

# Deuterated polyunsaturated fatty acids blunt neuroinflammation-associated cognitive dysfunction

• **Beatriz Wagner<sup>1</sup>**, Mariana Chauvet<sup>1</sup>, Sergio T Ferreira<sup>1,2</sup>, Alinny Isaac<sup>1</sup>, Mychael V Lourenco<sup>1</sup>.

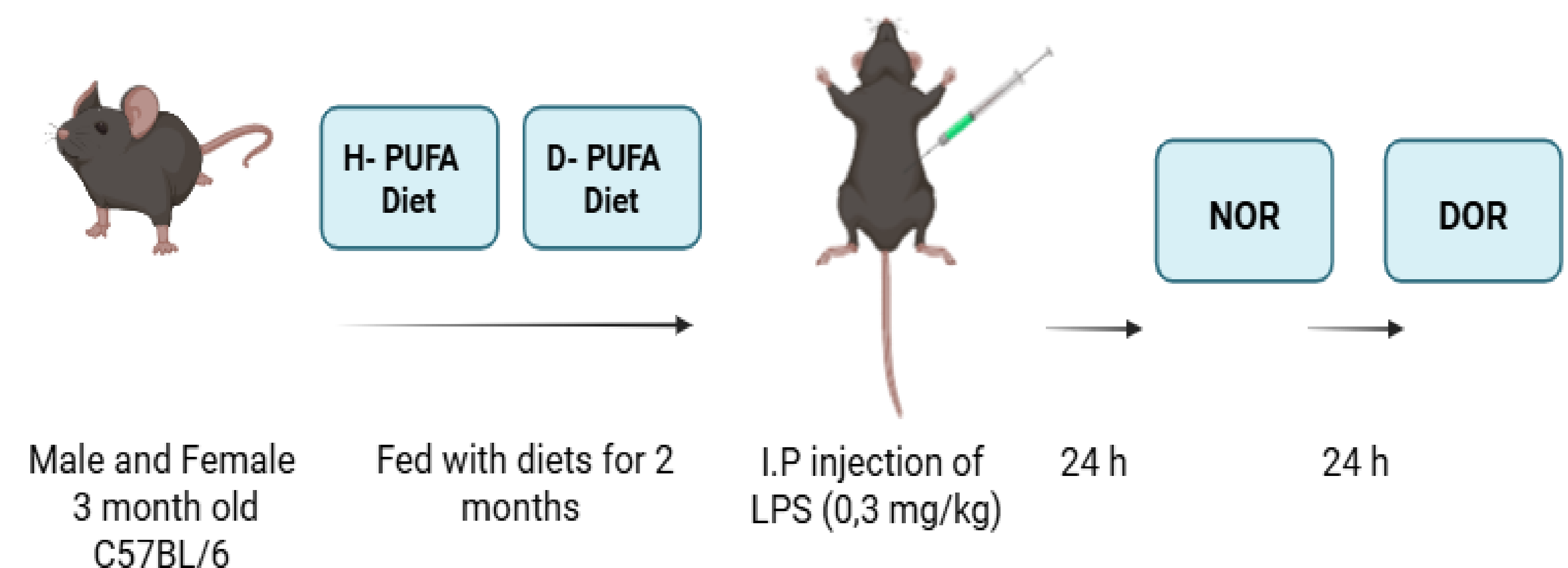
• (1) Federal University of Rio de Janeiro, Rio de Janeiro, Brazil. (2) D'Or Institute for Research and Education, Rio de Janeiro, Brazil.

A diet enriched with deuterated polyunsaturated fatty acids (D-PUFAs) may protect against neuroinflammation-induced cognitive decline, suggesting a promising nutritional strategy for preventing or mitigating neurodegenerative diseases, such as Alzheimer's disease.

## Introduction

Neuroinflammation, oxidative stress and lipid peroxidation comprise key events in neurodegenerative diseases, such as Alzheimer's disease, and are associated with neuronal damage, synaptic loss and cognitive decline. Recent studies have demonstrated that deuterated polyunsaturated fatty acids (D-PUFA) are able to favor resolvins pathways (e.g. lipoxins) in detriment of the prostaglandin pathway, and therefore promote anti-inflammatory effects. Our group has shown that lipoxin A4 protects against cognitive decline in animal models and is reduced in the liquor of patients with dementia. Here we investigate whether a diet enriched with D-PUFAs is neuroprotective against neuroinflammation induced by LPS.

