

Electronic Supplementary Information

Multimodality Imaging of Naturally Active Melanin Nanoparticles Targeting Somatostatin Receptor Subtype 2 in Human Small-Cell Lung Cancer†

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Tissue (%ID/g)	2 h	24 h	48 h
Heart	4.89±0.59	1.98±0.22	1.66±0.20
Liver	28.9±0.51	17.61±4.09	13.54±5.04
Spleen	13.88±0.55	9.18±1.54	10.69±3.19
Kidney	11.11±0.79	5.59±2.88	5.78±1.34
Lung	7.25±0.78	2.96±0.77	2.46±0.32
Gastric	4.92±1.68	2.06±0.43	2.80±0.74
Intestine	5.65±1.16	2.44±0.12	4.47±1.00
Muscle	5.05±3.11	1.84±0.41	2.15±0.15
Tumor	3.3±1.02	8.03±0.37	5.88±0.40
Blood	18.86±0.44	4.54±1.13	1.85±0.18

Table S1. Tissue biodistribution of (¹²⁴I, Mn)-Oct-PEG-MNP in NCI-H69 mice.

Values shown represent mean ± SD (n=3)

Tissue (%ID/g)	2 h	24 h	48 h
Heart	4.26±1.6	2.36±0.75	2.47±0.65
Liver	26.6±7.27	8.91±1.92	6.84±2.12
Spleen	10.93±1.44	5.38±1.18	4.03±0.66
Kidney	8.25±0.88	3.58±1.35	3.5±0.68
Lung	8.01±2.52	4.66±2.44	5.04±0.58
Gastric	3.77±1.77	1.88±0.14	2.38±0.06
Intestine	6.56±0.36	4.05±0.89	6.37±1.62
Muscle	1.09±0.11	0.72±0.22	1.35±1.44
Tumor	2.7±0.11	3.35±0.54	3.08 ± 0.54
Blood	10.6±1.11	1.87±0.35	2.46±0.34

Table S2. Tissue biodistribution of (¹²⁴I, Mn)-Oct-PEG-MNP in A549 mice.

Values shown represent mean ± SD (n=3)

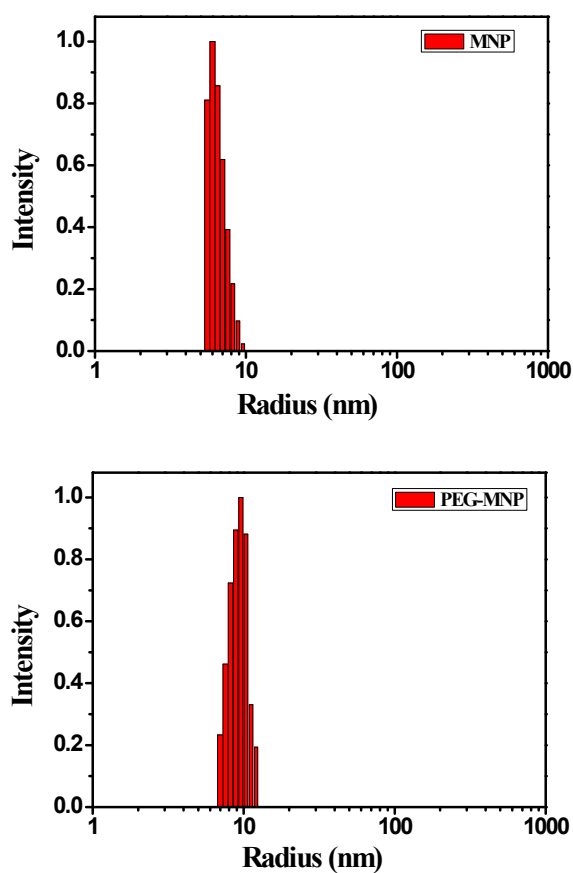


Figure S1. Hydrodynamic size distribution graphs of MNPs (top) and PEG-MNP (bottom).

