



scRNA-seq Study on Effect of Calorie Restricted Diets on White Matter Degeneration in Rhesus Monkey Brains

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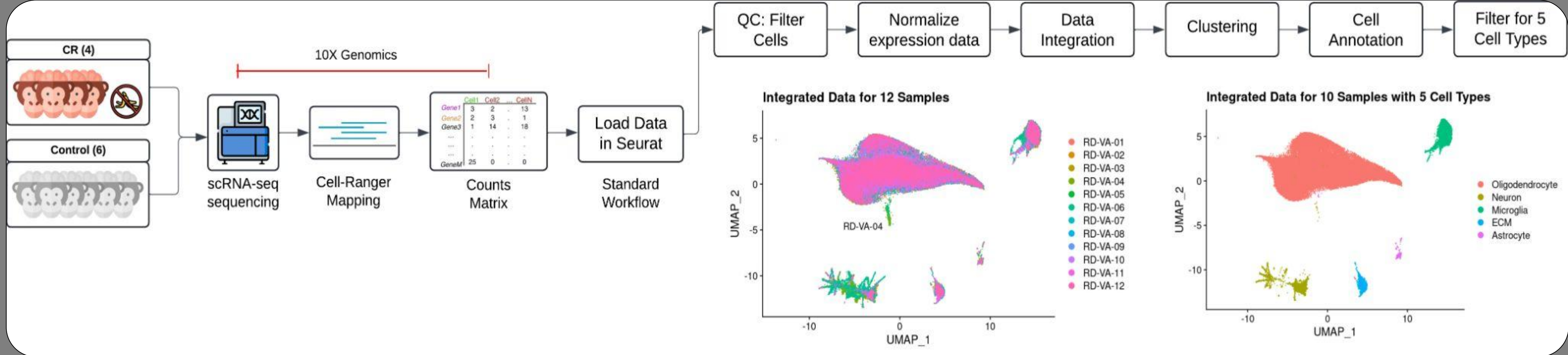
Objective

Calorie Restricted (CR) diets are known to **increase life span** since they are hypothesized to reduce oxidative stress and inflammation. The exact pathways and gene interactions have **not been studied** in **non-human primates**, so the goal of the project is to identify these key components that play a role in **delaying age-related white matter degeneration in Rhesus Monkeys**.

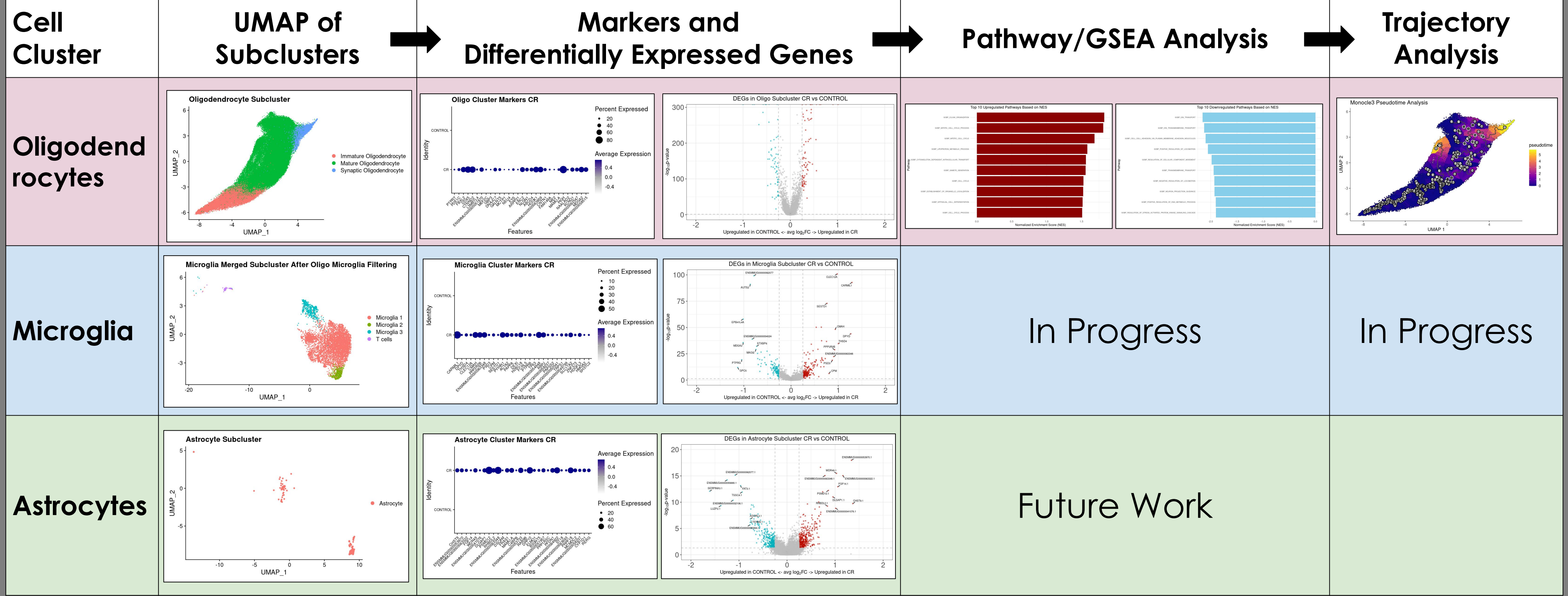
Introduction

- 10 **scRNA-seq** samples were sequenced, with **4 CR** and **6 CONTROL** samples.
- **S100b calcium-binding cytoplasmic protein**: neurological conditions like atrophy, neurofibrillary tangles and plaques.
- Protein expressed in **5 major cell types**: Oligodendrocytes, Astrocytes, Neurons, Microglia and Extracellular Matrix (ECM).
- Analysis was conducted in each cluster to identify factors in CR diets that may reduce degeneration.

Methodology



Results



Future Work

- Pathway and trajectory analysis for Microglia and Astrocyte clusters.
- Exploring Neuron and ECM clusters using the same workflow.
- Cell chat analysis for each cluster.

Conclusion

Key genes and pathways have been identified within Oligodendrocyte, Microglia, and Astrocyte clusters that **may contribute to delaying** white matter degeneration in Rhesus monkey brains under calorie restricted diets compared to regular diets.

Acknowledgements

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