Supporting information

Innovative Magnetic Nanoparticles for PET/MRI Bimodal Imaging

Guillaume Thomas¹, Julien Boudon¹, Lionel Maurizi¹, Mathieu Moreau², Paul Walker³, Isabelle Severin⁴, Alexandra Oudot⁵, Christine Goze², Sophie Poty², Jean-Marc Vrigneaud⁶, Frédéric Demoisson¹, Franck Denat², François Brunotte⁵, Nadine Millot¹*

¹ ICB UMR 6303 CNRS-Université Bourgogne Franche-Comté, 21000 Dijon, France
² ICMUB UMR 6302 CNRS-Université Bourgogne Franche-Comté, 21000 Dijon, France
³ Département de Spectroscopie par Résonance Magnétique, CHU Dijon, 21000 Dijon, France
⁴ Département de Spectroscopie par Résonance Magnétique, CHU Dijon, 21000 Dijon, France
⁵ Département de Spectroscopie par Résonance Magnétique, CHU Dijon, 21000 Dijon, France
⁶ Département de Spectroscopie par Résonance Magnétique, CHU Dijon, 21000 Dijon, France
⁷ Département de Spectroscopie par Résonance Magnétique, CHU Dijon, 21000 Dijon, France

* Corresponding author: nadine.millot@u-bourgogne.fr

Figure S1. TGA recorded on Fe₃O₄-LDOPA, Fe₃O₄-LDOPA-PEG and Fe₃O₄-LDOPA-PEG-MANOTA NPs

Figure S2. Theoretical calculation for functionalized-SPIONs rate of grafting

Figure S3. Calibration curve of magnetic susceptibility measurements (in SI) as a function of iron concentration. Measurements carried out with SPIONs-LDOPA in water

Figure S4. Biodistribution of SPIONs in several organs 1h and 24h after I.V. injection. Measurements performed using magnetic susceptibility method
Figure S1. TGA recorded on Fe₃O₄-LDOPA, Fe₃O₄-LDOPA-PEG and Fe₃O₄-LDOPA-PEG-MANOTA NPs

| Samples                  | Molecule/nm² |
|--------------------------|--------------|
| SPIONs-LDOPA            | 2.49         |
| SPIONs-LDOPA-PEG        | 0.07         |
| SPIONS-LDOPA-PEG-MANOTA | 0.04         |

TGA curves confirmed the presence of PEG and MANOTA on the surface of SPIONs-LDOPA.

**Equation 1:**

\[
N_m = \frac{\Delta m}{m} \times N_a \times \frac{S_{\text{BET}}}{M_m} \times 10^{18}
\]

Where \(N_m\) is the number of grafted \(m\) molecules per \(\text{nm}^2\), \(N_a\) is the Avogadro number, \(M_m\) is the molecular weight of the degraded molecule (g/mol), \(\Delta m/m\) is the relative mass loss between SPIONS and functionalized-SPIONS, \(S_{\text{BET}}\) is the specific surface area (m²/g) and \(10^{18}\) is a factor to obtain a ratio per \(\text{nm}^2\).

Figure S2. Theoretical calculation for functionalized-SPIONS rate of grafting

Figure S3. Calibration curve of magnetic susceptibility measurements (in SI) as a function of iron concentration. Measurements carried out with SPIONS-LDOPA in water
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