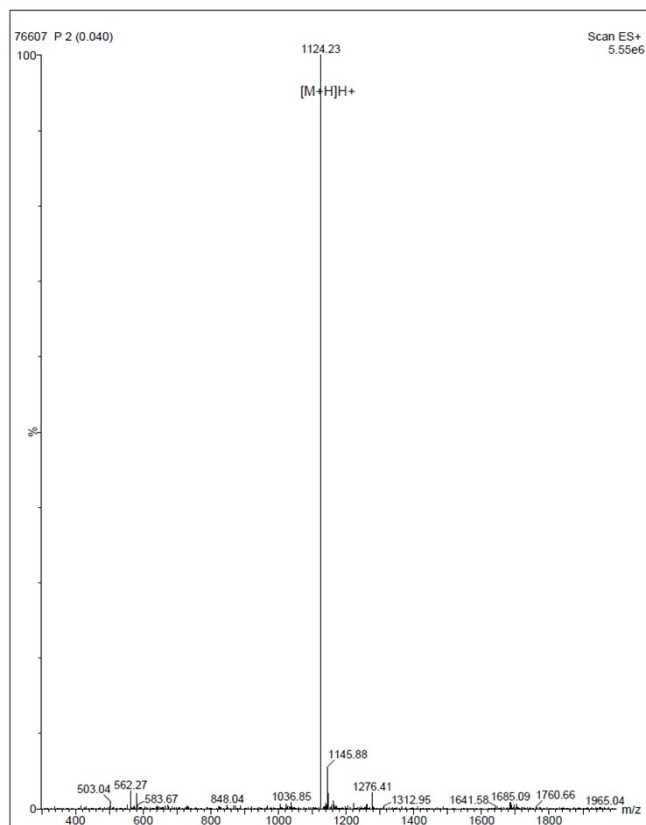


Figure S2. The MALDI-TOF analysis of Oct-SH.

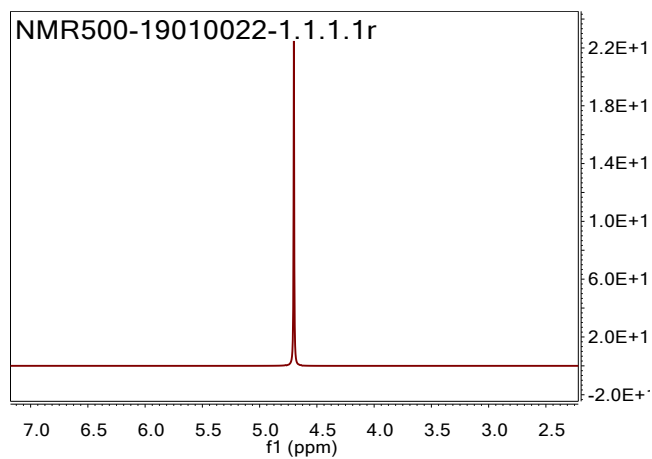


Figure S3. ¹H-NMR spectra of MNPs in D₂O.

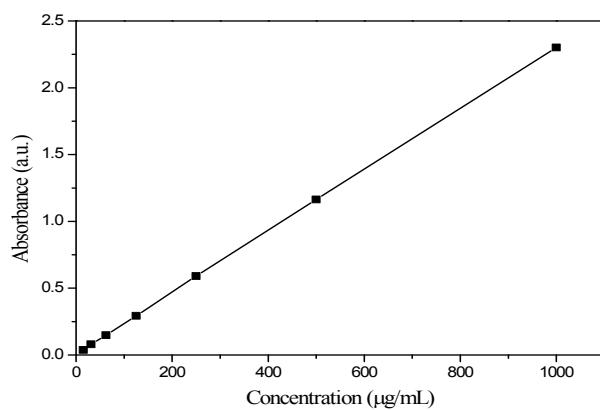


Figure S4. A linear relationship for the optical absorbance of Oct-PEG-MNP with different concentrations at 340 nm.

