

Supplementary Materials:

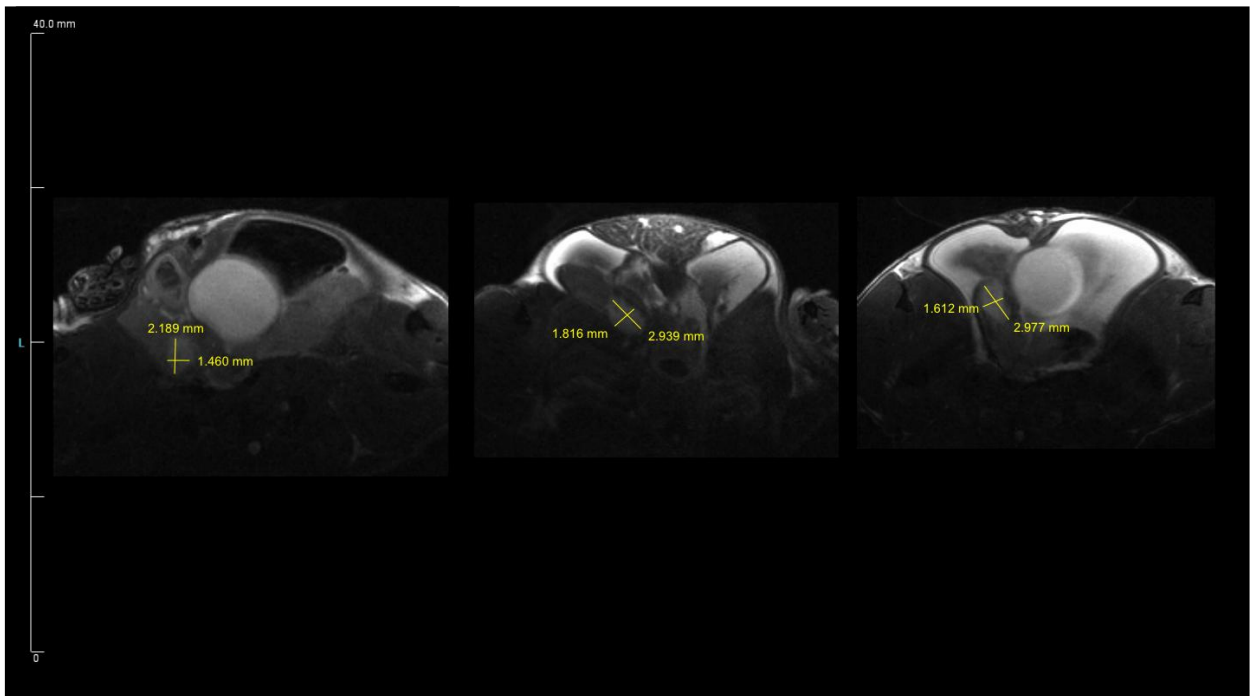


Fig. S1. MRI and size measurements of tumors in three representative 22RV1 orthotopic prostate cancer mice.

