

# Supplementary information

## Kinetic parameter estimates

**Table S1.** Comparison of the one- and two-tissue compartment models for description of [<sup>11</sup>C]AZ10419369 binding in the cerebellar cortex of ten control subjects.

Subject	Model	$K_1$ (mL·cm <sup>-3</sup> ·min <sup>-1</sup> )	$k_2$ (min <sup>-1</sup> )	$k_5$ (min <sup>-1</sup> )	$k_6$ (min <sup>-1</sup> )	$k_5/k_6$	SS	AIC	F statistics
A	1-TC	0.07	0.13	-	-	-	61	197	ns
	2-TC(1)	0.08	0.28	0.11	0.11	1.02	55	198	
B	1-TC	0.07	0.20	-	-	-	47	200	ns
	2-TC(1)	0.07	0.20	0.00	4.55	0.00	47	204	
C	1-TC	0.09	0.22	-	-	-	46	217	ns
	2-TC(1)	0.09	0.24	0.02	0.31	0.08	46	221	
D	1-TC	0.15	0.20	-	-	-	30	188	ns
	2-TC(1)	0.17	0.27	0.36	2.71	0.13	29	191	
E	1-TC	0.15	0.14	-	-	-	34	176	p<0.0001
	2-TC(1)	0.73	7.99	1.55	0.13	12.01	10	147	
F	1-TC	0.06	0.26	-	-	-	102	227	ns
	2-TC(1)	0.06	0.29	0.98	7.16	0.14	102	231	
G	1-TC	0.03	0.13	-	-	-	23	206	ns
	2-TC(1)	0.03	0.13	0.00	0.03	0.01	23	210	
H	1-TC	0.15	0.20	-	-	-	22	174	p<0.0001
	2-TC(1)	0.67	7.97	1.69	0.20	8.62	7	146	
I	1-TC	0.03	0.18	-	-	-	19	205	ns
	2-TC(1)	0.03	0.20	0.21	1.60	0.13	19	209	
J	1-TC	0.02	0.26	-	-	-	85	219	ns
	2-TC(1)	0.02	0.27	0.01	0.17	0.07	85	223	

1-TC, one-tissue compartment model; 2-TC(1), unconstrained two-tissue compartment model; SS, residual sum of squares; AIC, Akaike information criterion; ns, not significant.