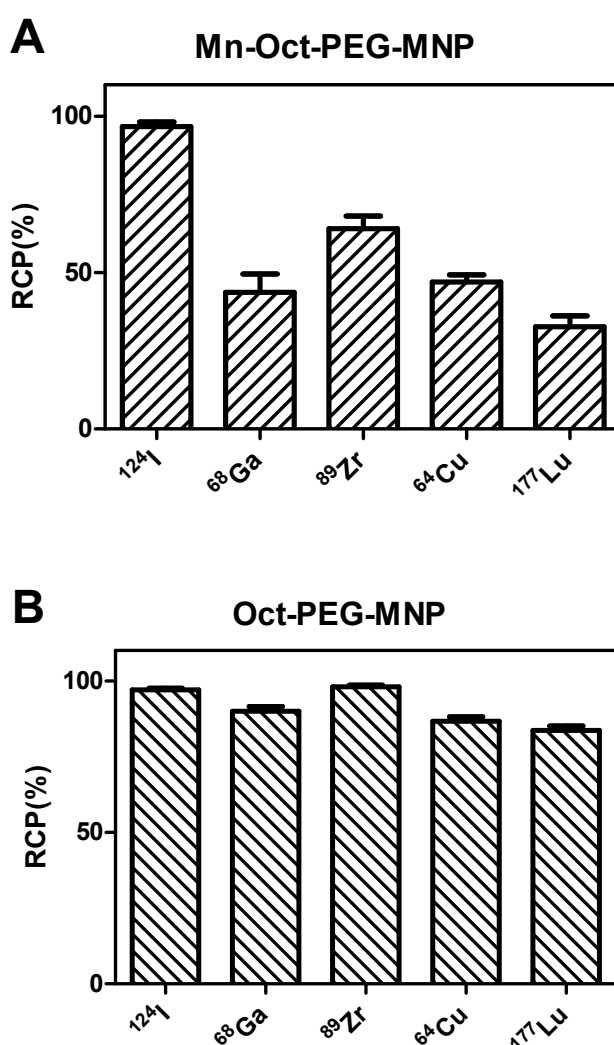


Figure S5. A) The labeling rate of ¹²⁴I and four kinds of metal radionuclides with saturated Mn²⁺ labeled OCY-PEG-MNP. The results from left to right were ¹²⁴I (96.7 ± 2.5%), ⁶⁸Ga (43.7 ± 10%), ⁸⁹Zr (64 ± 7%), ⁶⁴Cu (47 ± 4%) and ¹⁷⁷Lu (32.7 ± 6%). B) The labeling rate of ¹²⁴I and four kinds of metal radionuclides with OCT-PEG-MNP. The results from left to right were ¹²⁴I (97 ± 1%), ⁶⁸Ga (90 ± 2.6%), ⁸⁹Zr (98 ± 1%), ⁶⁴Cu (87 ± 2.5%) and ¹⁷⁷Lu (84 ± 2.5%).

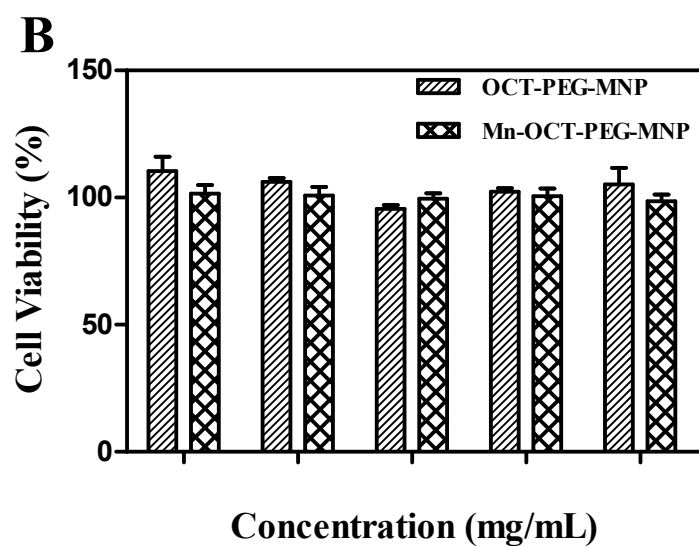
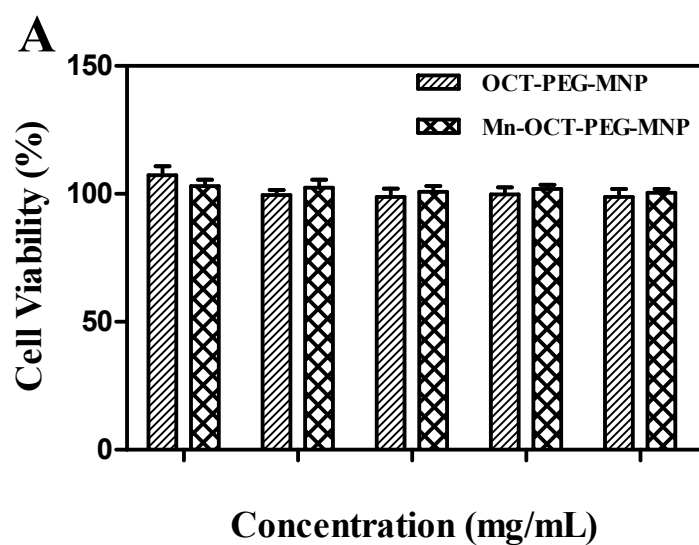


Figure S6. MTT assay using A549 (A) and HeLa (B) cells with OCT-PEG-MNP and Mn-OCT-PEG-MNP concentrations 0.0625, 0.125, 0.25, 0.5 and 1 mg/mL after 24 h incubation at 37 °C.

