Materials List for:

Hand-held Clinical Photoacoustic Imaging System for Real-time Non-invasive Small Animal Imaging

Kathyayini Sivasubramanian[1], Vijitha Periyasamy[1], Manojit Pramanik[1]

[1]School of Chemical and Biomedical Engineering, Nanyang Technological University

Correspondence to: Manojit Pramanik at manojit@ntu.edu.sg

Materials

Name	Company	Catalog Number	Comments
Q-switched Nd:YAG laser	Continuum	Surelite	Pump laser
Optical parametric oscillator	Continuum		OPO laser
Clinical ultrasound imaging system	Alpinion	E-CUBE 12R	Dual modal ultrasound and photoacoustic imaging system
Linear array ultrasound transducer	Alpinion	L3-12	128 element linear array transducer with centre frequency of 8.5 MHz, fractional bandwidth of 95%,
Bifurcated optical fiber	CeramOptec	Custom made	To couple the light from the laser to the handheld fiber holder
Lens	Thorlabs	LB1869	Focus light from the laser to the optical fiber
Ultrasound gel	Progress/parker acquasonic gel	PA-GEL-CLEA-5000	Acoustic coupling
Image Processing software	Mathworks	Matlab	Home made program using Matlab
Anesthetic Machine	medical plus pte ltd	Non-Rebreathing Anaesthesia machine with oxygen concentrator.	Supplies oxygen and isoflurane to animal
Pulse Oxymeter portable	Medtronic	PM10N with veterinary sensor	Monitors the pulse oxymetry of the animal
Animal distributor	In Vivos Pte Ltd, Singapore		Animal distributor that supplies small animals for research purpose.
Breathing mask	Custom made		Used along with animal holder to supply anesthesia mixture to the animal
chicken breast tissue	Pasar		Used to add depth to mimic human imaging scenario
23G needle	BD Precisionglide	23G,1 and half inch	Used for realtime needle guidance
Holder for the fiber optic cable	Custom made		To hold the input end of the bifurcated cable
Handheld probe	Custom made 3D printed		With two slots for the two output ends of the optical fiber and one slot for the ultrasound transducer
Methylene blue (10 mg/mL)	Sterop		Contrast agent for PA imaging
Laser tuning software	Surelite OPO PLUS	SLOPO	Software to tune the wavelength of OPO laser
Photodiode	Thorlabs	SP05/M	To detect the laser pulse to trigger the ultrasound system
Photodiode bias module	Thorlabs	PBM42	To amplify the photodiode signal to tigger ultrasound signal
Depilatory cream	Reckitt Benckiser	Veet	Used to remove hair from the imaging area

Laser power meter	Ophir	Starlite, p/n: 7Z01565	Used to measure the laser power