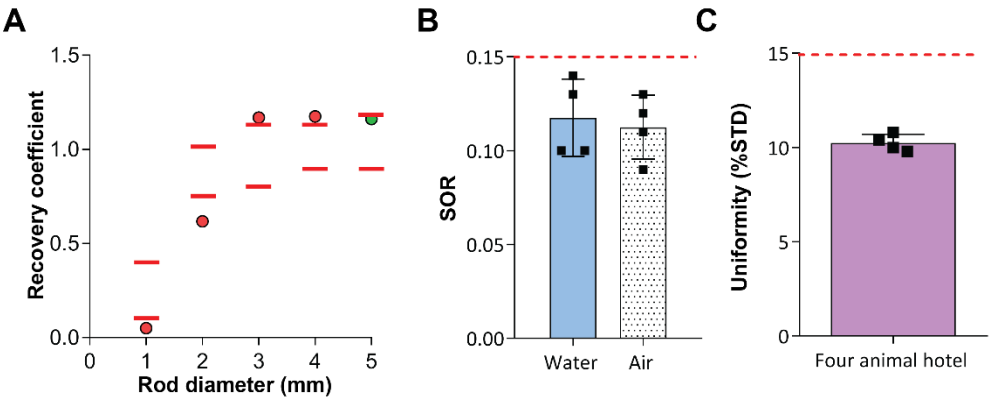
Supplemental table 1. Tolerable NEMA NU-4 values as set by NEMA for image quality phantoms.

Specifications		
Uniformity (%STD)		15
Spill over ratio	Air filled	<0.15
	Water filled	<0.15
Recovery coefficients	1 mm	0.1-0.4
	2 mm	0.75-1.0
	3 mm	0.8-1.1
	4 mm	0.9-1.15
	5 mm	0.9-1.19



Supplemental Figure 1. NEMA NU-4 tests of phantom images following reconstruction using manufacturer-suggested parameters. Phantoms were imaged with [^{18}F]FDG PET over 20 min in the four-bed mouse hotel, followed by CT (480 projections; 50kVp tube voltage; 300ms exposure time; 1:4 binning; helical acquisition). Phantom images were reconstructed using parameters suggested by the manufacturer for standard acquisitions (whole-body Tera-Tomo 3D reconstruction, 4 iterations and 6 subsets was performed, 1-5 coincidence mode). NEMA NU-4 tests were performed on the reconstructed images. **A**. The RCs of 1-4 mm rods fell outside of the

tolerable limits, with only the 5 mm value passing the NEMA NU-4 test. For both SOR_{water} and SOR_{air} values (**B**) and uniformity (**C**) values were below the tolerable limits (red dashed lines).

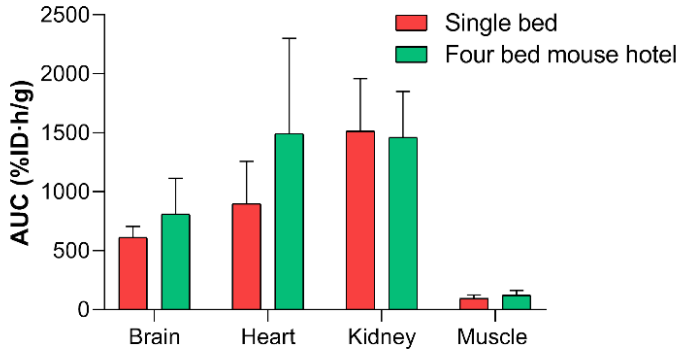


Figure S2. Time activity area under the curve values for organs with substantial levels of [^{18}F]FDG uptake. Data expressed as the mean plus standard deviation. *n* = 4 animals per group.

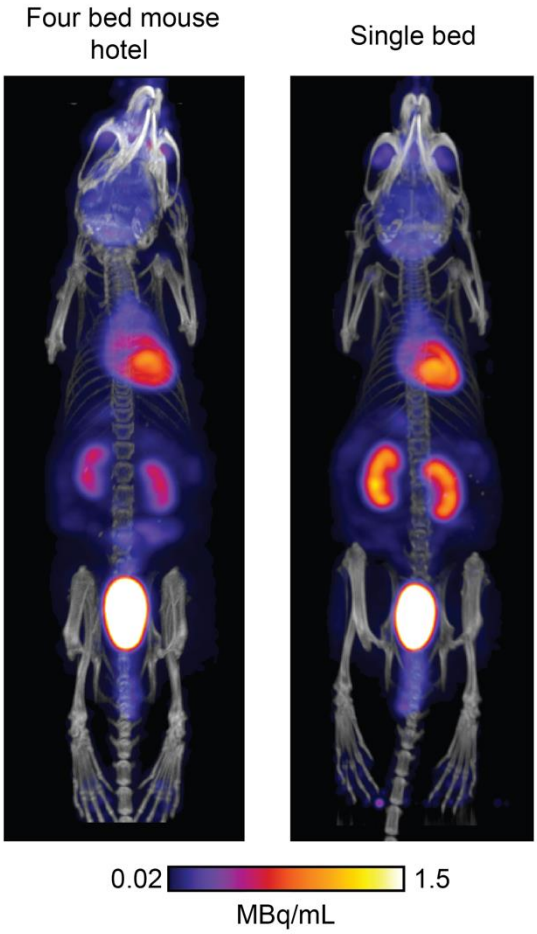


Figure S3. Representative [^{18}F]FDG PET/CT maximum intensity projection 40-60 min post injection of a healthy balb/c mouse imaged using the four-bed mouse hotel and a single imaging bed. The bed has been manually cropped out of both images.