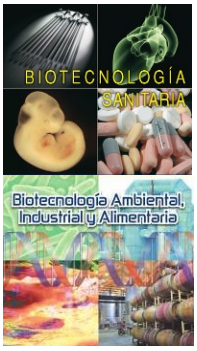
Poster

Sulfated steroid hormones and epigenetic regulation during aging in C. elegans



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ABSTRACT

Using the nematode C. elegans as a model [1], previous lab work demostrated that increased levels of sulfated steroid hormones (SHs) extend lifespan and ameliorate age-associated neurodegenerative disorders [2]. This was achieved by knocking out or inhibiting sul-2, the enzyme involved in the removal of the sulfate moiety of sulfated SHs. Currently, one of the main aims of the laboratory is to understand the molecular mechanisms triggered by sulfated SHs responsible for this health improvement. Based on unpublished RNAseq data comparing wild-type and sul-2 C. elegans, we found that some of the transcriptional consequences observed in sul-2 mutants resembled those found in hpl-2 and his-24 mutants. hpl-2 and his-24 encode proteins important for heterochromatin formation and compaction [3], suggesting the involvement of epigenetic deregulation in health benefits mediated by increased levels of sulfated SHs. Furthermore, many of the more differentially expressed genes in sul-2 mutants localized close to each other, forming clusters, providing further evidence of a possible role of epigenetic regulators in mediating the sulfated SHs response. Using genetic and chemical approaches, the objective of this master project was to elucidate the putative roles of hpl-2 and his-24 in lifespan extension and neurodegenerative protection induced by sulfated SHs.

Methods: generation mutants, PCR, lifespan assays

Results: We are still generating preleliminary results. At the moment we are generating mutants, but at the same time, we are making lifespan assays with those mutants. When we have the mutants with the same background we are going to make another lifespan assay to see if they increased the lifespan by themself and we are going to make a mutant with hpl-2 and his-24 and neurodegenerative models and see the role of those mutants.

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