38	0.69	0.48
SUV_{BW}	3.05	1.78	3.06	2.10
SUV_{LBM}	2.42	1.33	2.51	1.69
SUV_{SHBG}	0.06	0.09	-¥	-¥

* No arterial sampling was performed for the retest scans; ¥ SHBG levels were only determined prior to the first FDHT scan

$IDIF_{venous}$=Non-linear regression using image derived input function corrected using venous blood samples; K_i=Net influx rate; V_b=Blood volume fraction; SUV=Standardized uptake values; $SUV_{AUC,PP}$=SUV normalized to the area under the parent plasma input curve; $SUV_{AUC,WB}$=SUV normalized to the area under the whole blood input curve; SUV_{PP}=SUV normalized to the parent plasma concentration; SUV_{WB}=SUV normalized to the whole blood activity concentration; SUV_{BW}=SUV normalized to bodyweight; SUV_{LBM}=SUV normalized to lean body mass; SUV_{SHBG}=SUV corrected for SHBG level

Supplemental table 2: Repeatability coefficients of several quantitative ^{18}F-FDHT uptake metrics per lesion.

Quantitative tracer uptake measures	*Absolute difference*		*Relative difference*	
	Mean	*RC*	*Mean (%)*	*RC (%)*
$IDIF_{venous}$ K_i	0.004	0.011	11.2	34.6
Patlak K_i	0.003	0.009	10.1	28.3
$SUV_{AUC,PP}$	0.003	0.010	10.0	20.9
$SUV_{AUC,WB}$	0.003	0.007	2.4	15.0
SUV_{PP}	0.002	2.253	10.1	61.3
SUV_{WB}	0.054	0.196	6.6	19.7
SUV_{BW}	0.184	0.732	6.5	23.8
SUV_{LBM}	0.155	0.574	6.5	23.8

$IDIF_{venous}$=Non-linear regression using image derived input function corrected using venous blood samples K_i=Net influx rate; SUV=Standardized uptake values; $SUV_{AUC,PP}$=SUV normalized to the area under the parent plasma input curve; $SUV_{AUC,WB}$=SUV normalized to the area under the whole blood input curve; SUV_{PP}=SUV normalized to the parent plasma concentration; SUV_{WB}=SUV normalized to the whole blood activity concentration; SUV_{BW}=SUV normalized to bodyweight; SUV_{LBM}=SUV normalized to lean body mass