

Materials List for:

Microprobe Capillary Electrophoresis Mass Spectrometry for Single-Cell Metabolomics in Live Frog (*Xenopus laevis*) Embryos

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Materials

Name	Company	Catalog Number	Comments
Reagents for Embryo Culture Media			
Potassium chloride	Fisher Scientific	BP 366-1	
Magnesium sulfate	Fisher Scientific	M 65-3	
Calcium nitrate	Sigma Aldrich	C1396	
Cysteine	MP Biomedicals	101444	
Trizma hydrochloride	Sigma Aldrich	T3253	
Trizma base	Sigma Aldrich	T1503	
Sodium chloride	Fisher Scientific	5641-212	
Name	Company	Catalog Number	Comments
Metabolite Extraction Solvents			
Acetonitrile (LC-MS-grade)	Fisher Scientific	A955	
Methanol (LC-MS-grade)	Fisher Scientific	A456	
Water (LC-MS-grade)	Fisher Scientific	W6	
Name	Company	Catalog Number	Comments
Solvents and Standards for CE-ESI-MS			
Formic acid (LC-MS-grade)	Fisher Scientific	A11710X1-AMP	
Methanol (LC-MS-grade)	Fisher Scientific	A456-4	
Water (LC-MS-grade)	Fisher Scientific	W6	
Sodium chloride	Fisher Scientific	5641-212	
Acetylcholine chloride	Acros Organics	159170050	
Name	Company	Catalog Number	Comments
Microprobe Fabrication Setup			
Micropipette puller	Sutter Instrument Co.	P-1000	
Borosilicate capillaries	Sutter Instrument Co.	B100-50-10	
Fine sharp forceps: Dumont #5, Biologie/Dumoxel	Fine Science Tools (USA) Inc	11252-30	Corrosion resistant and autoclavable.
Name	Company	Catalog Number	Comments
Microprobe Sampling Setup			
Micromanipulator	Eppendorf, Hauppauge, NY	TransferMan 4r	
Stereomicroscope	Nikon	SMZ18	Should be vibrationally isolated.
Illuminator e.g. Goosenecks	Nikon	C-FLED2	

Microinjector	Warner Instrument, Handem, CT	PLI-100A	
Transfer pipettes (Plastic, disposable)	Fisher Scientific	13-711-7M	
Petri dish 60 mm and 80 mm	Fisher Scientific	S08184	
Glass Pasteur Pipets (Borosilicate, disposable)	Fisher Scientific	13-678-20A	
Centrifuge	Thermo Scientific	Sorvall Legend X1R	
Name	Company	Catalog Number	Comments
CE-ESI-MS Setup			
High voltage power supply	Spellman	CZE1000R	The HVPS may be controlled remotely using a low-voltage program generated by a personal computer. Caution: High voltage presents electrical shock hazard; all connective parts must be grounded or carefully shielded to prevent users from accidental exposure.
Syringe pumps (2)	Harvard Apparatus	704506	
Stereomicroscope	Amscope	SM-3BZZ	Stereomicroscope capable of 4.5× magnification, equipped with an illuminator to monitor the spraying mode of the CE-ESI interface.
XYZ translation stage	Thorlabs	PT3	
XYZ translation stage	Custom-built		This platform is capable of loading nanoliter-amounts of sample into the separation capillary via hydrodynamic injection and supplying the BGE for CE. Both interfaces described in this work were able to inject 6–10 nL of sample within 1 min into a 1 m separation capillary
Stainless steel sample vials	Custom-built		
Stainless steel BGE vial	Custom-built		
Fused silica capillary (40 µm/105 µm ID/OD; 100 cm)	Polymicro technologies	TSP040105	
Fused silica capillary (75 µm/360 µm ID/OD; 100 cm)	Polymicro technologies	TSP075375	
Stainless steel emitter with blunt tips (130/260 µm ID/OD)	Hamilton Co.	21031A	For better performance, laser-cleave and fine-polish the emitter tip.
Syringes (gas-tight): 500 - 1000 µL	Hamilton Co.	1750TTL	
Digital multimeter	Fluke	Fluke 117	
High-resolution Mass Spectrometer	Bruker Daltonics	Maxis Impact HD	High-resolution tandem mass spectrometer equipped with an atmospheric-pressure interface configured for ESI
Tuning mixture for mass spectrometer calibration	Agilent technologies	ESI-L G1969-85000	
Data Analysis ver. 4.3 software	Bruker Daltonics		
Name	Company	Catalog Number	Comments
Ancillary Equipment			
Vacuum concentrator capable of operation at 4–10°C	Labconco	7310022	

Analytical microbalance (XSE105DU)	Fisher Scientific	01911005	
Freezer (-20 °C)	Fisher Scientific	97-926-1	
Freezer (-80 °C)	Fisher Scientific	88300ASP	
Refrigerated Incubator	Fisher Scientific	11475126	
Vortex-mixer	Benchmark	BS-VM-1000	