

***Drosophila* Embryo Collection**

1. Prepare grape juice/agarose plates and yeast mixture for food.
2. Set up an embryo collection cage: use a tripour beaker with small holes in the bottom of it, put flies inside, and cover it with a grape juice plate that has yeast on it. Secure the plate with a rubber band. Give the flies overnight to acclimate in the cage before beginning your collection.
3. Determine the collection and aging times you need to get embryos at the stage(s) you desire. The collection time will be the range of time you will give the flies to lay the eggs within the time frame of the stages that you are collecting. Use this chart to figure the times:

Stage	t₁	t₂	Stage	t₁	t₂	Stage	t₁	t₂
S₁	t ₀ =0	0:25	S₇	3:00	3:10	S₁₃	9:20	10:20
S₂	0:25	1:05	S₈	3:10	3:40	S₁₄	10:20	11:20
S₃	1:05	1:20	S₉	3:40	4:20	S₁₅	11:20	13:00
S₄	1:20	2:10	S₁₀	4:20	5:20	S₁₆	13:00	16:00
S₅	2:10	2:50	S₁₁	5:20	7:20	S₁₇	16:00	Hatch
S₆	2:50	3:00	S₁₂	7:20	9:20			

Notes on temperature and time:

At 18°C embryos develop slower, roughly following the formula:

$$(\text{time @ } 18^{\circ}\text{C}) = 1.82 * (\text{time at } 25^{\circ}\text{C})$$

At 29°C embryos develop quicker, roughly following the formula:

$$(\text{time @ } 29^{\circ}\text{C}) = 0.86 * (\text{time at } 25^{\circ}\text{C})$$

4. Start collecting. Ideal reproductive conditions are 25°C in a dark, quiet place. Incubate the cage plate side down for the collection time.
5. When the laying time is complete, put a new plate on the cage and fix the embryos from the plate you just removed. If you want to continue to age the embryos, you can do this at 25°C or 18°C; incubating at 18°C doubles the amount each developmental stage takes.