

Supplementary Figure S3: Conversion of ATBTA-Eu<sup>3+</sup> to DTBTA-Eu<sup>3+</sup> was verified by ESI-MS. ATBTA-Eu<sup>3+</sup> (left, 861.5 (M – H<sup>+</sup>)<sup>-</sup>, 839.5 (M – Na<sup>+</sup>)<sup>-</sup>) was chemically converted to the activated DTBTA-Eu<sup>3+</sup> (right, 1008.3 (M – H<sup>+</sup>)<sup>-</sup>, 986.3 (M – Na<sup>+</sup>)<sup>-</sup>, 968.3 (M – H<sub>2</sub>O)<sup>-</sup>), which was used to label LST and LST\_CPHPs for biodistribution experiments. The mass spectrum on the right confirms complete conversion of the label and was chosen as a representative sample for each batch of activated DTBTA-Eu<sup>3+</sup> DTBTA-Eu<sup>3+</sup> produced for this study.