Supporting information for

Dextran coated bismuth-iron oxide nanohybrid contrast agents for computed tomography and magnetic resonance imaging

Pratap C. Naha\textsuperscript{1}, Ajlan Al Zaki\textsuperscript{2}, Elizabeth Hecht\textsuperscript{1}, Michael Chorny\textsuperscript{3}, Peter Chhour\textsuperscript{1,2}, Eric Blankemeyer\textsuperscript{4}, Douglas M. Yates\textsuperscript{5}, Walter R. T. Witschey\textsuperscript{1,2,6}, Harold I. Litt\textsuperscript{1,6}, Andrew Tsourkas\textsuperscript{2}, David P. Cormode\textsuperscript{1,2,6*}

\textsuperscript{1}Department of Radiology, University of Pennsylvania, Philadelphia, PA, USA. Tel: 215-615-4656, Fax: 240-368-8096, david.cormode@uphs.upenn.edu

\textsuperscript{2}Department of Bioengineering, University of Pennsylvania, Philadelphia, PA, USA.

\textsuperscript{3}Department of Pediatrics, The Children’s Hospital of Philadelphia, Philadelphia, PA, USA.

\textsuperscript{4}Small Animal Imaging Facility, University of Pennsylvania, PA, USA

\textsuperscript{5}Nanoscale Characterization Facility, University of Pennsylvania, PA, USA

\textsuperscript{6}Division of Cardiovascular Medicine, University of Pennsylvania, Philadelphia, PA, USA
Figure S1. Transmission electron micrographs of BION. A) Bi-0 formulation synthesized without ethylene glycol. B) Bi-70, C) Bi-90.
Figure S2. Saturation of magnetization for different BION formulations.
Figure S3. The attenuation of BION as a function of bismuth content and X-ray tube voltage (80-140 kV).
Figure S4

Figure S4. Whole animal CT images of mice pre and post-injection with BION (Bi-30 formulation). Arrow indicates the bladder.
Figure S5

Figure S5. Hydrodynamic diameter of Bi-30 after incubation with 10% FBS at 37 °C for 0, 1 and 24 hours.

Table S1

<table>
<thead>
<tr>
<th>Ring</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fe₃O₄</td>
<td>4.89</td>
<td>2.97</td>
<td>2.55</td>
<td>2.1</td>
<td>1.74</td>
<td>1.63</td>
<td>1.5</td>
<td>1.32</td>
<td>1.28</td>
<td>1.2</td>
</tr>
<tr>
<td>Bi-0</td>
<td>na</td>
<td>3.00</td>
<td>2.57</td>
<td>2.15</td>
<td>na</td>
<td>1.62</td>
<td>1.51</td>
<td>1.31</td>
<td>1.24</td>
<td>1.20</td>
</tr>
<tr>
<td>Bi-30</td>
<td></td>
<td>2.53</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1.49</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fe-70</td>
<td>na</td>
<td>2.93</td>
<td>2.49</td>
<td>2.11</td>
<td>1.71</td>
<td>1.60</td>
<td>1.47</td>
<td>na</td>
<td>1.29</td>
<td>na</td>
</tr>
</tbody>
</table>

Table S1. Diffraction d-spacings calculated from SAED data for the samples and from the PDF database for Fe₃O₄.