

## Supporting information

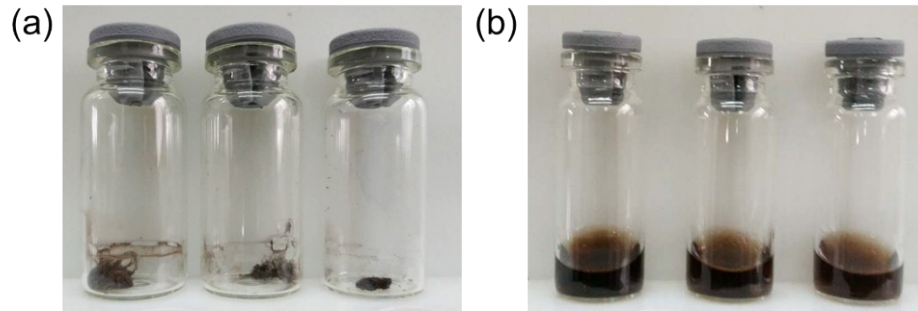
### **Theranostic Radioiodine Labeled Melanin Nanoparticles**

#### **Inspired by Clinical Brachytherapy Seeds**

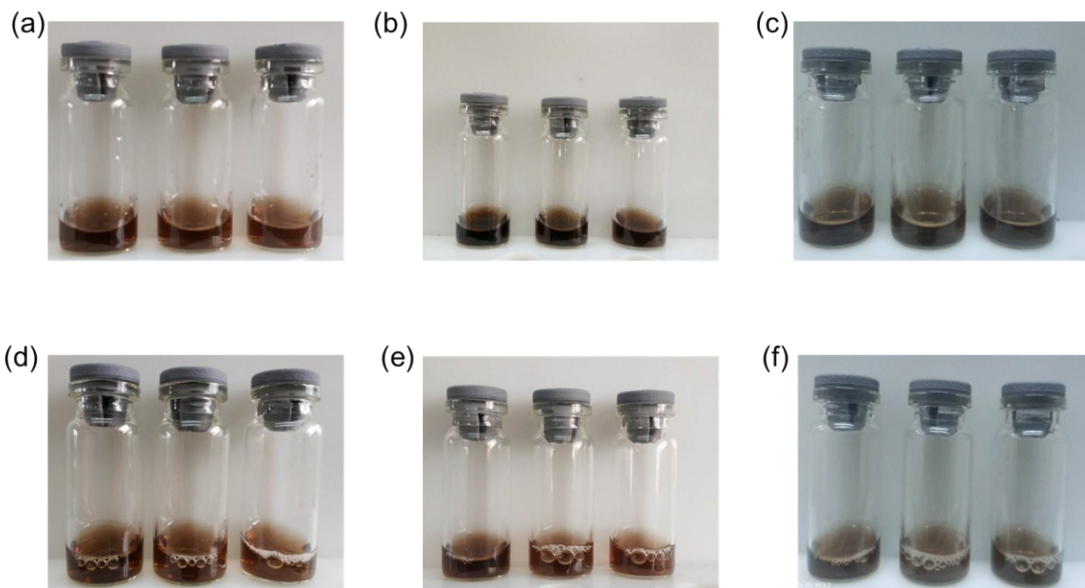
Jie Sheng<sup>1#</sup>, Xinyu Wang<sup>2#</sup>, Junjie Yan<sup>2</sup>, Donghui Pan<sup>2</sup>, Runlin Yang<sup>2</sup>, Lizhen Wang<sup>2</sup>, Yuping Xu<sup>2</sup>,  
Min Yang<sup>1,2\*</sup>

1. *The First School of Clinical Medicine, Nanjing Medical University, Nanjing, 210029, China*
2. *Key Laboratory of Nuclear Medicine, Ministry of Health, Jiangsu Key Laboratory of Molecular Nuclear Medicine, Jiangsu Institute of Nuclear Medicine, Wuxi, 214063, China*

**Keywords:** melanin, theranostic, radioiodine, labeling, I-131



**Figure S1.**(a) Dry powder of MNP, MNP-I and MNP-Ag-I and. (b)Solution of MNP, MNP-I and MNP-Ag-I.



**Figure S2.** MNP, MNP-I and MNP-Ag-I incubation with PBS for 0 h (a), 24 h (b) and 48 h (c). MNP, MNP-I and MNP-Ag-I incubation with serum for 0 h (d), 24 h (e) and 48 h (f).

