

Title

Neuron–glia communication during mitochondrial stress in *Caenorhabditis elegans*

Goal: To study how mitochondrial stress in neurons influences neighbouring glial cells and how these interactions affect neuronal stress responses and nervous system diseases.

Objectives:

- Characterise mitochondrial stress responses in neurons and glia using fluorescent reporters.
- Analyse the directionality of stress signalling between neurons and glial cells.
- Explore how neuronal mitochondrial stress may influence neuronal proteostasis.

Methods:

- Generation of transgenic *C. elegans* strains using molecular biology techniques.
- Fluorescence microscopy to visualize neuronal and glial stress induction.
- Behavioral assays to assess nervous system function.

Student profile:

Interest in molecular biology, microscopy, and neuroscience. No prior experience required.

Research line

Our research investigates how mitochondrial dysfunction in the nervous system influences organismal physiology. Using *Caenorhabditis elegans*, we study how neurons and glial cells communicate under mitochondrial stress and how these interactions shape systemic stress responses and ageing. We are also interested in understanding how these mechanisms may influence proteostasis and vulnerability in models of neurodegenerative disease.

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