

Materials List for

Electrophysiological Methods for Measuring Photopigment Levels in *Drosophila* Photoreceptors

Rita Gutorov¹, Ben Katz¹, Baruch Minke¹

¹Department of Medical Neurobiology, Faculty of Medicine and the Edmond and Lily Safra Center for Brain Sciences (ELSC), Hebrew University

Corresponding Author

Baruch Minke
baruch.minke@mail.huji.ac.il

Citation

Gutorov, R., Katz, B., Minke, B. Electrophysiological Methods for Measuring Photopigment Levels in *Drosophila* Photoreceptors. *J. Vis. Exp.* (184), e63514, doi:10.3791/63514 (2022).

Date Published

June 2, 2022

DOI

10.3791/63514

URL

jove.com/video/63514

Materials

Name	Company	Catalog Number	Comments
1 mL syringe with elongated tip			Figure 6M
1 rough tweezers		Dumont #5, Standard	0.1 mm x 0.06 mm, length 110 mm, Inox (Figure 6H)
2 condenser lenses			
A/D converter	Molecular Device	Digidata 1200	Possible replacement: any digidata from molecular devices (e.g 1440A) - Figure 7C
Amplifier	Almost perfect electronics		Possible replacement: Warner instruments- IE251A or IE-210 (comes with headstage)- Figure 7D
Anti-vibration Table	Newport	VW-3036-OPT-01	Figure 7H
Capillaries	Harvard Apparatus	Borosilicate glass capillaries	1 mm x 0.58 mm (Figure 6O)
Clampex	Molecular Device		Software
CO ₂ tank			
Cold light source	Schott	KL1500 LCD	Figure 6C
Delicate wipers	Kimtech		Kimwipes (Figure 6K)
Electrode holder			Suitable for capillary O.D. 1 mm (Figure 6N, Figure 7N, and Figure 7P)
Faraday cage	Home made		Electromagnetic noise shielding and black front curtain (Figure 7K)
Filter (Color)	Schott	OG590, Edge filter	Figure 7S
Filter (Color)	Schott	BP450/40 nm	Figure 7S
Filter (Color)	Blazers	550 nm	Figure 7S
Filter (Color) for cold light source	Schott	RG630	Figure 6C
Filter (Heat)	Schott	KG3	Figure 7S
Filters (Neutral density filter)	Chroma	6,5,4,3,2,1,0.5,0.3	Figure 7S
Flash Lamp system	Honeywell		Figure 7U
Fly sleeper system with injector	Inject + matic		Figure 6A-B
Lamp power supply	PTI	LPS-220	Figure 7W
Light detector	Home made		Phototransistor (Figure 7O)

Light guide			3 mm diameter, 1.3 m long (Figure 7L,M)
Light source			High-pressure ozone-free 75 W Xenon lamp (operating on 50 W), possible replacement: Cairn research- OptoLED (Figure 7R)
Low temperature melting wax	Home made		Composed of mixture of beeswax ($T_m \approx 62$ °C) and paraffin at ~3:1 to reach a melting temperature of ~55–56 °C (Figure 6J)
Magnetic stand for flies	Home made		Figure 6I and Figure 7Q
Microelectrode preamplifier system with head-stage	Almost perfect electronics		Impedance tester (Figure 7G)
Micromanipulator (mechanical coarse)	Tritech Research, Narishige	M-2	
Micromanipulator (mechanical fine)	Leitz Microsystems	Leitz Mechanical Micromanipulator	Figure 7F
pCLAMP	Molecular Device		Software
Petri dish			60 mm
Pulse generator	AMPI	Master 8	Figure 7A
Redux cream for electrocardiography	Parker Laboratories	Redux Electrolyte Crème	
Shutter driver	Uniblitz, Vincent Associates	VCM-D1 Single Channel Uni-stable	Figure 7V
Shutter system	Uniblitz, Vincent Associates	LS2 2 mm Uni-stable Shutters	Figure 7V
Silver Wire	Warner Instruments		0.25–1 mm diameter, needs to be chloridized
Soldering iron composed of a platinum-iridium filament			0.25 mm diameter (Figure 6F)
Stereoscopic zoom Microscope	Nikon	SMZ-2B	Figure 6D
Stereoscopic zoom Microscope	Wild	Wild M5	With 6, 12, 25 and 50 magnification settings (Figure 7E)
Syringe filters	Millex		22 μ m PVDF filter
Vertical pipette puller	Sutter/ Narishige	Model P-97/PP-830	Use either vertical or horizontal puller, as preferred (Figure 6L)
Wax filament heater	Home made		See figure S1 (Figure 6E-G)
Xenon Flash Lamp system	Dr. Rapp OptoElectronic	JML-C2	Figure 7X