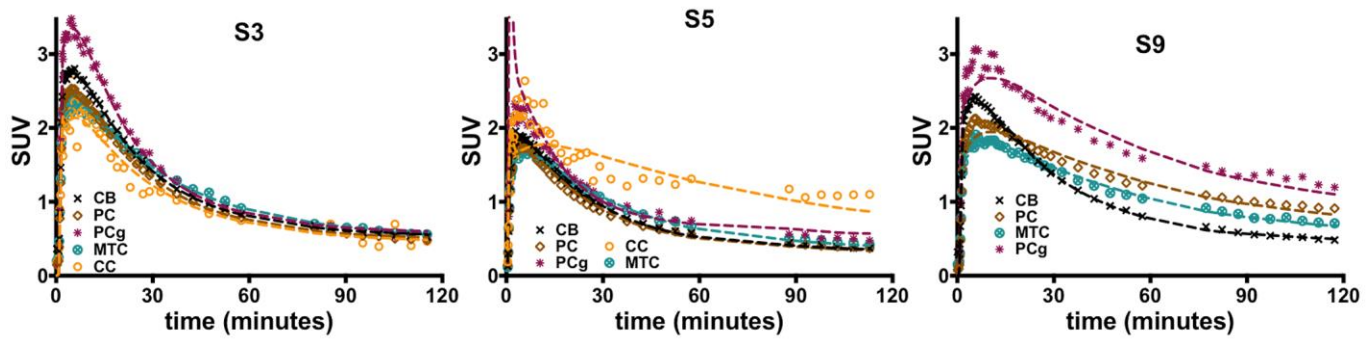
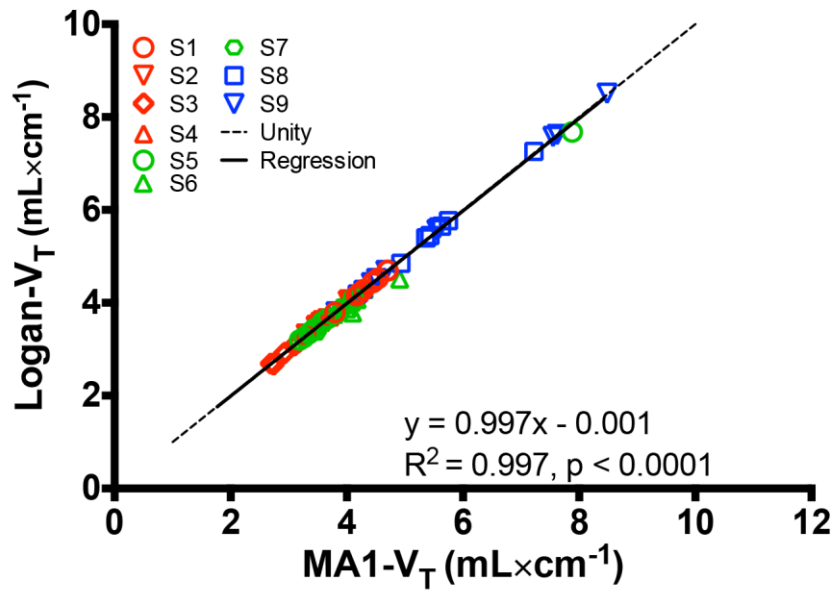


