

## Electronic Supplementary Material

### Comparative evaluation of three TSPO PET radiotracers in a LPS-induced model of mild neuroinflammation in rats

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**Supplementary Table 1.** Summary of injected doses, specific activities and injected amounts for each tracer (mean±SD).

Group	tracer	Injected dose (MBq)	Specific activity at injection (GBq/μmol)		Injected amount (nmol)	
			Mean	Range	Mean	Range
1	[ <sup>11</sup> C]-(R)-PK11195( <sup>18</sup> F)GE-180	32.79±11.69	165.43±106.28	61.53-304.59	0.27±0.16	0.11-0.53
	[ <sup>18</sup> F]GE-180	29.26±5.35	149.92±98.13	68.58-344.13	0.24±0.10	0.09-0.35
2	[ <sup>11</sup> C]-(R)-PK11195( <sup>18</sup> F)DPA-714	33.96±6.20	113.95±66.7	2.84-192.04	1.70±3.48	0.18-8.80
	[ <sup>18</sup> F]DPA-714	29.26±9.25	102.94±80.66	25.93-213.91	0.45±0.37	0.18-1.14
3	[ <sup>18</sup> F]GE-180 <sub>only</sub>	32.37±6.40	132.45±99.42	64.07-300.38	0.35±0.20	0.10-0.57
4	[ <sup>18</sup> F]DPA-714 <sub>only</sub>	34.77±6.91	58.57±40.98	13.41-109.53	1.00±0.82	0.34-2.22

**Supplementary Table 2.** Primary and secondary antibodies used for immunohistochemistry

Staining	Primary antibody, source (concentration)	Secondary antibody (concentration)
CD11b	Mouse anti-rat, AbD Serotec (1:1000) Ref. Z0334	AlexaFluor® 594nm donkey anti-mouse (1:500)
GFAP	Rabbit anti-cow, Dako (1:400) Ref. MCA275G	AlexaFluor® 488nm donkey anti-rabbit (1:500)
NeuN	Mouse anti-mouse, Chemicon (1:1000) Ref. MAB377	AlexaFluor® 594nm donkey anti-mouse (1:500)
Claudin-5	Rabbit anti-Claudin-5, Sigma-Aldrich (1:100) Ref. SAB4502981	AlexaFluor® 488nm donkey anti-rabbit (1:500)

**Group 1**  
Animals scanned twice;  
Paired comparisons  
 $[^{11}\text{C}]-(\text{R})\text{-PK11195}_{[^{18}\text{F}]\text{GE-180}}$   
n=6  
 $[^{18}\text{F}]\text{GE-180}$

+

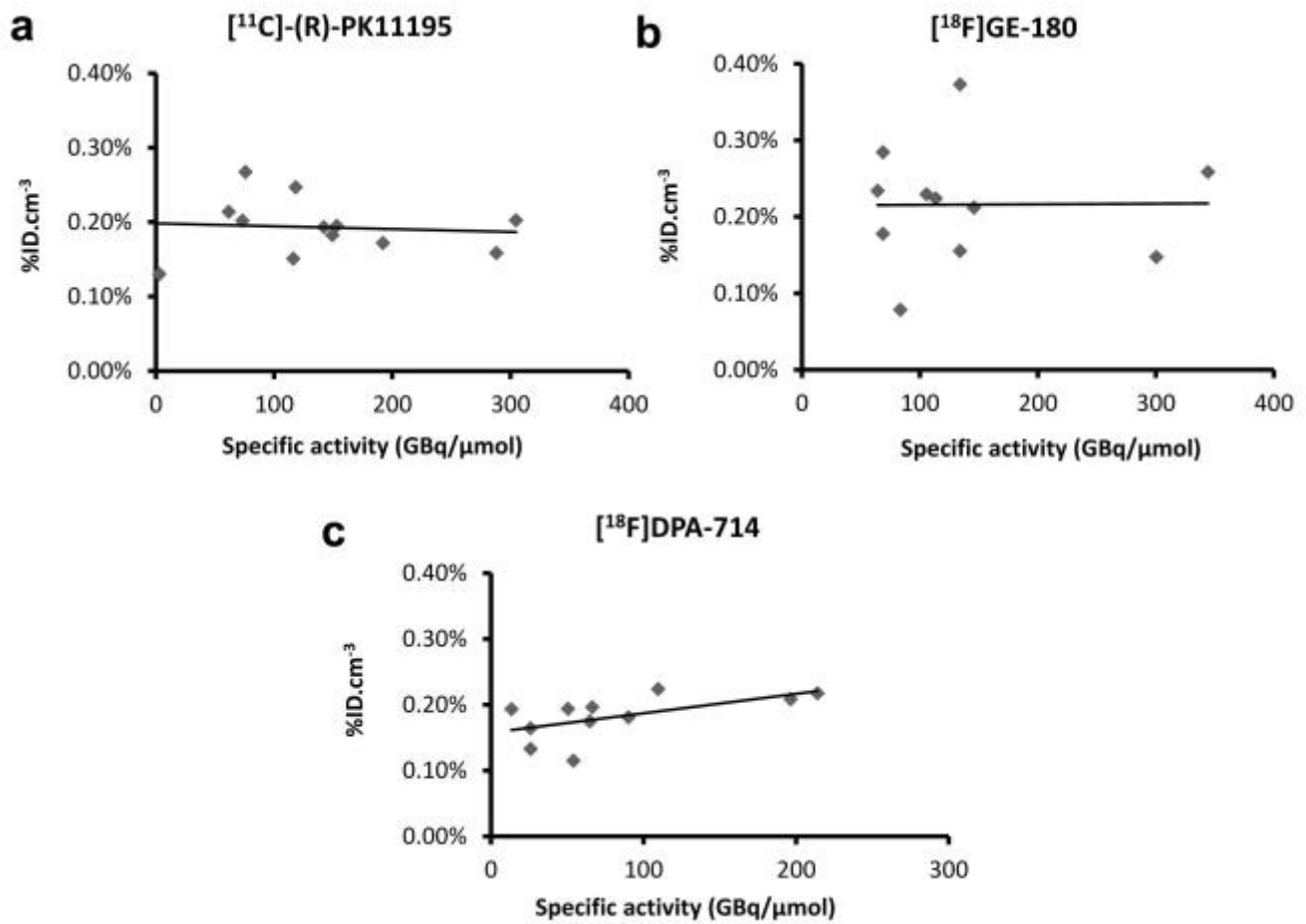
**Group 3**  
Animals scanned with  $[^{18}\text{F}]\text{GE-180}_{\text{only}}$   
n=5

