Hypothalamic Mechanisms of High-Calorie Intervention in Amyotrophic Lateral Sclerosis
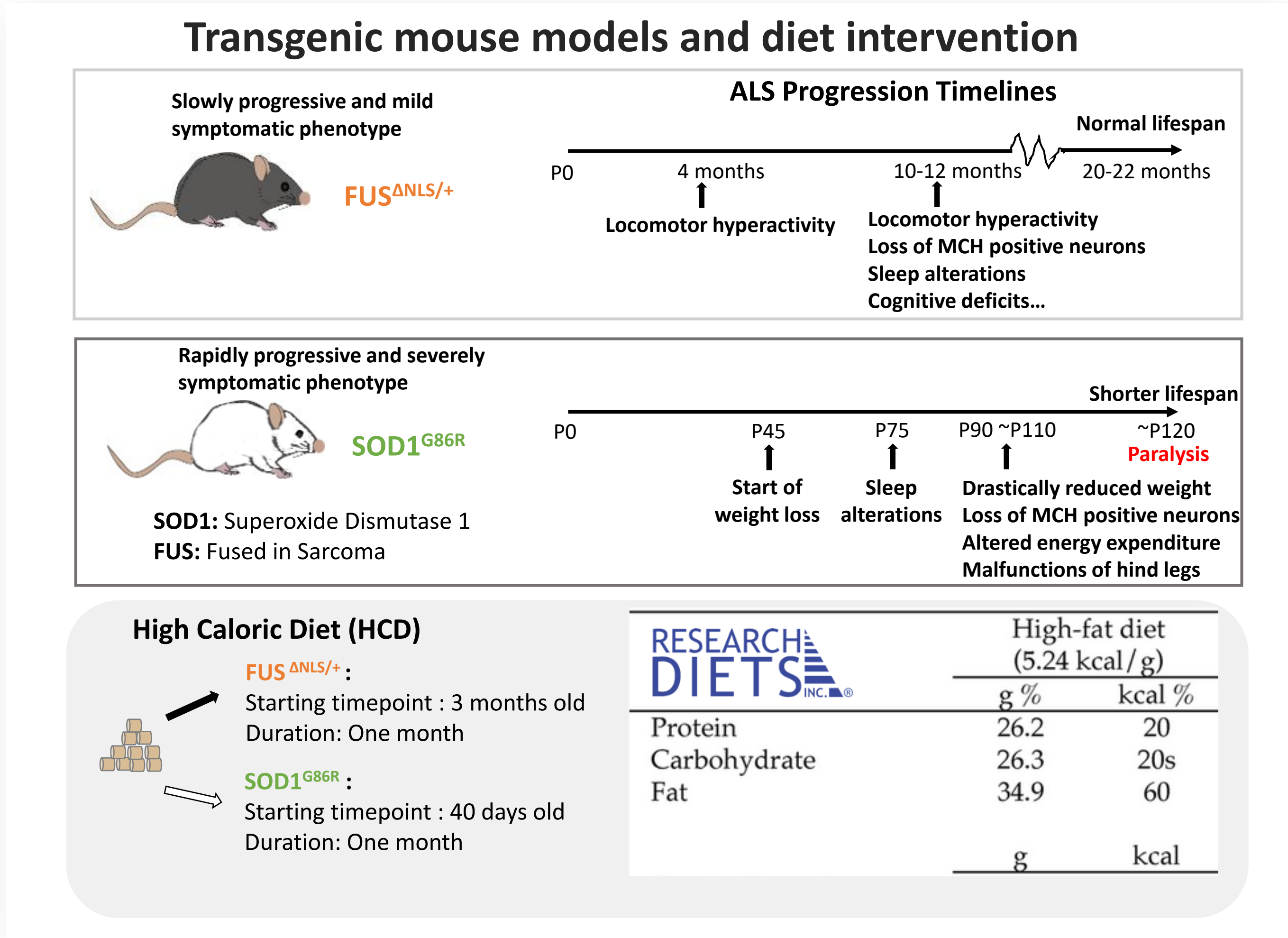
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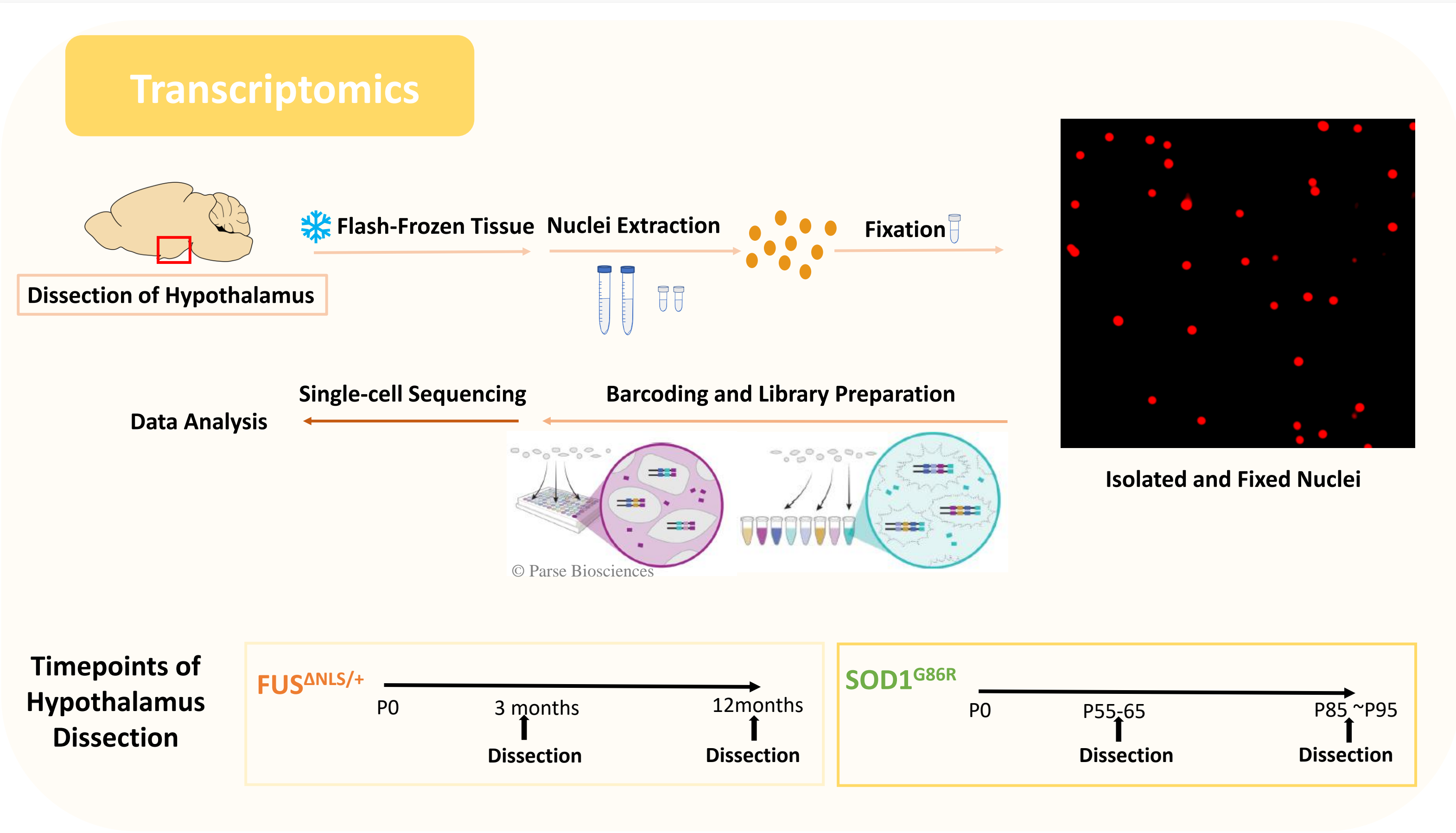
Introduction: Amyotrophic lateral sclerosis **(ALS)**, a severe neurodegenerative disease, with on average 2 to 5 years lifespan after the onset of the first motor symptoms, remains incurable. In addition to motor symptoms, significant **weight