

A Step-by-Step Guide to Mosquito Electroantennography

 Chloé Lahondère¹
¹Department of Biochemistry; The Fralin Life Science Institute; The Global Change Center; Department of Entomology and the Center for Emerging Zoonotic and Arthropod-Borne Pathogens, Virginia Polytechnic Institute and State University

Corresponding Author

 Chloé Lahondère
 lahonder@vt.edu

Citation

 Lahondère, C. A Step-by-Step Guide to Mosquito Electroantennography. *J. Vis. Exp.* (), e62042, doi:10.3791/62042 (2021).

Date Published

March 10, 2021

DOI

10.3791/62042

URL

jove.com/video/62042

Materials

Name	Company	Catalog Number	Comments
Air table Clean Bench	TMC	https://www.techmfg.com/products/labtables/cleanbench63series/accessories	Noise reducer
Analog-to-digital board	National Instruments	BNC-2090A	
Benchtop Flowbuddy Complete	Genesee Scientific	59-122BC	To anesthese mosquitoes
Borosilicate glass capillary	Sutter Instrument	B100-78-10	To make the recording and references capillaries
Chemicals	Sigma Aldrich	Benzaldehyde: 418099-100 mL; Butyric acid: B103500-100mL; 1-Hexanol: 471402-100mL; Mineral oil: M8410-1L	Chemicals used for the experiments presented here
CO2	Airgas or Praxair	N/A	To anesthese mosquitoes
Cold Light Source	Volpi	NCL-150	
Disposable syringes	BD	1 mL (309628) / 3 mL (309657)	
Electrode cables	World Precision Instruments	5371	
Electrode gel salt free	Parkerlabs	12-08-Spectra-360	
Faraday cage	TMC	https://www.techmfg.com/products/electric-and-magnetic-field-cancellation/faradaycages	Noise reducer
Flowmeters	Bel-art	65 mm (H40406-0010) / 150 mm (H40407-0075)	One of each
GCMS vials and caps	Thermo-fisher scientific	2-SVWKA8-CPK	To prepare odorant dilutions
Glass syringes (Fortuna)	Sigma Aldrich	Z314307	For odor delivery to the EAG prep
Humbug	Quest Scientific	http://www.quest-sci.com/	Noise reducer
2 mm Jack Holder, Narrow, 90 deg., With Wire	A-M Systems	675748	Electrode holder
Magnetic bases	Kanetec	MB-FX	x 2
MATLAB + Toolboxes	Mathworks	https://www.mathworks.com/products/matlab.html	For delivering the pulses
Medical air	Airgas or Praxair	N/A	For main airline
Microscope	Nikkon	SMZ-800N	
Micromanipulators Three-Axis Coarse/Fine Compact Micromanipulator	Narishige	MHW-3	x 2

Microelectrode amplifier with headstage	A-M Systems	Model 1800	
Mosquito rearing supplies	Bioquip	https://www.bioquip.com/Search/WebCatalog.asp	
Needles	BD	25G (305127) / 21G (305165)	
Pasteur pipettes	Fisher Scientific	13-678-6A	For odor delivery to the EAG prep
PTFE Tubing of different diameters	Mc Master Carr	N/A	To connect solenoid valve, flowmeter, airline ect.
30V/5A DC Power Supply	Dr. Meter	PS-305DM	
R version 3.5.1	R project	https://www.r-project.org/	For data analyses
Relay for solenoid valve	N/A	Custom made	
Silver wire 0.01"	A-M Systems	782500	
Solenoid valve (3-way)	The Lee Company	LHDA0533115H	
WinEDR software	Strathclyde Electrophysiology Software	WinEDR V3.9.1	For EAG recording
Whatman paper	Cole Parmer	UX-06648-03	To load chemical in glass syringe / Pasteur pipette