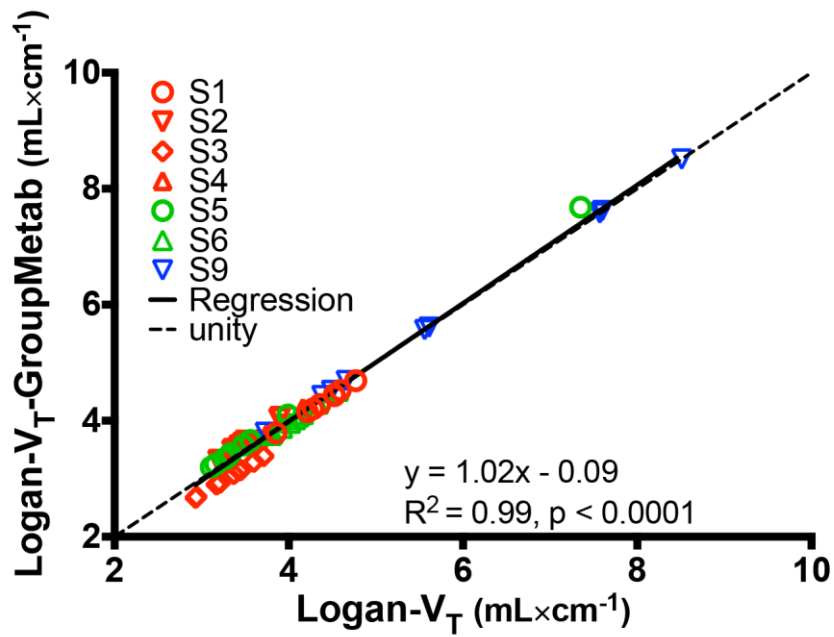
Supplemental Figure 1: Atlas-based regions of interest used in this work. Parietal cortex (PC), occipital cortex (OC), temporal cortex (TC), frontal cortex (FC), mesial temporal cortex (MTC), cerebellum (CB), and a subject specific region of interest located primarily in the corpus callosum (CC) are shown overlaid on the MNI152 MRI in standard space.



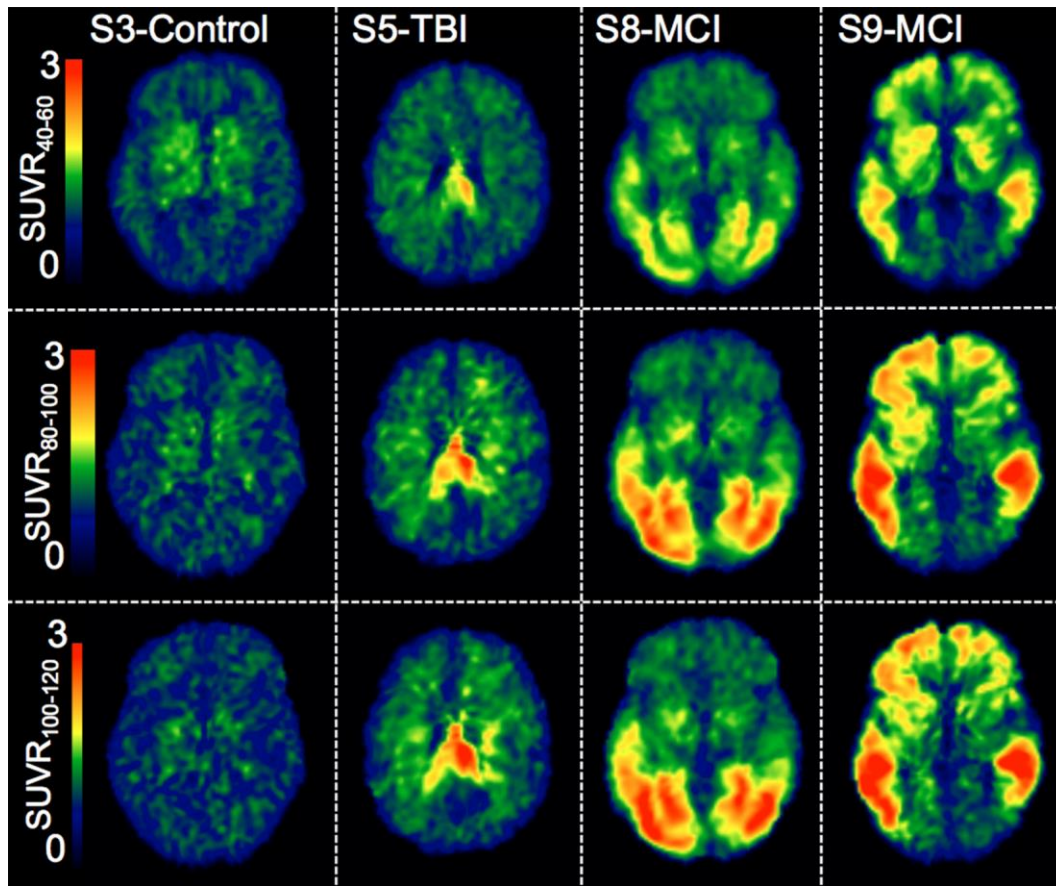
Supplemental Figure 2: Time activity curves and 1Tv (dashed lines) fits for a control subject S3, a subject with history of traumatic brain injury S5, and a MCI subject S9.



