

Materials List for:

A Submerged Filter Paper Sandwich for Long-term *Ex Ovo* Time-lapse Imaging of Early Chick Embryos

Manuel Schmitz¹, Ben K. A. Nelemans^{*1}, Theodoor H. Smit²

¹Department of Orthopaedic Surgery, VU University Medical Center Amsterdam, MOVE Research Institute Amsterdam

²Department of Anatomy, Embryology & Physiology, Academic Medical Center Amsterdam

*These authors contributed equally

Correspondence to: Theodoor H. Smit at t.h.smit@amc.nl

URL: <https://www.jove.com/video/54636>

DOI: [doi:10.3791/54636](https://doi.org/10.3791/54636)

Materials

Name	Company	Catalog Number	Comments
Milli-Q Reference Water Purification System	Millipore	Z00QSV0WW	
Duran laboratory bottles, with caps, 1 L	Sigma-Aldrich/Duran	Z305200-10EA	
Name	Company	Catalog Number	Comments
Solution A			
NaCl	Merck Millipore	1064041000	
KCl	Merck Millipore	1049361000	
CaCl ₂ ·H ₂ O	Merck Millipore	1023821000	
MgCl ₂ ·6H ₂ O	Merck/Sigma-Aldrich	13152-1KG-D	
Name	Company	Catalog Number	Comments
Solution B			
Na ₂ HPO ₄ ·2H ₂ O	Merck	1065801000	
NaH ₂ PO ₄ ·2H ₂ O	Merck	1063420250	
Name	Company	Catalog Number	Comments
Whatman qualitative filter paper, Grade 595	Sigma-Aldrich	10311611	
Laser cutting machine MLS-90120-C130, CO ₂ -laser, 130 W, wavelength 10.6 μm	Micro Lasersystems		
Tork Extra Soft Facial Tissues	Tork	140280	
Latex gloves	Sigma-Aldrich	Z645613	
	EMDAMED	EMDA 300.131	
Transfer pipettes	Sigma-Aldrich	Z350613	
	VWR	WITG5.480.003	
Accu-jet pro Pipette Controller	BrandTech Scientific	26332	
Serological plastic pipettes, 25 ml	Sigma-Aldrich	CLS4251	
Plastic document sleeves			
Egg incubator - Incubator mod. Cip Cip 40	Fiem		
Fertilized chicken eggs (<i>Gallus gallus</i>)	Drost BV (Loosdrecht, NL)		
10 cm Tissue culture dishes	Sigma-Aldrich	P5731	
	Greiner Bio-one	664160	

6 cm Petri dishes	Sigma-Aldrich	P5481	
50 ml Centrifuge tubes, Greiner centrifuge tubes or Cellstar tubes	Sigma-Aldrich	T2318	
	greiner bio-one	227261	
Name	Company	Catalog Number	Comments
Stainless steel rings, custom-made			
Large rings, 30 mm outer diameter, 4 mm in height, 1.5 mm wall thickness			
Small rings, 20 mm outer diameter, 4 mm in height, 1.5 mm wall thickness, 6.5 mm gap in the ring			
Nail scissors			
Forceps, Dumont #5, Inox	Fine Science Tools , F.S.T.	11251-20	
Fine, really sharp scissors for cutting filter paper	VWR	21-102	
M3516 Sigma-Aldrich Mineral Oil	Sigma-Aldrich	CAS Number 8042-47-5	
Name	Company	Catalog Number	Comments
Agar bottoms for EC culture			
Agarose	Sigma-Aldrich	A9539 SIGMA	
NaCl	Sigma-Aldrich	S7653 SIGMA-ALDRICH	
Name	Company	Catalog Number	Comments
Microbead implantation			
Polybead Sampler Kit III (45 µm beads were used)	Polysciences, Inc.	16905-1	
Accupuncture needles: type J, No.02, 0.12x30 mm	SEIRIN	type J, No.02, 0.12x30mm	
PBS, pH 7.4	Thermo Fisher Scientific	10010023	
Name	Company	Catalog Number	Comments
Temperature controlled beaker			
RTD Temperature Sensor with M4 Threaded Housing RTD-850M	Omega	RTD-850M	
Hermetically Sealed RTD Sensors HSRTD-3-100-A-3M	Omega	HSRTD-3-100-A-1M	
Thermistor and RTD Extension Wire EXTT-3CU-26S-50	Omega	EXTT-3CU-26S-50	
3-Pin Mini Connectors for Thermocouples, 3-Wire RTD's and Thermistors MTP-U-M	Omega	MTP-U-M	
Kapton (Polyimide Film) Insulated Flexible Heaters KHLV-103/(10)-P	Omega	KHLV-103/(10)-P	
Temperature/Process Controller CNI16D24-C4EIT-DC	Omega	CNI16D24-C4EIT-DC	
Custom-made aluminium beaker, isolated with polyacetal (drawings see sheet 2)			
Name	Company	Catalog Number	Comments
Microscope setup			
Axio Zoom.V16 with ApoTome.2 ZEN	Carl Zeiss AG	495010-0009-000	

Objective PlanNeoFluar Z 1.0X/0.25 FWD 56 mm	Carl Zeiss AG	435281-9100-000	
Manual Rotary Control MARC	Carl Zeiss AG	435604-0000-000	
Transillumination top 450 mot	Carl Zeiss AG	435500-9000-000	
Motorized measuring stage S 150x100 mot; CAN (D)	Carl Zeiss AG	435465-9020-000	
Insert plate S, glass 237x157x3 mm (D)	Carl Zeiss AG	435465-9053-000	
Controller EMS 3	Carl Zeiss AG	435610-9010-000	
System Control Panel SYCOP 3	Carl Zeiss AG	435611-9010-000	
Hamamatsu ORCA Flash 4.0 camera	Hamamatsu	C11440-22CU	
Microscopy High-End Workstation Xeon Quad-Core multilingual	Carl Zeiss AG	490004-0025-000	
Language Package Windows 7 x64 Ultimate English US	Carl Zeiss AG	410373-0200-000	
LCD TFT Monitor HP ZR2440w 24"	Carl Zeiss AG	410350-2403-000	not available anymore
ZEN pro 2012 Hardware License key	Carl Zeiss AG	410135-1002-120	not available anymore
ZEN Software Driver Hamamatsu Cameras Hardware License Key	Carl Zeiss AG	410136-1045-110	
ZEN module Z Stack	Carl Zeiss AG	410136-0030-110	
ZEN Module Tiles/ Positions	Carl Zeiss AG	410136-1025-110	
ZEN Module Time Lapse	Carl Zeiss AG	410136-1031-110	
ZEN Module Experiment Designer	Carl Zeiss AG	410136-1022-110	
ZEN Desk 2012 Hardware License Key	Carl Zeiss AG	410135-1004-120	not available anymore