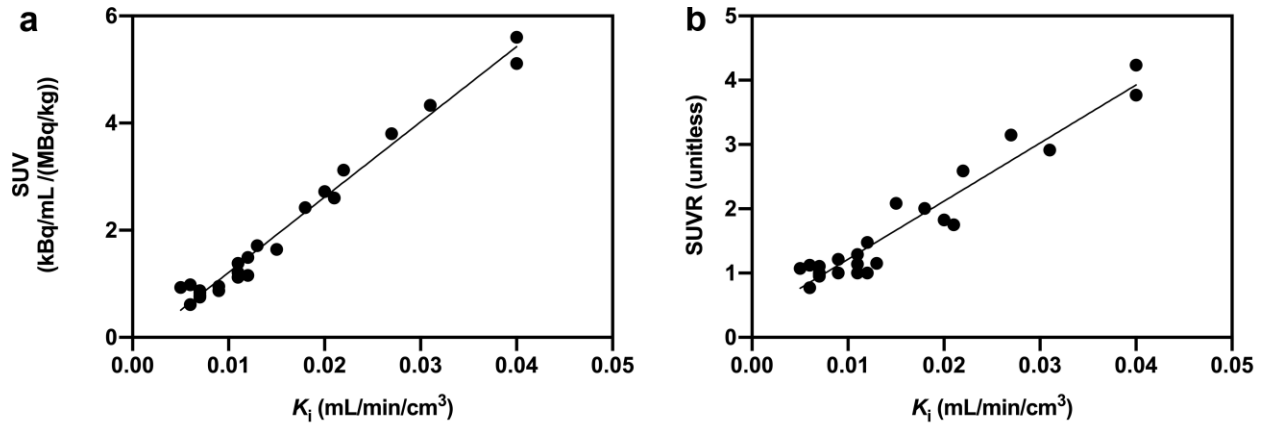


## Supplemental Data

### Title

[<sup>11</sup>C]Methionine and [<sup>11</sup>C]PBR28 as PET imaging tracers to differentiate metastatic tumor recurrence or radiation necrosis



**Figure S1. [<sup>11</sup>C]MET quantification.** a, Correlation between [<sup>11</sup>C]MET SUV and  $K_i$  values ( $r^2=0.981$ ). b, Correlation between [<sup>11</sup>C]MET SUVR and  $K_i$  values ( $r^2=0.935$ ).

Patient ID	Tumor Location	Visual Inspection	SUV	SUVR	$K_i$	Relative $K_i$	Final Score
1	right frontal	++	3.8	3.15	0.027	2.57	***
2	right frontal	++	4.33	2.92	0.031	2.62	***
3	right frontal	-	0.98	1.12	0.006	0.67	-
4	left frontal	+	1.16	1.48	0.012	1.82	*
	right parietal	-	0.75	0.95	0.007	1.06	-
5	right frontal	-	1.33	1.42			-
	left frontal	-	1.21	1.29			-

Normal Range:	Threshold	2.82	1.51	0.021	2.00
	Mean	1.18	1.19	0.010	1.20
	SD	0.27	0.05	0.002	0.13
	RSD	23%	4%	17%	11%

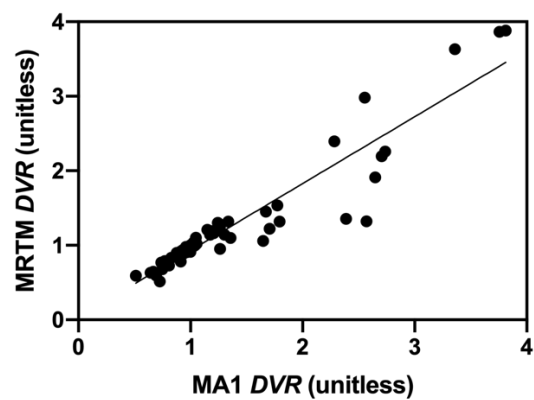
++ large hotspot visible on SUV images

+ small hotspot visible on SUV images (i.e., small compared to gadolinium-enhanced area)

\*\*\* quantitatively above threshold

\* not quantitatively above threshold, and small hotspot visible on SUV images

**Table S1. [<sup>11</sup>C]MET PET results.** [<sup>11</sup>C]MET positivity was detected by visual inspection and by SUV score. The uptake rate constant  $K_i$  was estimated using Patlak analysis with arterial blood sampling. Patient 5 did not have arterial sampling performed due to concurrent anti-coagulation. Patients 1 and 2 were deemed [<sup>11</sup>C]MET positive based on a final score above the relative  $K_i$  threshold of 2.00. Patient 4 had a lesions with visually detectable [<sup>11</sup>C]MET positivity, but the final relative  $K_i$  was below threshold.



**Figure S2. [<sup>11</sup>C]PBR28 DVR quantification.** Correlation between [<sup>11</sup>C]PBR28 volume of distribution ratio (*DVR*) values estimated using MA1 and MRTM ( $r^2=0.870$ ). The reference region used to compute *DVR* values was the contralateral, normal cortex.

Patient ID	Tumor Location	Visual Inspection	DVR	Final Score
1	right frontal	++	3.36	***
2	right frontal	++	2.65	***
3	right frontal	-	1.26	-
4	left frontal	+	1.30	*
	right parietal	++	1.71	**
5	right frontal	++	6.80	***
	left frontal	++	5.97	***

Normal Range:	Threshold	1.77
	Mean	1.05
	SD	0.12
	RSD	11%

++ large hotspot visible on DVR images

+ small hotspot visible on DVR images (i.e., small compared to gadolinium-enhanced area)

\*\*\* quantitatively above threshold

\*\* not quantitatively above threshold, but large hotspot visible on DVR images

\* not quantitatively above threshold, and small hotspot visible on DVR images

**Table S2. [<sup>11</sup>C]PBR28 PET results.** For [<sup>11</sup>C]PBR28, DVR above a threshold of 1.77 was deemed positive. Patients 1, 2, and 5 were positive by [<sup>11</sup>C]PBR28 PET. Patient 4 had two tumors which were visually detected but had DVR scores <1.77.