T-maze phototaxis with LEDs

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Abstract

We use this protocol to test if flies have preferance for darkness or light (phototactic or non-phototactic response).

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Guidelines

We are using 3 day-old-flies (half of the experimental flies have their wings clipped, and half don't).

Protocol

Step 1.
Clip wings of half of the flies.

NOTES
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We are using 3 day-old-flies (half of the experimental flies have their wings clipped, and half don't).

Step 2.
Let flies recover for 1 day (at 25°C, faster recovery).

DURATION
24:00:00

Step 3.
Put the flies in the T-maze (entrance tube) and let them adapt themselves to the machine and the darkness for 10 minutes.

DURATION
00:10:00

Step 4.
Move the flies into the elevator (the mobile part of the T-maze), and let them stay there for around 1 minute.

DURATION
00:01:00

Step 5.
Move the flies to the bottom of T-maze (taking down the elevator).
Now they will have to make a decision between two different tubes: one is completely dark, and the other one has a LED in the bottom/is entirely transparent.
We are going to use different LEDs:

White LEDs
Yellow LEDs
Green LEDs

Step 6.
Wait for 30 seconds for the flies to make their decision, and lock them in the tubes that they have chosen (taking up the elevator).

DURATION
00:00:30

Step 7.
Anesthetize the flies with CO2 and count them under the magnifying glass.