loss** is also observed in ALS patients and ALS mouse models, linked to **altered energy expenditure** and **dysregulated hypothalamic neuropeptides**. Some studies showed that **high- calorie intervention** was possible to delay the progress or prolong the survival of ALS. However, the underlying mechanisms are largely unknown and need to be investigated. In this project, we are trying to reveal hypothalamic mechanisms of high-calorie intervention in ALS by combining three methods including **transcriptomics, metabolic measurement and electroencephalogram**, in order to provide more clues for potential therapeutic strategies.
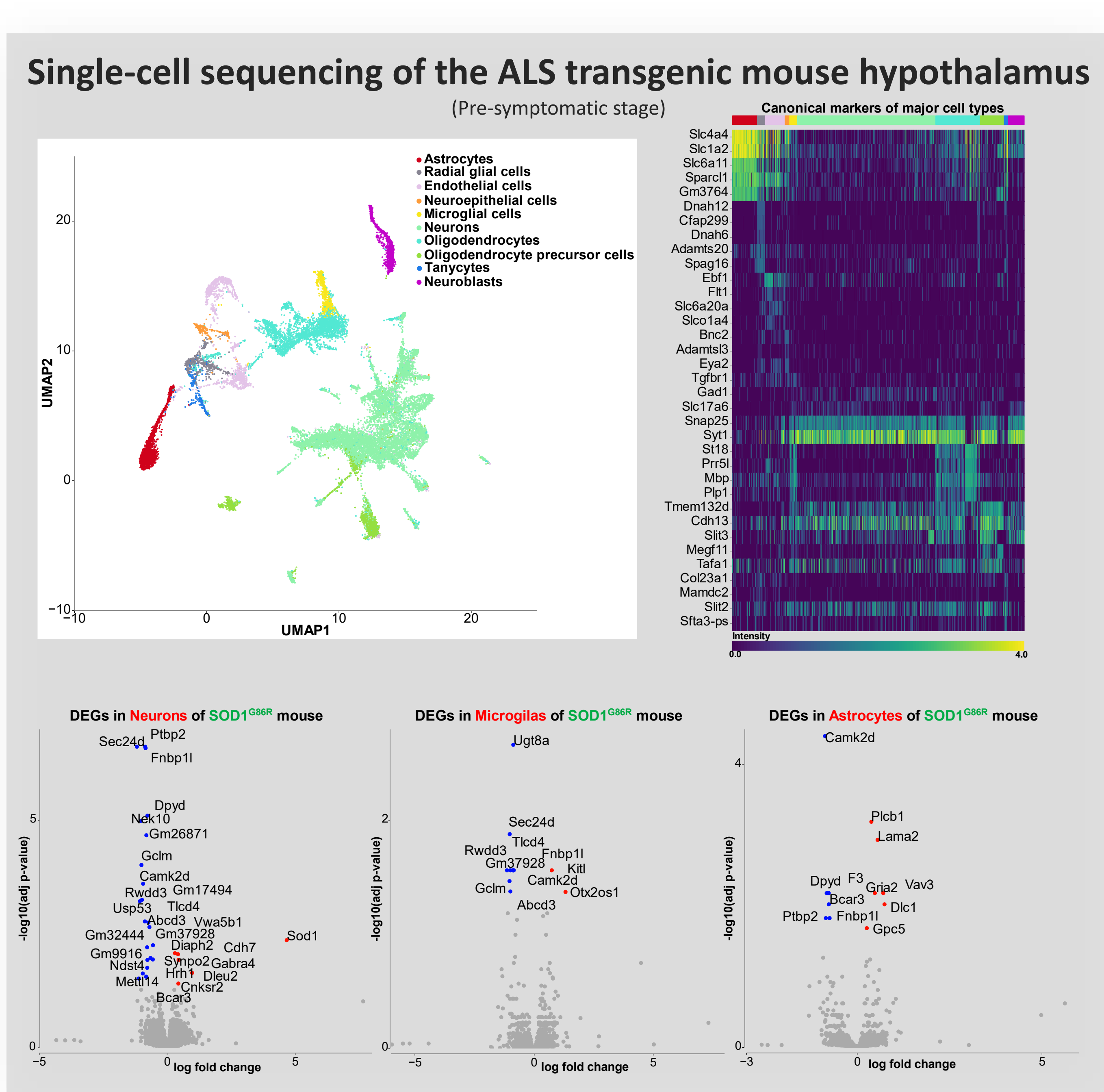
ALS MODELS

Transgenic mouse models and diet intervention

METHODS

Transcriptomics

CURRENT PROGRESS

Single-cell sequencing of the ALS transgenic mouse hypothalamus (Pre-symptomatic stage)

Metabolic Measurement (MM) and Electroencephalogram(EEG)