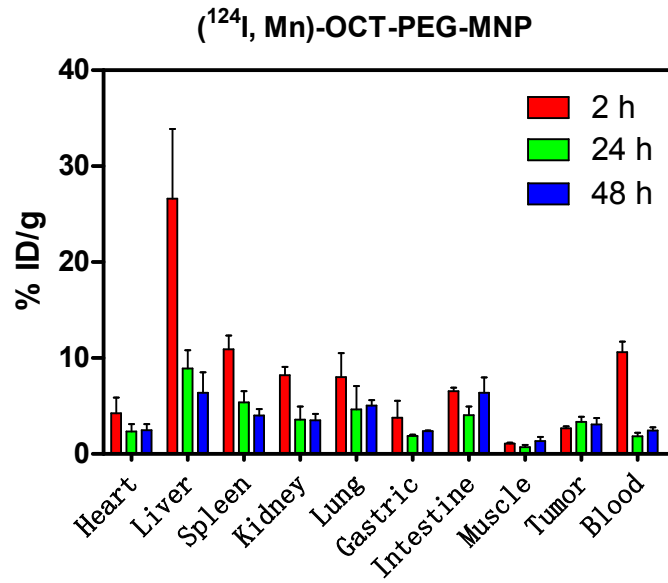


Figure S7. Biodistribution of (¹²⁴I, Mn)-Oct-PEG-MNP in A549 tumor mice (n = 3) measured at 2, 24, and 48 h after tail vein injection. The radioactive signal of Heart, Liver, Spleen, Kidney, Lung, Gastric, Intestine, Muscle, Tumor and Blood were measured by Gamma Counter after removed from vivo, respectively. The data were expressed as %ID/g ± SEM.

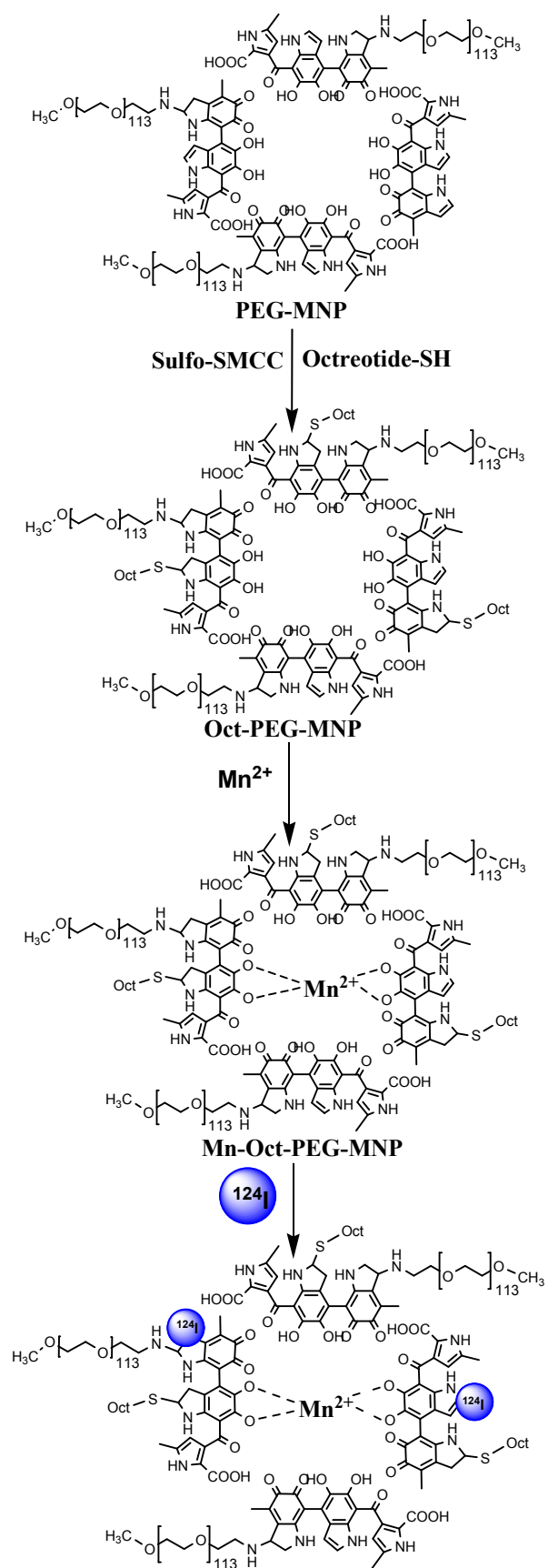


Figure S8. Synthetic route of (¹²⁴I, Mn)-Oct-PEG-MNP.