

Poster

Reversion of late progeny in mutants with reduced fertility in *Caenorhabditis elegans*.



Carlos García Rodríguez, Manuel J. Muñoz Ruiz, Ana M. Brokate-Llanos

Departamento de Biología Molecular e Ingeniería Bioquímica, Universidad Pablo de Olavide, 41013 Sevilla

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ABSTRACT

The detailed study of fertility is an eminent objective due to its involvement in the human population. Interestingly, research in relation to dietary restriction in different species have related this circumstance to an increase in longevity and delay in fertility. The evolutionarily conserved insulin / insulin-like growth factor-1 pathway is directly related to this phenomenon. *Caenorhabditis elegans* is an animal model widely used for the study of, for which, and in relation to this pathway, the transcription factor DAF-16 (homologous to human FOXO) plays an especially important role. Mutants for the insulin pathway, which in some extent mimic a dietary restriction situation, have also shown to have reduced fertility. Based on this, previous studies corroborated that suppression by interfering RNA (iRNA) of DAF-16 in mutants with impaired fertility reverses this phenotype.

The phenomenon of late progeny is that individuals appear to have offspring later in life than wild-type ones, not being described solidly in the literature; that is why the purposes of this project consist of its evaluation and the verification of a possible reversion. Two thermosensitive mutants of *C. elegans* have been selected for study, for which a reduction in fertility was observed: mutant *daf-2* (e1370), receptor tyrosine kinase, and mutant *age-1* (mg305), subunit of the PI3 Kinase. There is not much data regarding this second mutant.

First, it has been necessary to establish a parameter to discern between what will be considered late progeny or not. To carry it out, its laying behavior has been observed after being incubated at different temperatures in its fertile period. The obtained results corroborate that the late progeny is a real and measurable phenomenon, reflecting a significant difference of the mutants with respect to the wild ones at a temperature of 22.5°C; having established the fifth day of the fertile period as a margin to differentiate its existence. Subsequently, experiments are planned to observe a possible reversal of the condition through the administration of 4-5 iRNA for specific genes that have been previously identified through genetic screening, and that seem to intervene in some way in this route by suppressing the reduced fertility phenotype. If this is the case, these genes would be described as being involved in the phenomenon of late progeny, establishing a mechanical correlation between reduction of fertility and the phenomenon of late progeny.

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