

Materials List for:

Isotropic Light-Sheet Microscopy and Automated Cell Lineage Analyses to Catalogue *Caenorhabditis elegans* Embryogenesis with Subcellular Resolution

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URL: <https://www.jove.com/video/59533>

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Materials

Name	Company	Catalog Number	Comments
Steps 1-4			
Concavity slides	ThermoFisher Scientific	1519006	5-18mm diameter, 0.6-0.8mm deep, 1.2-1.5mm
Dissecting microscope with 10×–50× zoom range	Motic	SMZ-171	
<i>E. coli</i> (OP50)	Caenorhabditis Genetics Center (CGC)	OP50	
Glass coverslips, no. 1.5, 24 × 50 mm	VWR International	48393-241	
M9 Buffer			Stiernagle, T. Maintenance of <i>C. elegans</i> . <i>WormBook</i> . 1-11, doi:10.1895/wormbook.1.101.1, (2006).
Methyl cellulose	Sigma-Aldrich	H7509-25G	
Microcapillary pipette aspirator tube	Sigma-Aldrich	A5177	
Microcapillary pipettes, 0.4-mm i.d	Drummond Scientific	1-000-800	
Needle, no. 18G x 1 ½ (1.2mm x 40mm)	BD Precision Glide	305196	
NGM plates			prepared as described by Brenner (1974)
O-ring for imaging chamber	O-Rings West	M1.5X40	
Pasteur pipette	Corning/Sigma-Aldrich	CLS7095D5X	
Platinum wire, 0.5-mm diameter	Sigma-Aldrich	267201	
Poly-L-lysine	Sigma-Aldrich	P1524	
Stainless steel rectangular chamber (76.0 mm x 50.5 mm)	Applied Scientifics Instrumentations (ASI)	I2450	
Worm Eyelash Pick			Hart, A. C. Behavior. <i>WormBook</i> . (2006).
Worm Pick			Stiernagle, T. Maintenance of <i>C. elegans</i> . <i>WormBook</i> . 1-11, doi:10.1895/wormbook.1.101.1, (2006).

Name	Company	Catalog Number	Comments
Steps 5-6			
488 nm long-pass filter	Semrock	LP02-488 RU-2	
561-nm notch filter	Semrock	NF03-561E-25	
BLP02-561R-25, quantity 2	Semrock		561 nm EdgeBasic best-value long-pass edge filter
Control software for bottom camera	Jenoptik		ProgRes CapturePro
diSPIM assembly video	Applied Scientifics Instrumentations (ASI)		https://youtu.be/TAgbr6lTqw ; http://www.asiimaging.com
diSPIM alignment video	Applied Scientifics Instrumentations (ASI)		https://youtu.be/qnOrg30NNuE
diSPIM imaging PC	Intel		Intel Xeon CPU E5-2630 2.6GHz, 12 cores in total, 64 GB memory, Windows 7
FF01-525/45-25, quantity 2	Semrock		525/45 nm BrightLine single-band bandpass filter
FF555-DI03-25X36, quantity 2	Semrock		555 nm edge BrightLine single-edge dichroic beamsplitter
Imaging PC Graphics Card	NVIDIDA		NVIDIA GeForce GTX 1080 Ti graphics cards
Kumar <i>et al</i> diSPIM Setup	Applied Scientifics Instrumentations (ASI)		Instrument setup for this protocol is identical to Kumar <i>et al</i> 10'11 diSPIM, which makes use of 40x 0.8NA water immersion lenses for imaging. (See steps 5.1 and note)
Micro Manager	Micro-Manager		https://micro-manager.org/
<i>Modifications to Kumar et al diSPIM Setup (see below)</i>			
Optical table with isolators, 4 feet x 6 feet x 12 inches	TMC	784-651-02DR and 14-416-34	
Name	Company	Catalog Number	Comments
Steps 7-10			
Analysis PC	Intel		Intel Core i7-8700K CPU 3.70GHz, 6 cores in total, 64 GB memory, Windows 10
Analysis PC Graphics Card	NVIDIDA		NVIDIA GeForce GTX 1080 Ti graphics cards
Installation instructions	Software bundle		http://dispimlineage.wormguides.org/diSPIMlineaging_InstallationInstructions.htm
Software bundle	Software bundle		http://dispimlineage.wormguides.org