Poster

Analysis of the role of AMPK activity as the possible cause of the longevity phenotype of the sul-2 mutants

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Keywords: Aging, elegans, AMPK, sul-2

ABSTRACT

Aging is a biological process caused by cell impairment that increase susceptibility to diseases and death. Some of these diseases, such as Alzheimer or Parkinson, are originated by loss of proteostasis and the generation of protein aggregates. Sulfated steroid hormones are of great importance in the maintenance of proteostasis, and by inhibiting the steroid sulfatase enzyme, it is possible to generate a reservoir of sulfated hormones that prevents cells from generating protein aggregates. Loss of function of the steroid sulfatase sul-2 gene has been proved to increase longevity and to ameliorate protein aggregates diseases in Caenorhabditis elegans. To explain the metabolic pathways involved in this process, two RNAseq have been performed with sul-2 mutants and the resulting data were uploaded to WormExp, where it was found that sul-2 mutants share expression patterns with AMPK activation mutants (Pérez-Jiménez et al. (2021)). AMPK activation mutants are also long-lived (Burkewizt et al. 2016), which suggests that AMPK activity could cause the sul-2 increased-longevity phenotype. To improve the understanding of this subject, we have backcrossed three times AMPK deficient hermaphrodite aak2-(ok524) with N2 males obtaining a deficient mutant with a known background. In the following experiments we will try to confirm the similar expression pattern of AMPK and sul-2 mutants and then will be evaluated the role of AMPK in sul-2 mutant longevity and proteostasis. In addition, we are evaluating other phenotypes of the sul-2 mutants, in particular stress resistance.

REFERENCES

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