

Lifespan Assay

Fanglian He

Carnegie Institution at Stanford

[Abstract] This assay is used to address aging-related questions in worms.

Materials and Reagents

1. [NGM medium](#)
2. 5-fluorodeoxyuridine (FUDR) (Sigma-Aldrich, catalog number: F0503)

Equipment

1. Incubators
2. NGM agar plates (35 x 10 mm)
3. 60 x 15 and 35 x 10 mm petri dish (VWR)

Procedure

- A. [Synchronize worms by either egg prep or egg lay.](#)
- B. Animals are grown on [NGM plates](#) until they reach the L4 stage (about 36 h at 25 °C).
- C. Make small NGM agar plates (35 x 10 mm) containing 5-fluorodeoxyuridine (FUDR; 0.1 mg ml⁻¹) to prevent growth of progeny. Make plates fresh and store in the dark at 4 °C up to one week.
- D. Seed a FUDR-containing plate fresh. Spot overnight OP50-1 culture (50 µl of 20x concentrated culture) onto FUDR plates one day before transferring worms. Keep seeded plates at RT overnight.
- E. Transfer 30 L4 to each FUDR plate and 4-5 plates for each strain.
- F. Grow at desired temperature (15, 20, or 25 °C). Animals are scored every 1 to 3 days subsequently and scored as dead when they no longer respond to gentle prodding with a platinum wire. Remove the dead worms after counting. Worms found dehydrated on plate walls are not counted as dead worms.
- G. Lifespan is defined as the day animals are at the L4 larval stage (time t = 0) until the day they are scored as dead.

References

1. Wolkow, C. A., Kimura, K. D., Lee, M. S. and Ruvkun, G. (2000). [Regulation of *C. elegans* life-span by insulinlike signaling in the nervous system.](#) *Science* 290(5489): 147-150.
2. Apfeld, J. and Kenyon, C. (1999). [Regulation of lifespan by sensory perception in *Caenorhabditis elegans*.](#) *Nature* 402(6763): 804-809.
3. Mitchell, D. H., Stiles, J. W., Santelli, J. and Sanadi, D. R. (1979). [Synchronous growth and aging of *Caenorhabditis elegans* in the presence of fluorodeoxyuridine.](#) *J Gerontol* 34(1): 28-36.