

Materials List for:

Universal Hand-held Three-dimensional Optoacoustic Imaging Probe for Deep Tissue Human Angiography and Functional Preclinical Studies in Real Time

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Materials

Name	Company	Catalog Number	Comments
Optical parametric oscillator (OPO)-based laser	Innolas Laser GmbH, Krailling (Germany)	custom-made	The laser provides laser pulses with a duration around 10 nsec and an energy up to 80 mJ. The wavelength is tunable between 680-950 nm.
Spherical array of piezocomposite detectors	Imasonic SaS, Voray (France)	custom-made	The array consists of 256 piezoelectric sensors distributed on a spherical surface. Each element has dimensions 3 x 3 mm ² , a central frequency of 4 MHz and a bandwidth of 100%.
Data acquisition system (DAQ)	Falkenstein Mikrosysteme GmbH, Taufkirchen (Germany)	custom-made	The DAQ simultaneously acquires 256 signals at 40 megasamples per second and 2,030 samples. The input impedance is 1 MW.
Fiber bundle	CeramOptec GmbH, Bonn (Germany)	custom-made	The bundle consists of 480 individual fibers randomly distributed in the input and output. The numerical aperture of each individual fiber is 0.22.
Athymic nude mouse	Harlan Laboratories (The Netherlands)	Athymic nude - Foxn1 ^{nu}	The mouse was 8 weeks old (adult) at the time of the experiment. The ethical protocol was approved by the Bavarian government (number 55.2.1.54-2632-102-11)
Bepanthen cream	Bayer AG (Germany)		Vet ointment to protect the eyes during anesthesia
Data processing software	Matlab (Mathworks, Natick, MA, USA)	custom-made	The data processing software was developed at our institute. It allows reconstruction at each wavelength and multi-wavelength unmixing, as well as further data processing.
Water-enclosing part		custom-made	This part contains the water that acts as an acoustic coupling medium between skin and transducer elements
Indocyanine green (ICG)	PULSION Medical Systems SE		ICG-PULSION (active ingredient: indocyanine green dye) is a drug used in cardiac, circulatory and micro-circulatory diagnostics, liver function diagnostics and ophthalmic angiography diagnostics.