Validation of new strains to study the progression of Amyotrophic Lateral Sclerosis using *Caenorhabditis elegans*

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INTRODUCTION: Amyotrophic Lateral Sclerosis (ALS) is a fatal neurodegenerative disorder characterized by the selective loss of motor neurons in the motor cortex, the brainstem, the spinal cord and the presence of neuroinflammation. Most cases of ALS are sporadic, but it is speculated that 10% are familial. Among those, the major gene involved is sod-1, which codifies superoxide dismutase 1. The mutant gene carries a CAG repeats, which results in protein aggregation of polyglutamine (PolyQ). *Caenorhabditis elegans* (*C. elegans*) is an emerging experimental model to evaluate neurotoxicology and aging and it has been an important tool for the characterization of many neurodegenerative disorders, including ALS. **OBJECTIVE:** Identify the progress of the disease signs using *C. elegans* as model. **MATERIAL AND METHODS:** The model used *C. elegans* strains HA2619, HA2622, HA2425, HA2426 worms, which were handled and maintained at 20°C on *Escherichia coli* OP50/NGM (nematode growth medium) plates. Synchronous L1 populations were used for the lifespan assay. The alive worms were transferred to new plates each day until their deaths in lifespan. For the paralysis assay the worms were scored as paralyzed if they moved their noses but failed to move their bodies when their noses were tapped with a platinum worm picker. The experiments were performed with 20 worms per plate in triplicate. For statistical analysis all values are presented as the mean±SEM. Was performed using ANOVA using GraphPad Prism6. **DISCUSSION AND RESULTS**: The lifespan assay did not shown significant difference between the strains. Because the paralysis is the hallmark of ALS we analyzed its progress. The paralysis assay shown difference between the strains after 6 days of adulthood. **CONCLUSION:** Considering there are no drugs that effectively slow or halt neuronal loss in ALS patients, enlightening about the progress of ALS is important to preview the starts of the paralysis.

Keywords: Neurodegeneration, paralysis, nematode.

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