**Supplemental Figures**

Table 1S Optical properties chosen over the visible and near-infrared spectrum. µa is the coefficient of absorption, and µs is the coefficient of scattering. The anisotropy coefficient, g, and the index of refraction, n, is 0.9 and 1.37 respectively for every color.

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Violet​  350nm | Blue​  400nm​ | Light-Blue​  430nm​ | Blue-Green​  488nm​ | Green​  ​  555nm​ | Yellow​  ​  580nm​ | Orange​  ​  600nm​ | Red​  ​  640nm​ | Maroon​  ​  680nm​ | Near-NIR​  700nm​ ​ | NIR​  ​  780nm​ | Far-NIR​  ​  850nm​ |
| µa (mm-1​) | 0.2 | 0.15 | 0.1​ | 0.05 | 0.04 | 0.035 | 0.03 | 0.025 | 0.01 | 0.0025 | .002 .001 | | |  |
| µs (mm-1​) | 40 | 35 | 30 | 25 | 20 | 15 | 12.5 | 10 | 9 | 8 | 7 5 | | | 5 |
|  |  |  |  |  |  |  |  |  |  |  |  | | |  |

Chart

Description automatically generated

Figure 3S Monte Carlo Simulation of photon propagation in human tissue. Absolute voxel-based optical sensitivity for a source-detector separation of (a) 0.3mm and (b) 3mm over tissue depth for the whole visible and near-infrared spectrum. Sensitivity values were collected at the middle point between source and detector.