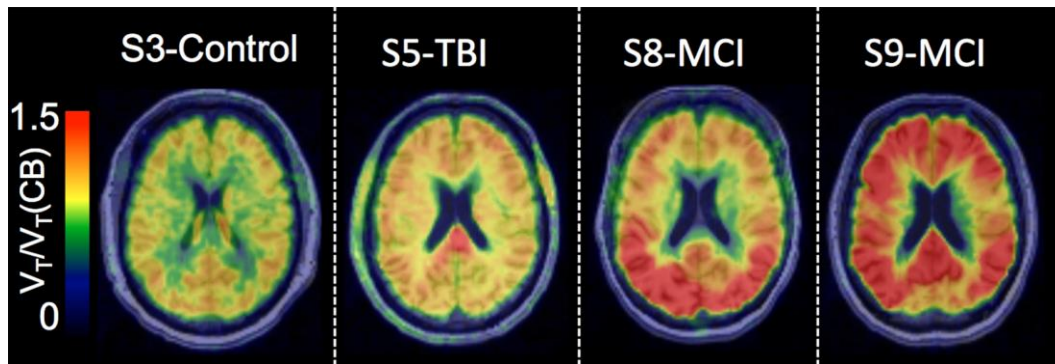
Supplemental Figure 3: Comparison of V_T calculated using MA1 or Logan.



Supplemental Figure 4: Comparison of V_T calculated using Logan with either a subject specific metabolite correction or the group metabolite correction.



Supplemental Figure 5: SUVR images using data from 40-60 minutes (top), 80-100 minutes (middle), or 100-120 minutes (bottom).



Supplemental Figure 6: 2Tv-DVR images with no brain masking highlighting the apparent lack of defluorination.

Subject	Status	Age(y)	Sex	mass (kg)	BMI(kg/m ²)	Years since TBI exposure
S1	CNTL	60	M	93	28.5	N.A.
S2	CNTL	29	M	74	22.2	N.A.
S3	CNTL	47	M	136	38.5	N.A.
S4	CNTL	53	M	70	22	N.A.
S5	TBI ^A	34	M	68	24.9	2
S6	TBI ^A	31	M	100	26.7	8
S7*	TBI ^B	55	M	105	28.2	20
S8*	MCI ^C	71	F	54	23.4	N.A.
S9	MCI ^D	72	M	83	29.3	N.A.

*radiometabolite measurements not performed, ^Aaccident, ^BNFL multiple concussions, ^CMMSE=27, ^DMMSE=14; CNTL=control, N.A.=not applicable

Table 1: Subject information.

ROI	Abbreviation	Volume (cm ³)
Frontal cortex	FC	293.0
Parietal cortex	PC	183.3
Occipital cortex	OC	124.2
Temporal cortex	TC	173.1
Mesial temporal cortex ^A	MTC	19.6
Posterior cingulate gyrus	PCg	10.4
Precuneus	PCUN	21.0
Cerebellum ^B	CB	146.1
Corpus callosum ^C	CC	1.6
^A included parts of the hippocampus, parahippocampal gyrus, and amygdala; ^B non vermis; ^C region of focal uptake in S5		

Supplemental Table 1: ROI information.

Region	S1	S2	S3	S4	S5	S6	S7	S8	S9
CB	4.5	3.6	3.3	4.2	3.7	4.6	4.5	4.6	4.0
FC	4.0	3.9	2.8	4.1	3.4	3.9	3.7	5.0	5.2
OC	4.8	3.9	3.3	4.4	3.7	4.4	3.7	9.4	4.8
PC	4.5	4.0	3.1	4.2	3.5	4.2	4.0	6.6	6.3
TC	4.6	4.0	3.1	4.1	3.9	4.4	3.8	6.8	6.4
PCg	5.1	4.5	3.6	4.9	4.7	4.8	4.4	6.6	9.0
PCUN	4.9	4.5	3.5	4.5	3.6	4.5	4.4	6.3	8.7
CC	5.1	4.0	2.8	4.2	9.7	5.0	3.7	5.4	9.7
MTC	4.7	3.9	3.4	4.3	4.1	4.1	4.5	6.6	5.0

Supplemental Table 2: Regional 2Tv V_T estimates.