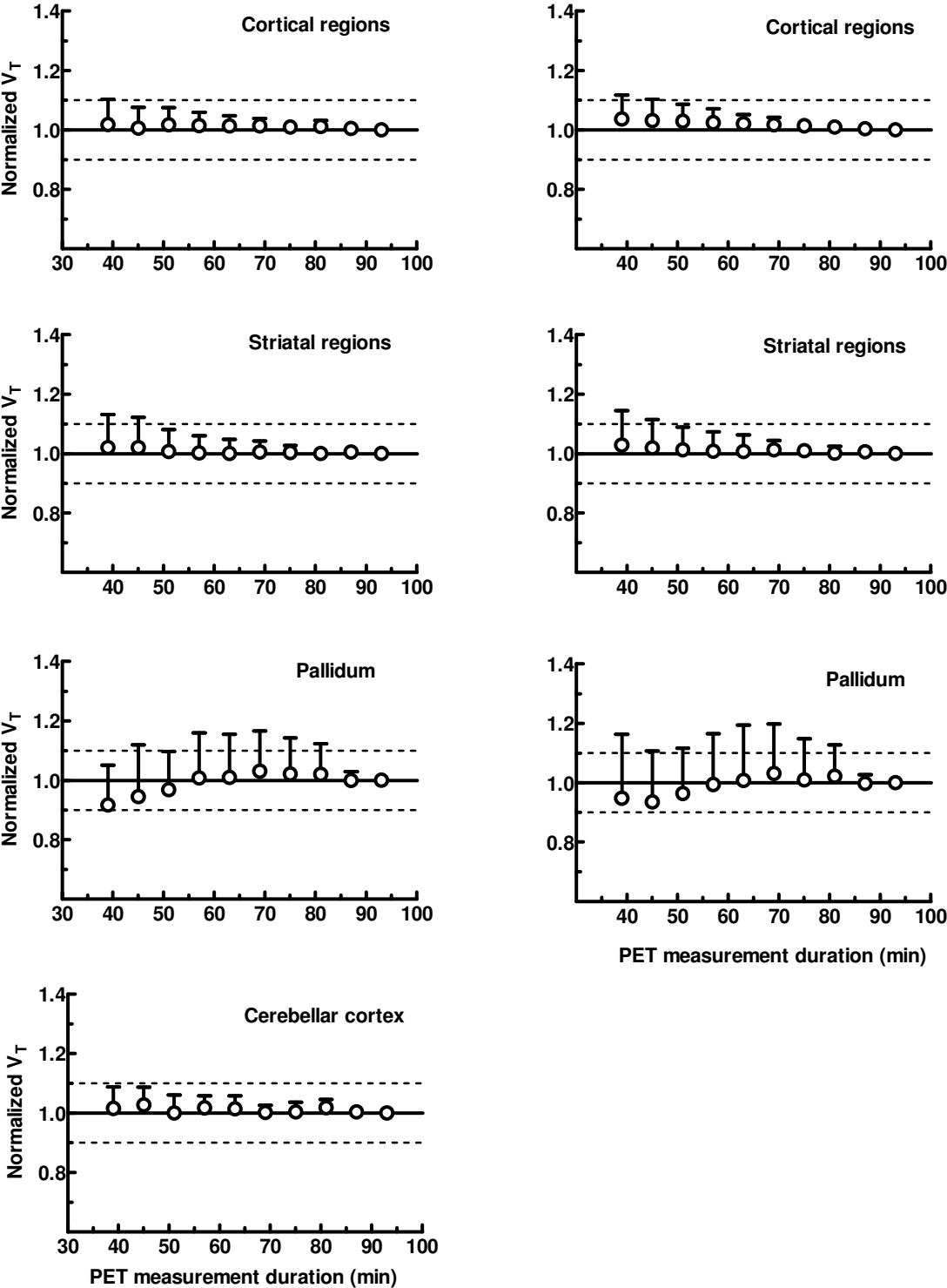
## Linear regression analysis of binding parameters obtained with different methods

**Table S2.** Linear regression analysis of  $V_T$  and  $BP_{ND}$  estimates obtained with different methods.

Parameter	Method 1	Method 2	All regions			Pallidum excluded		
			Slope	Intercept	$r^2$	Slope	Intercept	$r^2$
$V_T$	1-TC	2-TC(2)	0.975	0.004	0.998	0.983	0.001	0.999
	Logan	2-TC(2)	0.951	0.014	0.993	0.979	-0.0003	0.999
	Logan	1-TC	0.973	0.015	0.993	0.995	0.004	0.998
$BP_{ND}$	SRTM	2-TC(2)	0.845	0.024	0.899	0.837	0.019	0.917
	Logan	2-TC(2)	0.735	0.135	0.861	0.852	0.003	0.931
	Logan ref	2-TC(2)	0.703	0.175	0.810	0.849	0.003	0.923
	Logan ref	Logan	0.959	0.043	0.947	0.999	-0.003	0.996
	Logan	SRTM	0.862	0.124	0.939	1.006	-0.004	0.991
	Logan ref	SRTM	0.817	0.172	0.871	1.009	-0.010	0.994

1-TC, One-tissue compartment model; 2-TC(2), two-tissue compartment model with fixed  $K_1/k_2$  ratio; Logan, Logan linear graphical analysis with arterial input; Logan ref, Logan linear graphical analysis with reference tissue; SRTM, simplified reference tissue model. Slope and intercept were determined by linear fit of (Method 1) = slope \* (Method 2) + intercept, including data for 9 subjects.

# Stability of $V_T$ for PET measurement duration



**Figure S1.** Time stability of [ $^{11}\text{C}$ ]AZ10419369  $V_T$  values obtained by the one-tissue compartment model (left panel) and the two-tissue compartment model with fixed  $K_1/k_2$  ratio (right panel). Values are expressed relative to  $V_T$  obtained with a 93 minute PET measurement. Data points and error bars represent mean and SD, respectively.