

SUPPLEMENTAL INFORMATION

Optoacoustic System

The experimental multispectral optoacoustic system acquires, reconstructs, and displays transverse (axial) slice images through samples and has been previously described extensively (*1*). A Nd:YAG pumped laser (Opotek Inc.) provides light energy in the infrared range (680–900 nm) in 10-ns laser pulses at a 10-Hz repetition rate with a maximum energy of 80 mJ per pulse. A fiber bundle assembly is used for homogeneous illumination (CeramOptics Industries Inc.) using 10 output arms situated at regular angles around the plane of the sample to be imaged. A custom-built transducer array (Imasonic SAS) with 64 elements disposed in one row forming a spherical concave array covering 172° with a focal distance of 4 cm and a central frequency of 5 MHz is used to detect the ultrasonic waves. The sample is submerged in a temperature-controlled water bath in horizontal position using a thin polyethylene transparent foil to keep the sample dry. Sample translation for multiple-plane imaging is enabled by a linear stage (NRT 150/M; Thorlabs GmbH) while the illumination and detection components remain fixed. The optoacoustic images were reconstructed using an interpolated matrix model inversion image reconstruction algorithm. Following reconstruction, spectral unmixing was applied to detect signals from contrast agents within the samples (*2,3*).



Supplemental Figure 1: Multispectral optoacoustic images of the kidney (A) and liver (B) regions of a mouse 60 min after injection of silicon 2,3-naphthalocyanine bis(trihexylsilyloxy) (hot scale), overlaid on a single-illumination wavelength image (800 nm, grayscale).

REFERENCES

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