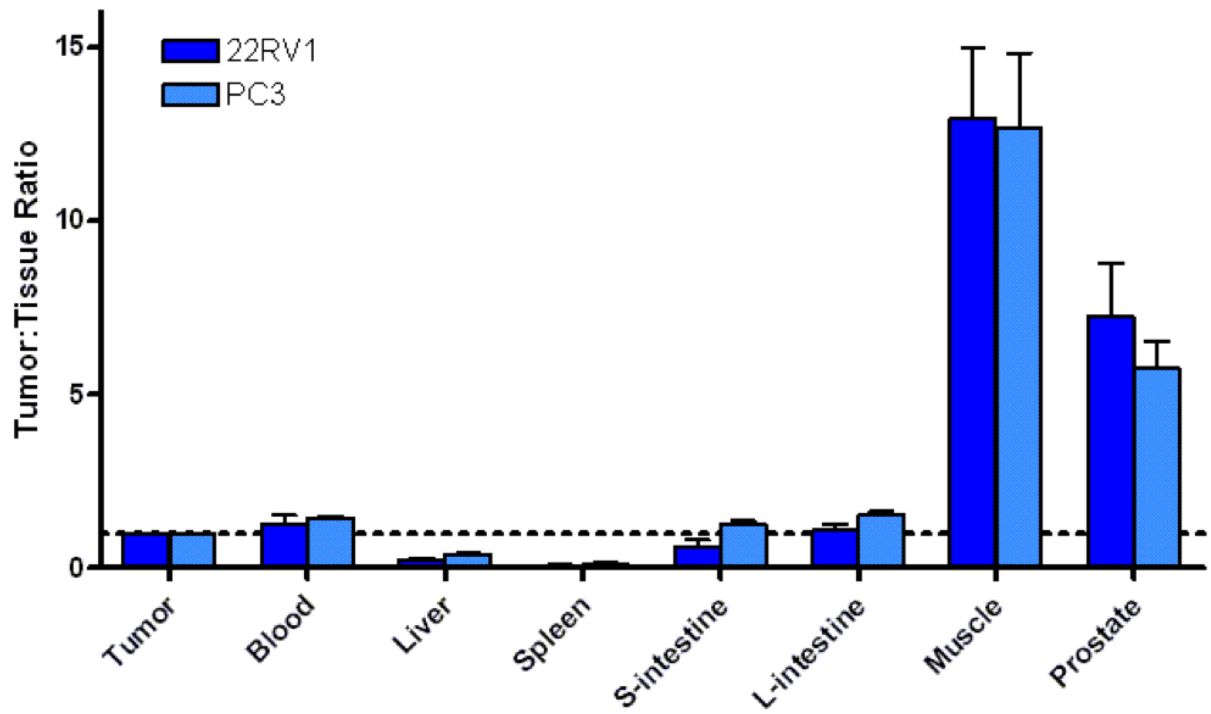


Fig. S2. Tumor-to-tissue ratios in both orthotopic prostate tumor models at 24h post injection of ^{64}Cu -porphyrinsomes (22RV1 - n = 3, PC3 - n = 4).

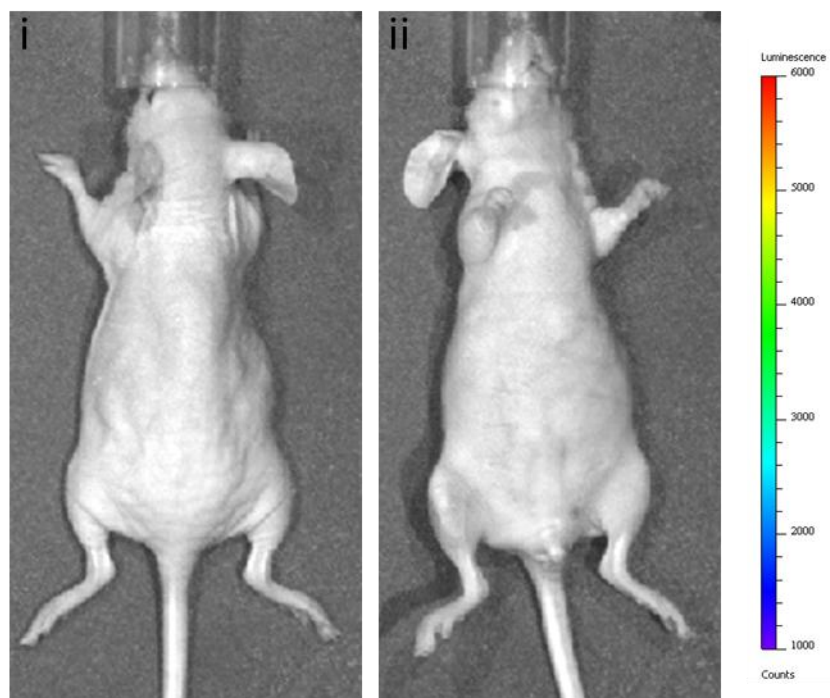


Fig. S3. Representative bioluminescent image of healthy control mouse in the supine (i) and prone (ii) positions.

