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Materials List for

High-Speed Ultraviolet Photoacoustic Microscopy for Histological Imaging with Virtual-Staining assisted by Deep Learning

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Materials

Name	Company	Catalog Number	Comments
Alcohol	Sigma Aldrich	PHR1373	Sample dehydration
Amplifier	Mini Circuit	ZFL-500LN-BNC+	Ultrasonic signal amplification
Controller	National Instruments	NI myRIO	System controller
Data acquisition card	Alazar Technologies	ATS9350	Ultrasonic signal collection
Deep-learning algorithm			For transfering the grayscale UV-PAM image to a virtual H&E-stained image; https://github.com/TABLAB-HKUST/Deep-PAM
Formalin	Sigma Aldrich	R04586	Sample fixation
H&E staining kit	Abcam	ab245880	Sample staining
Histo-Clear II	National Diagnostics	HS-202	Sample deparaffinization
Image acquisition program	National Instruments	LabVIEW	Lab-built program using LabVIEW; https://github.com/TABLAB-HKUST/LabVIEW-program-for-UV-PAM
Image processing algorithm	Mathworks	MATLAB	Lab-built algorithm using MATLAB; https://github.com/TABLAB-HKUST/ImageRec_GM-UVPAM
Kinematic platform mounts	Thorlabs	KM200B	Adjust the sample to be flat
Membrane	Glad	Cling wrap	Sandwiched in sample tank
Microscope objective lens	Thorlabs	LMU- 5X-NUV	Objective lens
Motorized stages	Physik Instrumente	L-509.10SD00	Scanning stages
One-dimensional galvanometer mirror	Thorlabs	GVS411	Fast scanning mirror
Oscilloscope	RIGOL Technologies	DS1102E	Ultrasonic signal readout
Phosphate-buffered saline	Sigma Aldrich	P3813	Sample washing
Pinhole	Edmund Optics	#59–257	Spatial filtering
Plano convex lens	Thorlabs	LA-4600-UV	Focusing lens
Plano convex lens	Thorlabs	LA-4663-UV	Collimating lens

Pulser/receiver	Imaginant	DPR300	Pulse echo amplifier
Q-switch diode-pumped solid-state laser	Bright Solutions	WEDGE HF 266 nm	266-nm laser
Ring-shaped ultrasonic transducer	University of Southern California		Ultrasonic signal detection
Sample holder	Lab-made		Hold the sample tank
Sample tank	Lab-made		Hold biological samples
Single-axis Z-translational stage	Thorlabs	PT1	Manual stage
Two-axis manual stage	Thorlabs	LX20	Manual stage
Water tank	Lab-made		Ultrasonic signal transmission
Xylene	Sigma Aldrich	XX0060	Sample clearing