

Materials List for:

# Light Spot Assay: A Method to Investigate *Drosophila* Phototactic Behavior

1

URL: <https://www.jove.com/video/20144>

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## Materials

| Name                                            | Company           | Catalog Number | Comments                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|-------------------------------------------------|-------------------|----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 850 nm $\pm$ 3 nm infrared-light-generating LED | Thorlabs, USA     | PM100A         | Compatible Sensors: Photodiode and Thermal<br>Optical Power Range: 100 pW to 200 W<br>Available Sensor Wavelength Range: 185 nm-25 $\mu$ m Display<br>Refresh Rate: 20 Hz<br>Bandwidth: DC-100 kHz<br>Photodiode Sensor Range: 50 nA-5 mA<br>Thermopile Sensor Range: 1 mV-1 V                                                                                                                                                                                                                                                                                                            |
| AC to DC converter                              | Thorlabs, USA     | S120VC         | Aperture Size: $\varnothing$ 9.5 mm<br>Wavelength Range: 200-1100 nm<br>Power Range: 50 nW-50 mW<br>Detector Type: Si Photodiode (UV Extended)<br>Linearity: $\pm$ 0.5%<br>Measurement Uncertainty: $\pm$ 3% (440-980 nm), $\pm$ 5% (280-439 nm), $\pm$ 7% (200-279 nm, 981-1100 nm)                                                                                                                                                                                                                                                                                                      |
| band-pass filter                                | Thorlabs, USA     | DC2100         | LED Current Range: 0-2 A<br>LED Current Resolution: 1 mA<br>LED Current Accuracy: $\pm$ 20 mA<br>LED Forward Voltage: 24 V<br>Modulation Frequency Range: 0-100 kHz Sine Wave<br>Modulation: Arbitrary                                                                                                                                                                                                                                                                                                                                                                                    |
| Collimated LED blue light                       | ELP, China        | USBFHD01M      | Max. Resolution: 1920x1080 F6.0 mm<br>Sensor: 1/2.7" CMOS OV2710                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Compact power meter console                     | Ocean Optics, USA | USB2000+(RAD)  | Dimensions: 89.1 mm x 63.3 mm x 34.4 mm<br>Weight: 190 g<br>Detector: Sony ILX511B (2048-element linear silicon CCD array)<br>Wavelength range: 200-850 nm<br>Integration time: 1 ms – 65 seconds (20 seconds typical)<br>Dynamic range: $8.5 \times 10^7$ (system); 1300:1 for a single acquisition<br>Signal-to-noise ratio: 250:1 (full signal)<br>Dark noise: 50 RMS counts<br>Grating: 2 (250 – 800 nm)<br>Slit: SLIT-50<br>Detector collection lens: L2<br>Order-sorting: OFLV-200-850<br>Optical resolution: $\sim$ 2.0 nm FWHM<br>Stray light: <0.05% at 600 nm; <0.10% at 435 nm |

|                                  |                     |            |                                                                                                                                                                                                                                                                                                                                                                                                                                |
|----------------------------------|---------------------|------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                  |                     |            | Fiber optic connector: SMA 905 to 0.22 numerical aperture single-strand fiber                                                                                                                                                                                                                                                                                                                                                  |
| High-Power LED Driver            | Minhongshi, China   | MHS-48XY   | Working voltage: DC12V<br>Central wavelength: 850nm                                                                                                                                                                                                                                                                                                                                                                            |
| high-resolution web camera       | Thorlabs, USA       | MWWHL4     | Color: Warm White<br>Correlated Color Temperature: 3000 K<br>Test Current for Typical LED Power: 1000 mA<br>Maximum Current (CW): 1000 mA<br>Bandwidth (FWHM): N/A<br>Electrical Power: 3000 mW<br>Viewing Angle (Full Angle): 120°<br>Emitter Size: 1 mm x 1 mm<br>Typical Lifetime:>50 000 h<br>Operating Temperature (Non-Condensing): 0 to 40 °C<br>Storage Temperature: -40 to 70 °C<br>Risk Groupa: RG1 – Low Risk Group |
| LED Warm White                   | Mega-9, China       | BP850/22K  | Ø25.4(+0~-0.1) mm<br>Bandwidth: 22±3nm<br>Peak transmittance:80%<br>Central wavelength: 850nm±3nm                                                                                                                                                                                                                                                                                                                              |
| Spectrometer                     | Noel Danjou         | Amcap9.22  | AMCap is a still and video capture application with advanced preview and recording features. It is a Desktop application designed for computers running Windows 7 SP1 or later. Most Video-for-Windowsand DirectShow-compatible devices are supported whether they are cheap webcams or advanced video capture cards.                                                                                                          |
| Standard photodiode power sensor | Super Dragon, China | YGY-122000 | Input: AC 100-240V~50/60Hz 0.8A<br>Output: DC 12V 2A                                                                                                                                                                                                                                                                                                                                                                           |
| Thermal power sensor             | Thorlabs, USA       | M470L3-C1  | Color: Blue<br>Nominal Wavelengtha: 470 nm<br>Bandwidth (FWHM): 25 nm<br>Maximum Current (CW): 1000 mA<br>Forward Voltage: 3.2 V<br>Electrical Power (Max): 3200 mW<br>Emitter Size: 1 mm x 1 mm<br>Typical Lifetime: 100 000 h<br>Operating Temperature (Non-Condensing): 0 to 40 °C<br>Storage Temperature: -40 to 70 °C<br>Risk Groupb: RG2 – Moderate Risk Group                                                           |
| Thermal power sensor             | Thorlabs, USA       | S401C      | Wavelength range: 190 nm-20 µm<br>Optical power range:10 µW-1 W(3 Wb)<br>Input aperture size: Ø10 mm<br>Active detector area: 10 mm x 10 mm<br>Max optical power density: 500 W/cm2 (Avg.)<br>Linearity: ±0.5%                                                                                                                                                                                                                 |