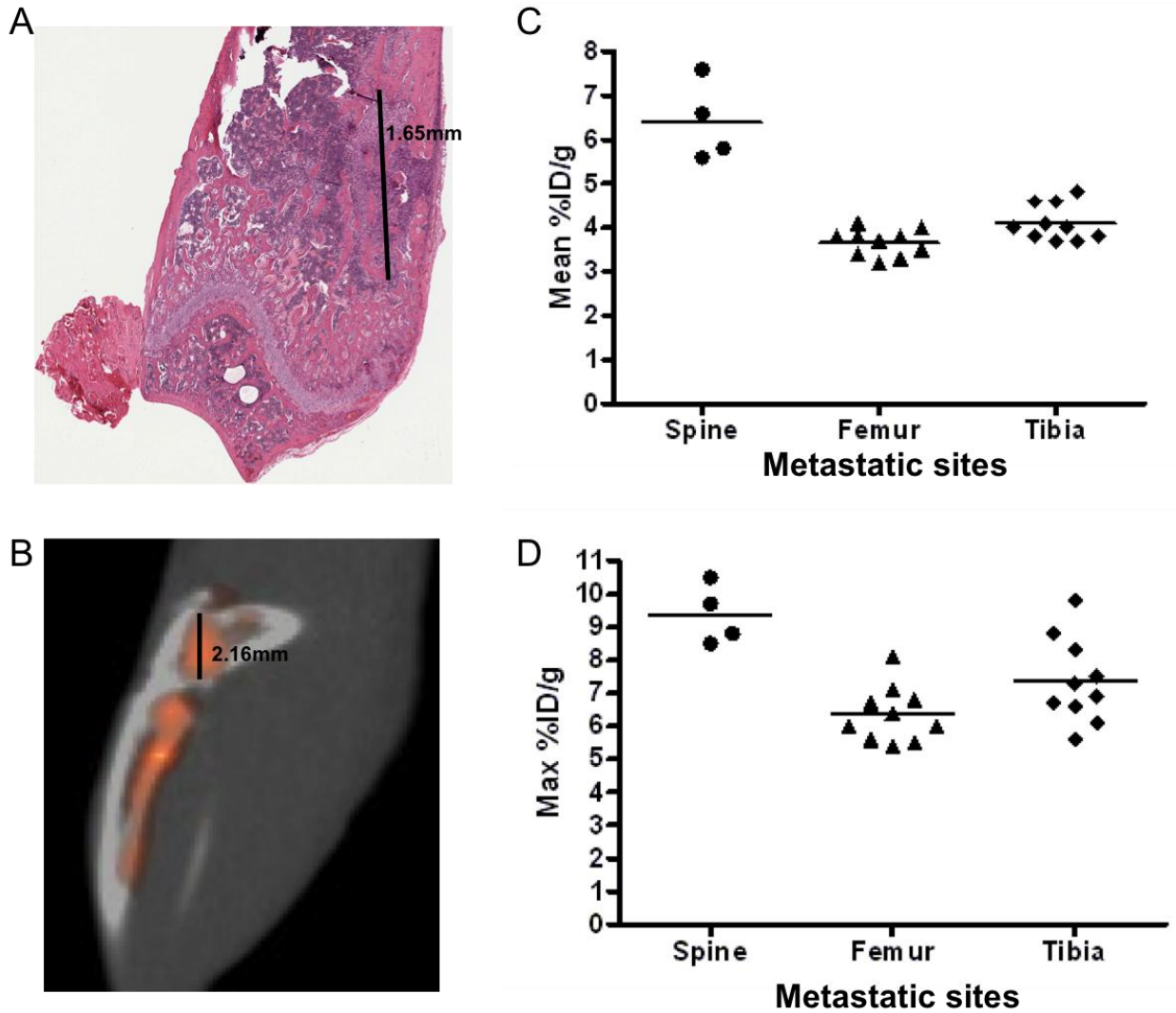


Fig. S4. Size measurements and ^{64}Cu -porphysome accumulation in Ace-1 metastatic lesions. A) Representative H&E histology slide measuring the size of an Ace-1 metastatic lesion within the femur of an animal. B) Corresponding PET image measuring the size of ^{64}Cu -porphysome hotspot accumulation within the metastatic lesion of the femur. C) Mean voxel %ID/g of ^{64}Cu -porphysome accumulation within metastatic sites found within the spine, femur and tibia. D) Maximum voxel %ID/g of ^{64}Cu -porphysome accumulation within metastatic sites found within the spine, femur and tibia

