

**Negative geotaxis “Bang” assay**  
**Per D. Guarnieri / A. Corl, 2003**

**Flies needed**

1. Prepare several vials of flies (10 age-matched males/vial) for each genotype you are testing. Store these at 25° C until ready to test.

**Equipment needed**

1. Use two clear glass non-graduated cylinders (Pyrex #2962, opening width = ~2.7 cm; height of cylinder shaft = 23 cm) and prepare as follows:
  - a. Cut off two 0.5 cm thick discs from a buzz plug (Fisher #AS-275). Insert one disc into each cylinder and push them down to the bottom so that they lie flat.
  - b. Use several layers of masking tape to cover and fill in the spout-lip of the cylinder so that flies cannot escape.
  - c. Place two thin (~0.3 cm) strips of masking tape around each cylinder: One circles 10.5 cm from the top of the buzz plug; the other circles 21 cm from the top of the buzz plug. [Fig. 1]
2. Plastic petri plate lids (50 mm diameter) to cover the cylinders
3. Mouse pad to bang cylinders on
4. Funnel to transfer flies
5. Timer

**Bang assay**

1. Remove 2 vials of flies from the incubator. Using the funnel, load each set of 10 flies into separate cylinders. After loading, quickly remove the funnel and cover the top of the cylinder with a Petri plate to prevent flies from escaping.
2. Bang flies down to the bottom of the first cylinder. Start your timer counting up.
3. At 30 seconds, bang the flies down to the bottom of the second cylinder.
4. At 1-min., 2-min., 3-min., 4-min., and 5-min. time points, count how many flies are above the top tape strip or below the bottom tape strip of the 1<sup>st</sup> cylinder. Then bang the flies back down again.
5. At 1.5-min., 2.5-min., 3.5-min., 4.5-min., and 5.5-min. time points, do the same with the flies in the 2<sup>nd</sup> cylinder.
6. After the 5.5-minute reading, dump out the flies.
7. Repeat the assay with a new set of flies.

Fig. 1