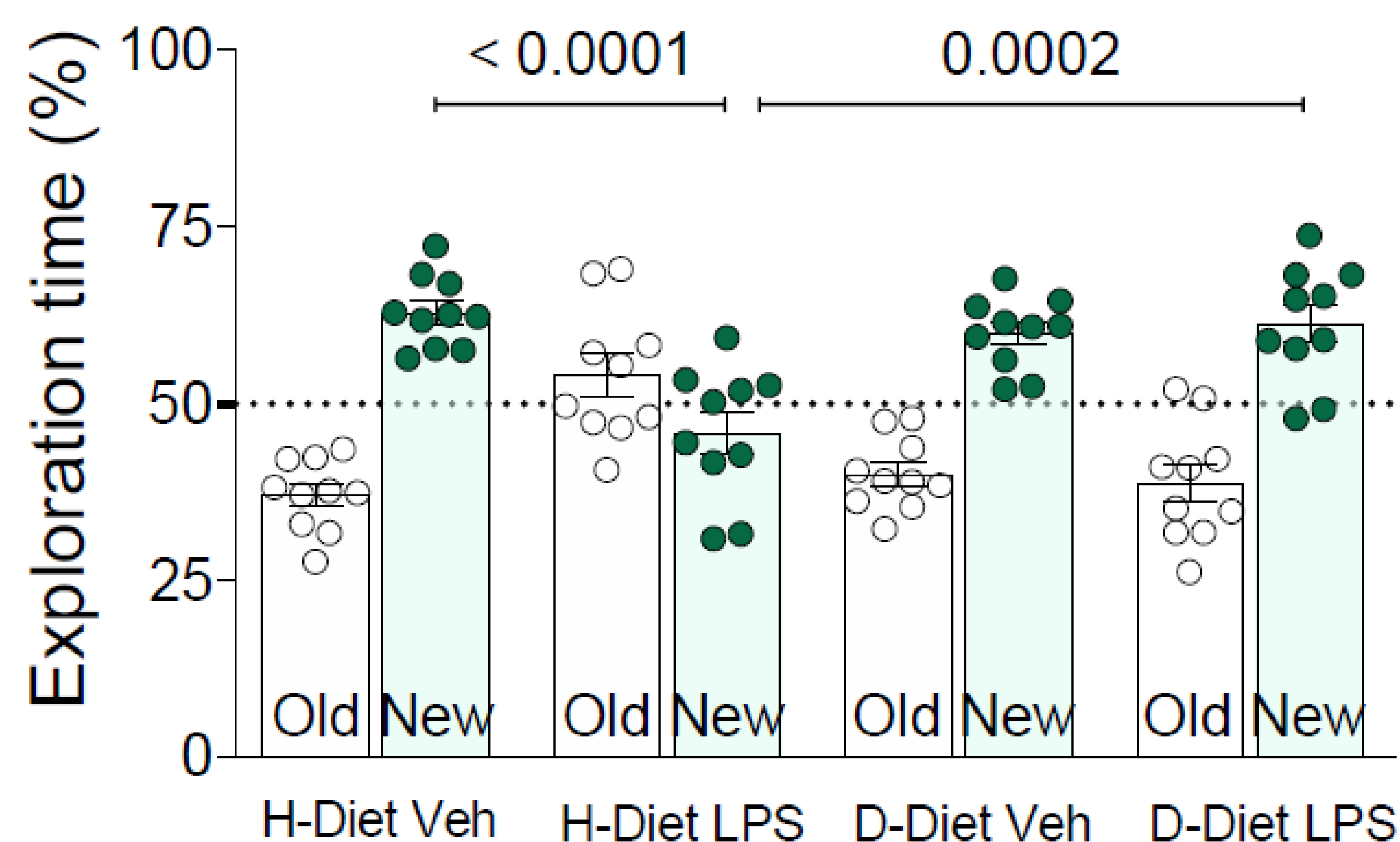
## Methods



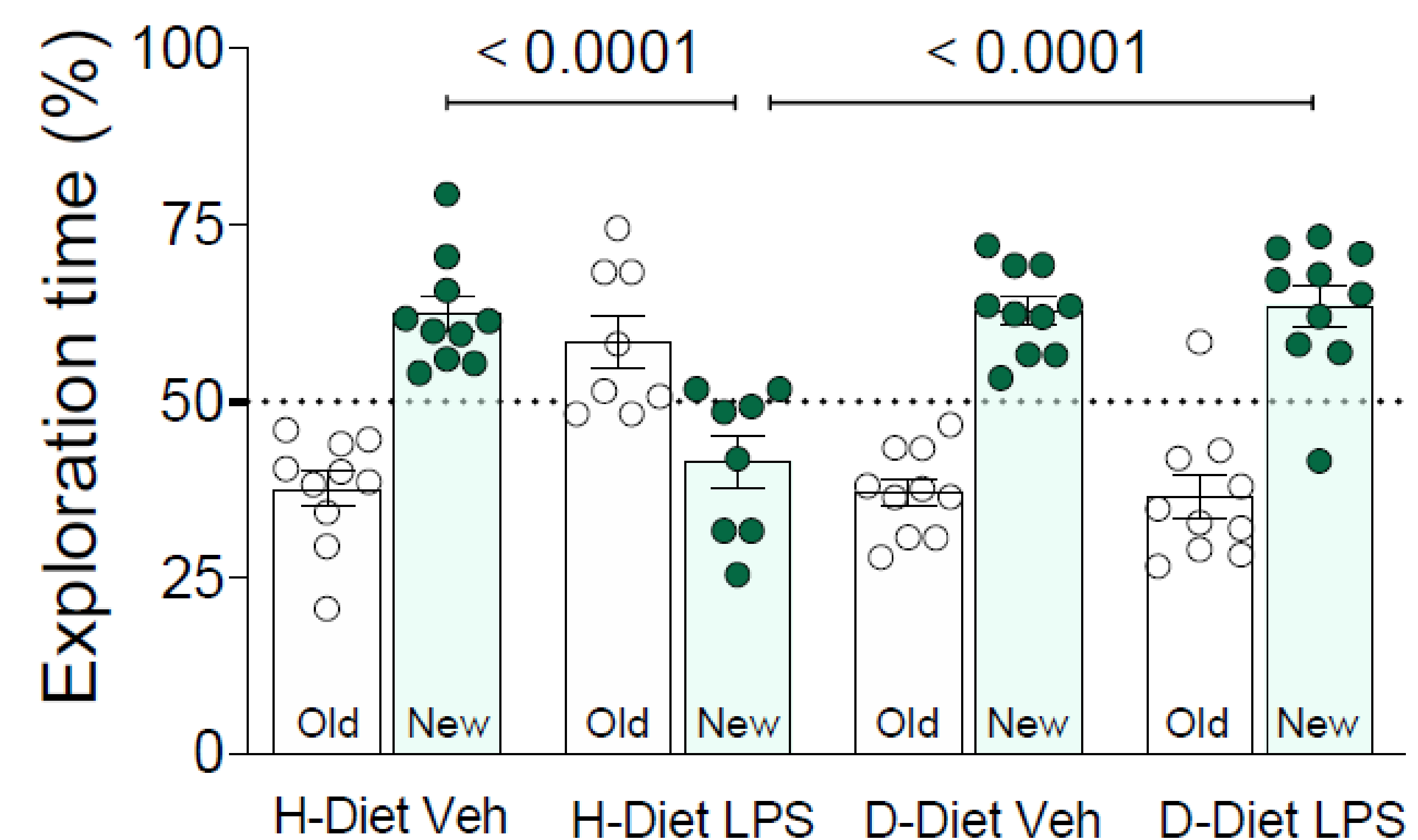
## Results

Our results demonstrated that, whereas animals fed with control diet that received LPS presented deficits in NOR and DOR test, animals fed with D-PUFA diet that received LPS did not present memory impairment.

### Novel Object Recognition (NOR)



### Displaced Object Recognition (DOR)



## Conclusions

Our findings suggest that D-PUFA diet might be an interesting nutritional approach to mitigate neuroinflammation and cognitive decline.

## Contact and Funding

Email: [beatriz.wagner@bioqmed.ufrj.br](mailto:beatriz.wagner@bioqmed.ufrj.br) Twitter/instagram: @wagbeatriz/bia\_wagner