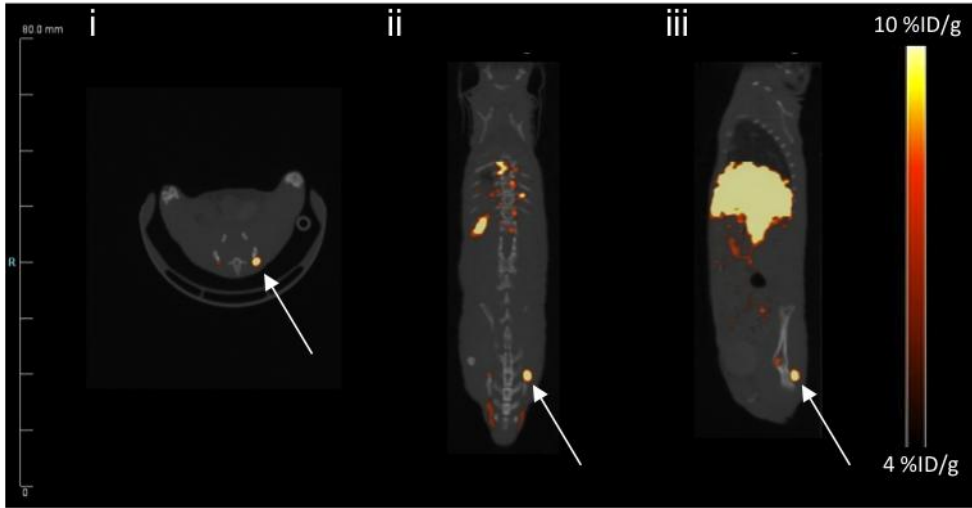
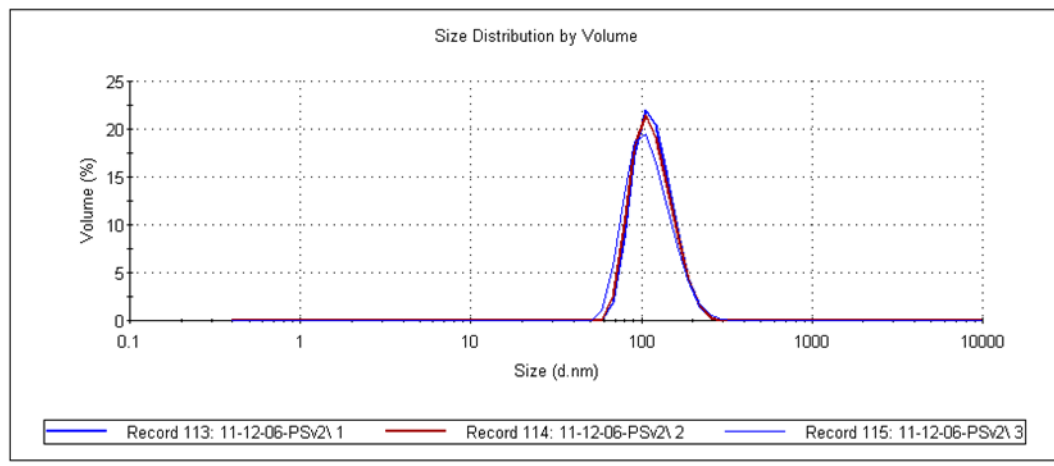


Fig. S5. Suspected lymph node uptake in MicroPET/CT images of i) axial, ii) coronal and iii) sagittal single slices of an orthotopic PC3 prostate cancer model.

