

Characterization of HLH-29's reproductive functions in *Caenorhabditis elegans*

Caenorhabditis elegans (*C. elegans*) proliferates in its environment due to its reproductive success. Each member of the species is able to efficiently self-fertilize and lay offsprings during the adult stage. The organ responsible for reproduction is the somatic gonad, which includes the gonad arms, the spermatheca, the uterus, and the vulva. Fertilization of oocytes is carried out by the spermatheca. Previous works have demonstrated that HLH-29 transcription factor expresses in the spermatheca. The transcription factor interacts with other genes and proteins, allowing communication between the spermatheca and the gonad arm to fertilize. Mutants missing the *hlh-29* gene have ovulation defects. This suggests that HLH-29 is important in the animal's reproductive ability by ensuring normal spermatheca function, and loss of the transcription factor hinders the animal's ability to effectively reproduce. To better characterize reproductive roles of HLH-29 in the spermatheca, my project attempts to rescue these mutants by introducing a foreign transgenic HLH-29::CFP reporter gene that expresses only in the spermatheca. The transgenic gene is expected to return the reproductive capabilities of the animal back to normal. Here, I report on my initial characterization of the spermatheca and somatic gonad phenotypes of transgenic animals.

Keywords: somatic gonad, spermatheca, transcription factor, mutant rescue, transgenic, reporter gene.