## Supplementary Information for:

## Zr- and Hf-based Nanoscale Metal-Organic Frameworks as Contrast Agents for Computed Tomography

Kathryn E. deKrafft, William S. Boyle, Laurel M. Burk, Otto Z. Zhou, and Wenbin Lin<sup>a,\*</sup>

<sup>a</sup>Department of Chemistry, CB# 3290, University of North Carolina, Chapel Hill, NC 27599 <sup>b</sup>Department of Physics and Astronomy, University of North Carolina, Chapel Hill, NC 27599

<sup>\*</sup>To whom correspondence should be addressed. E-mail: wlin@unc.edu

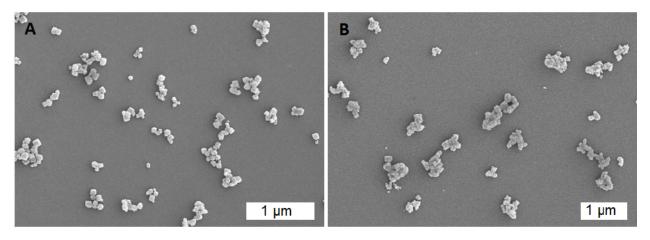
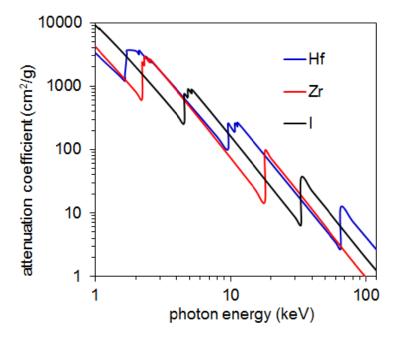


Figure S1. SEM images of (A) Zr-UiO and (B) Hf-UiO.



**Figure S2**. Attenuation coefficient vs. photon energy for Hf, Zr, and I, reproduced from data reported by NIST. Here the attenuation is expressed in cm<sup>2</sup>/g units on a logarithmic scale. In Fig. 2E, it is expressed in mol<sup>-1</sup> units on a linear scale, for easy visualization of the relative attenuation of these elements at the relevant energies.

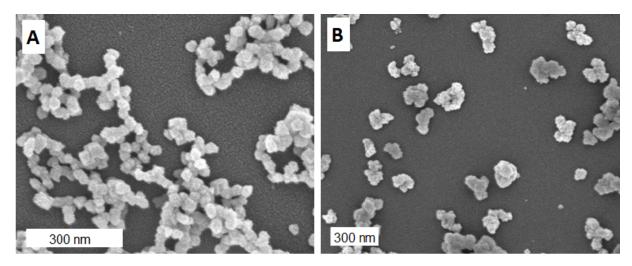
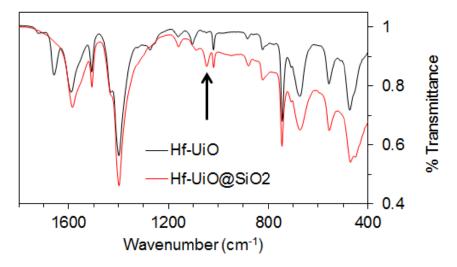


Figure S3. SEM images of (A) Hf-UiO@SiO<sub>2</sub> and (B) Hf-UiO@SiO<sub>2</sub>@PEG.



**Figure S4**. IR spectra of **Hf-UiO** and **Hf-UiO**@SiO<sub>2</sub>. The arrow indicates the peak coming from SiO<sub>2</sub>.

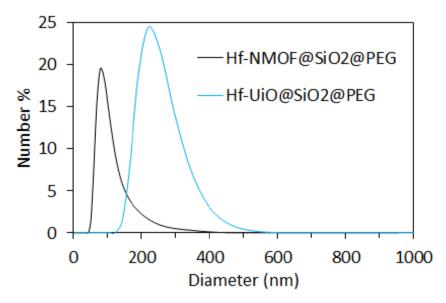
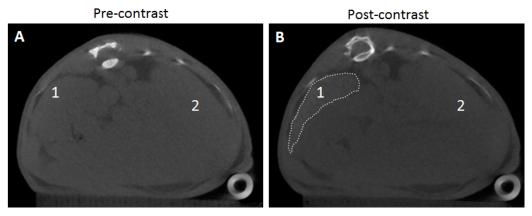


Figure S5. DLS size distribution by number of Hf-NMOF@SiO<sub>2</sub>@PEG in 10 mM PBS.



**Figure S6**. Axial CT slices of a mouse (A) pre-contrast and (B) 15 min after injection of **Hf-NMOF**@SiO<sub>2</sub>@PEG (2.0 mg Hf). The labels are: 1-spleen, 2-liver. The spleen, which showed a 101 HU increase in attenuation, is outlined. The attenuation in the liver increased by 41 HU, but the increase is not visually obvious.