A

Z-Average (d.nm): 126.0
Pdl: 0.061
Intercept: 0.890
Result quality: Good

	Diam. (nm)	% Volume	Width (nm)
Peak 1:	114.4	100.0	35.70
Peak 2:	0.000	0.0	0.000
Peak 3:	0.000	0.0	0.000



B

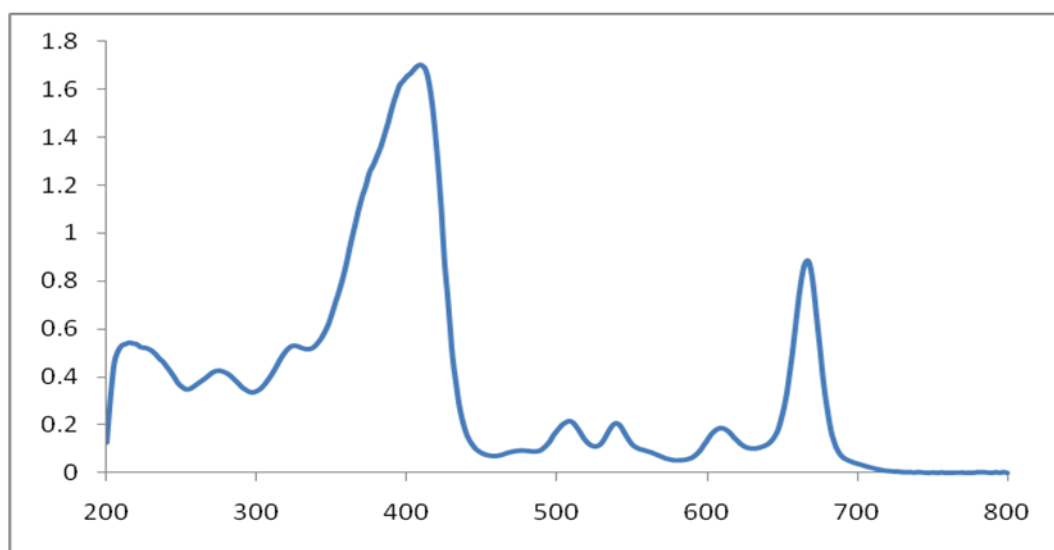


Fig. S6. Representative A) dynamic light scattering and B) UV-visible spectrum of porphyrines,

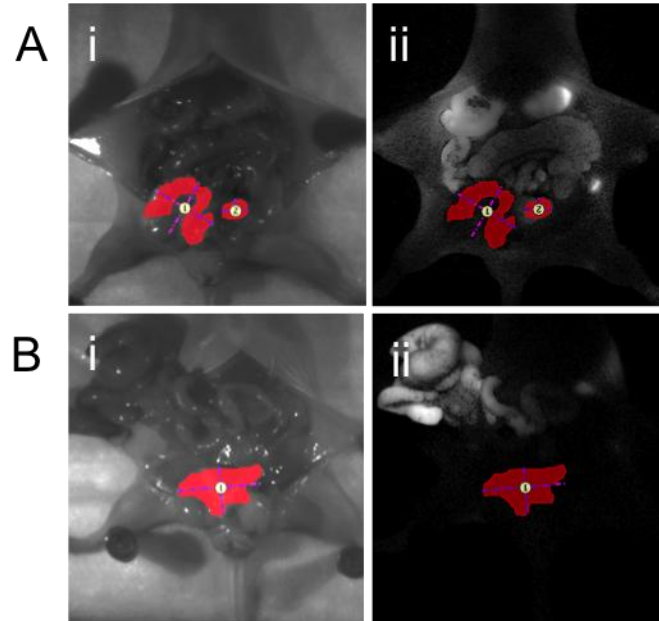


Fig. S7. Fluorescence regions of interest (ROI) of (A) PC3 orthotopic prostate cancer model and (B) surgery-only control group. ROIs were drawn on the (i) monochrome images in which the seminal vesicles, testes and orthotopic prostate tumor were easily distinguishable. These ROIs were then registered onto the (ii) fluorescent composite images to evaluate the fluorescence from ^{64}Cu -porphyrin accumulation in the selected tissues.