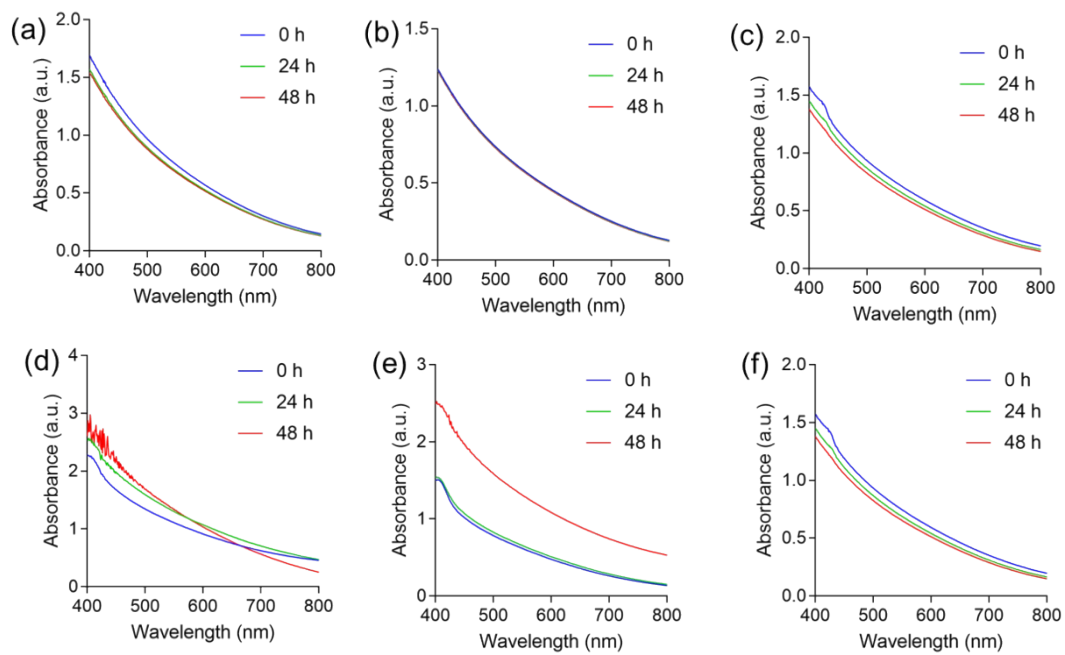


Figure S3. UV-vis-NIR spectra of MNP, MNP-I and MNP-Ag-I incubation with PBS for 0 h (a), 24 h (b) and 48 h (c). UV-vis-NIR spectra of MNP, MNP-I and MNP-Ag-I incubation with serum for 0 h (a), 24 h (b) and 48 h (c).

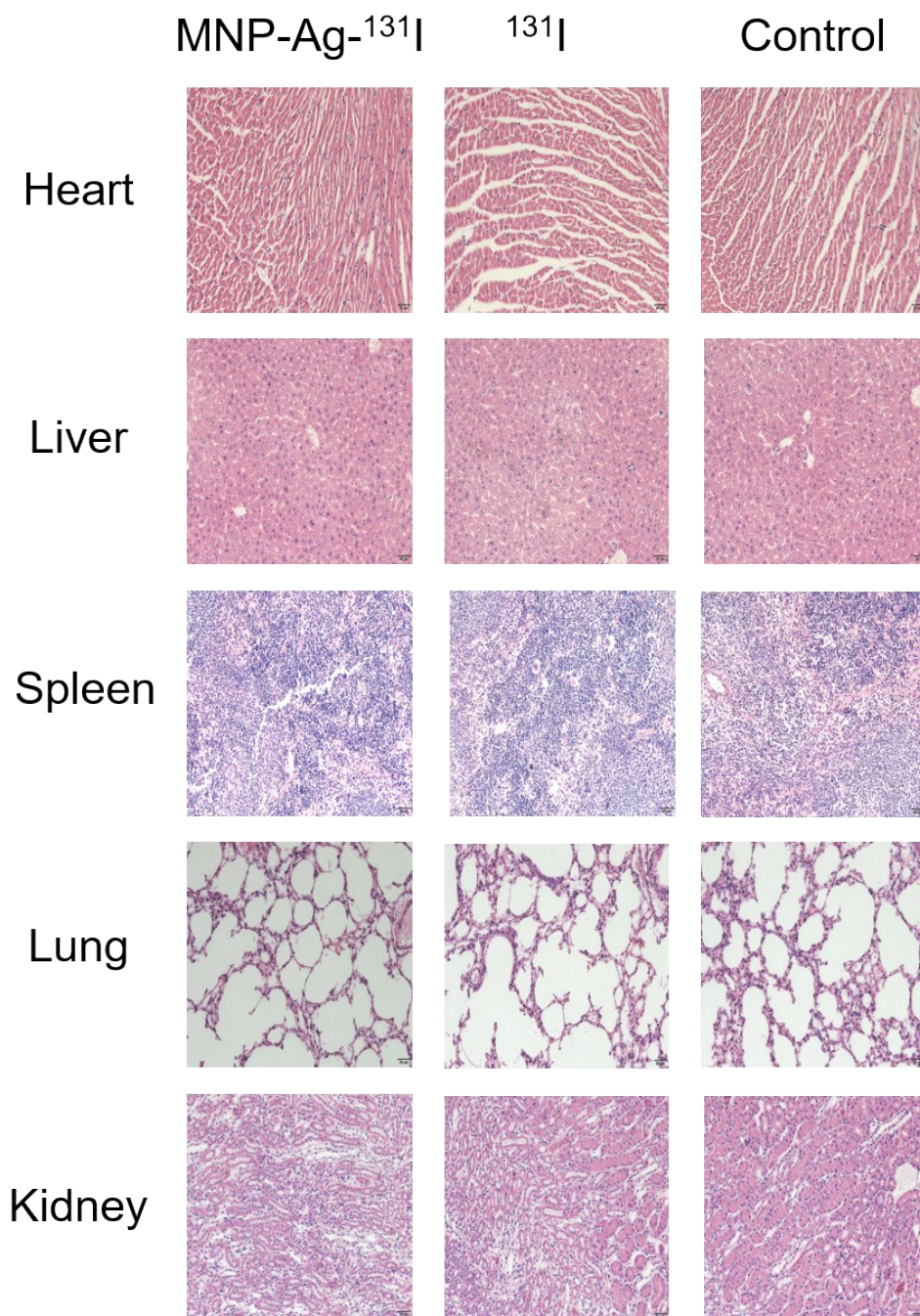


Figure S4. HE staining of the sections of main organs including heart, liver, spleen, lung and kidney in MNP-Ag-<sup>131</sup>I, <sup>131</sup>I and control groups after treatment.

**Table S1.** Atomic percentage of MNP, MNP-Ag-I determined by XPS survey.

Element	C	O	N	Ag	I
MNP	74.31	19.76	4.6	0.07	0.27
MNP-Ag-I	73.02	18.48	4.38	2.03	2.08