**Group 2**  
Animals scanned twice;  
Paired comparisons  
 $[^{11}\text{C}]-(\text{R})\text{-PK11195}_{[^{18}\text{F}]\text{DPA-714}}$   
 $[^{18}\text{F}]\text{DPA-714}$  n=6

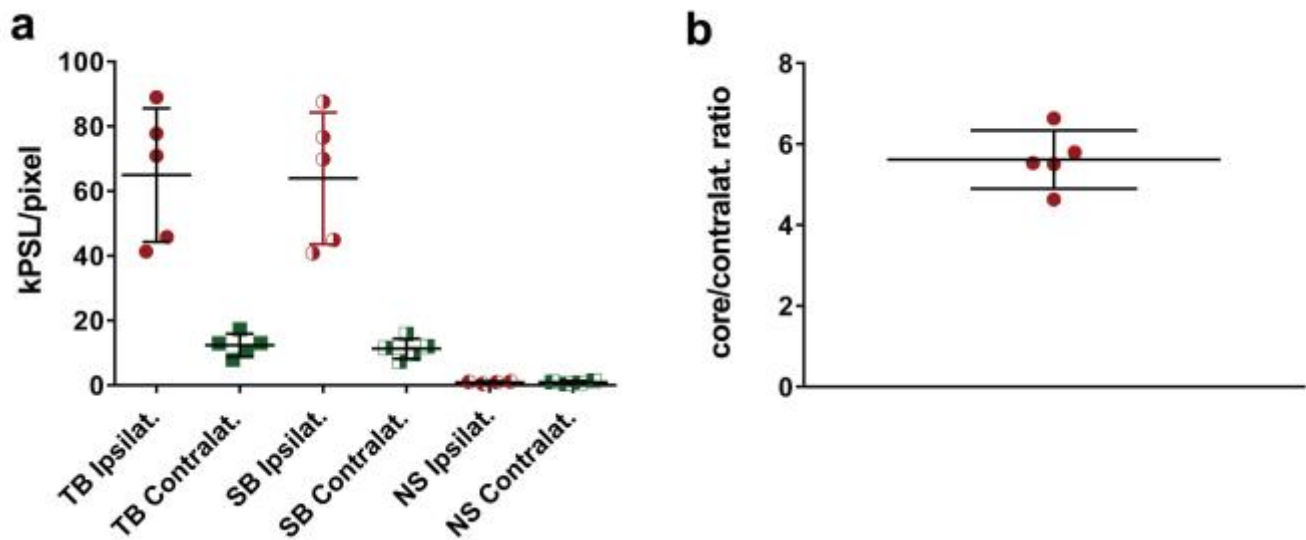
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**Group 4**  
Animals scanned with  $[^{18}\text{F}]\text{DPA-714}_{\text{only}}$   
n=5

**Supplementary Figure 1:** Distribution of animal numbers per tracer and scanning group. Animals were dual-scanned with (R)- $[^{11}\text{C}]\text{PK11195}$  (n = 6) in the morning and  $[^{18}\text{F}]\text{GE-180}$  (n = 6) in the afternoon or (R)- $[^{11}\text{C}]\text{PK11195}$  (n = 6) in the morning and  $[^{18}\text{F}]\text{DPA-714}$  (n = 6) in the afternoon. A further n=5 animals each were scanned with  $[^{18}\text{F}]\text{GE-180}$  or  $[^{18}\text{F}]\text{DPA-714}$  only.



**Supplementary Figure 2:** Specific activity at injection time vs. % injected dose per cubic centimetre in the core of the LPS injection site for (a) (R)- $[^{11}\text{C}]\text{PK11195}$ , (b)  $[^{18}\text{F}]\text{GE-180}$  and (c)  $[^{18}\text{F}]\text{DPA-714}$ .  $r^2$  values were, respectively, 0.01, 0.00 and 0.34; showing no relationship between the injected specific activity of each tracer and the corresponding uptake in the core of the LPS site.



**Supplementary Figure 3:** (a) Quantification of the [ $^{18}\text{F}$ ]DPA-714 autoradiography (TB: total binding (5nM [ $^{18}\text{F}$ ]DPA-714), SB: specific binding, NS: non-specific binding access by co-incubation of 5nM of [ $^{18}\text{F}$ ]DPA-714 with 5 $\mu\text{M}$  of PK11195) in the ipsilateral and contralateral striatum of rats 3 days after injection of 1 $\mu\text{g}$  of LPS in the right striatum and (b) core/contralateral ratio of the specific binding. Data are expressed as mean $\pm$ SD of kPSL/pixel.