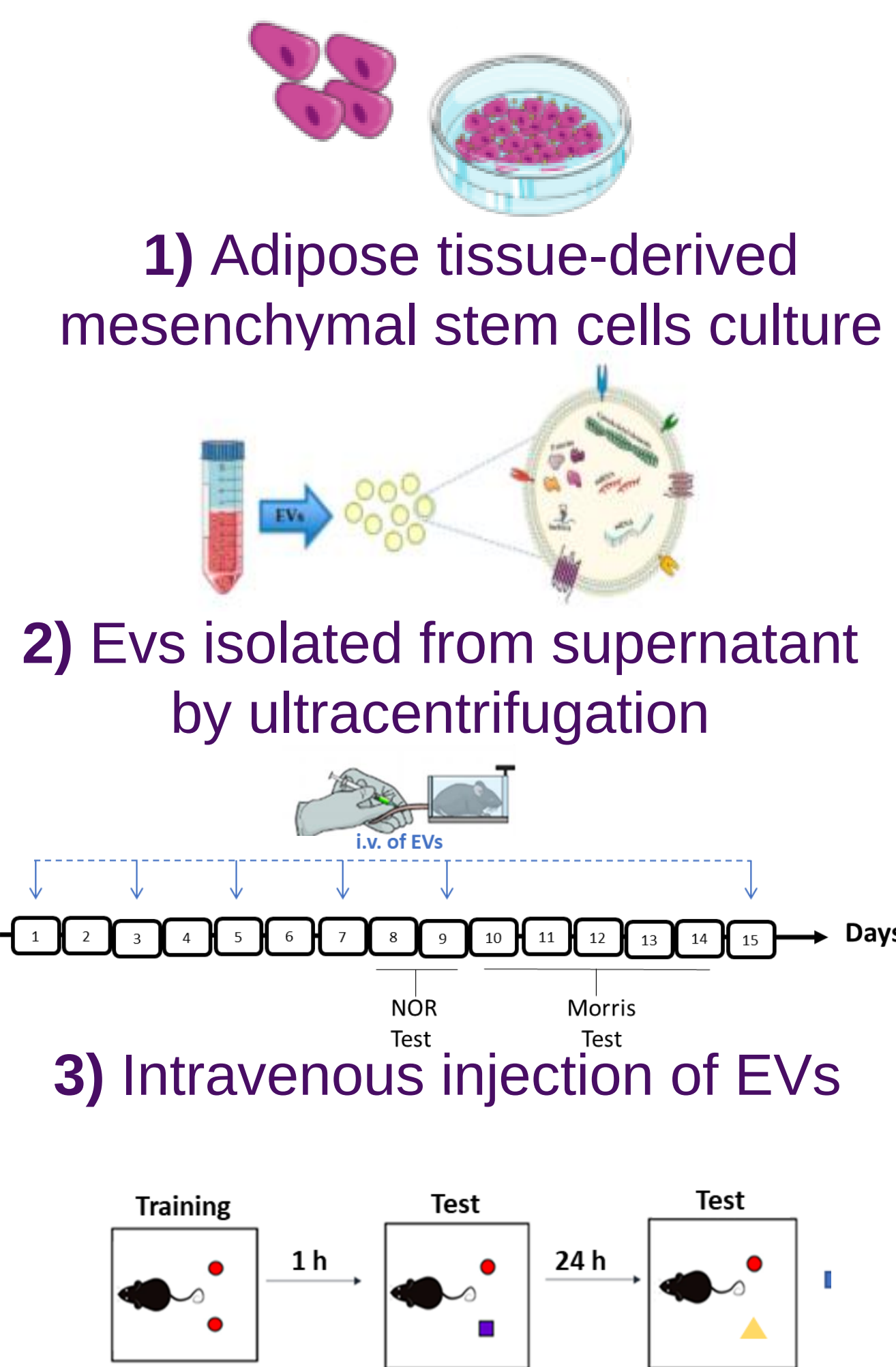
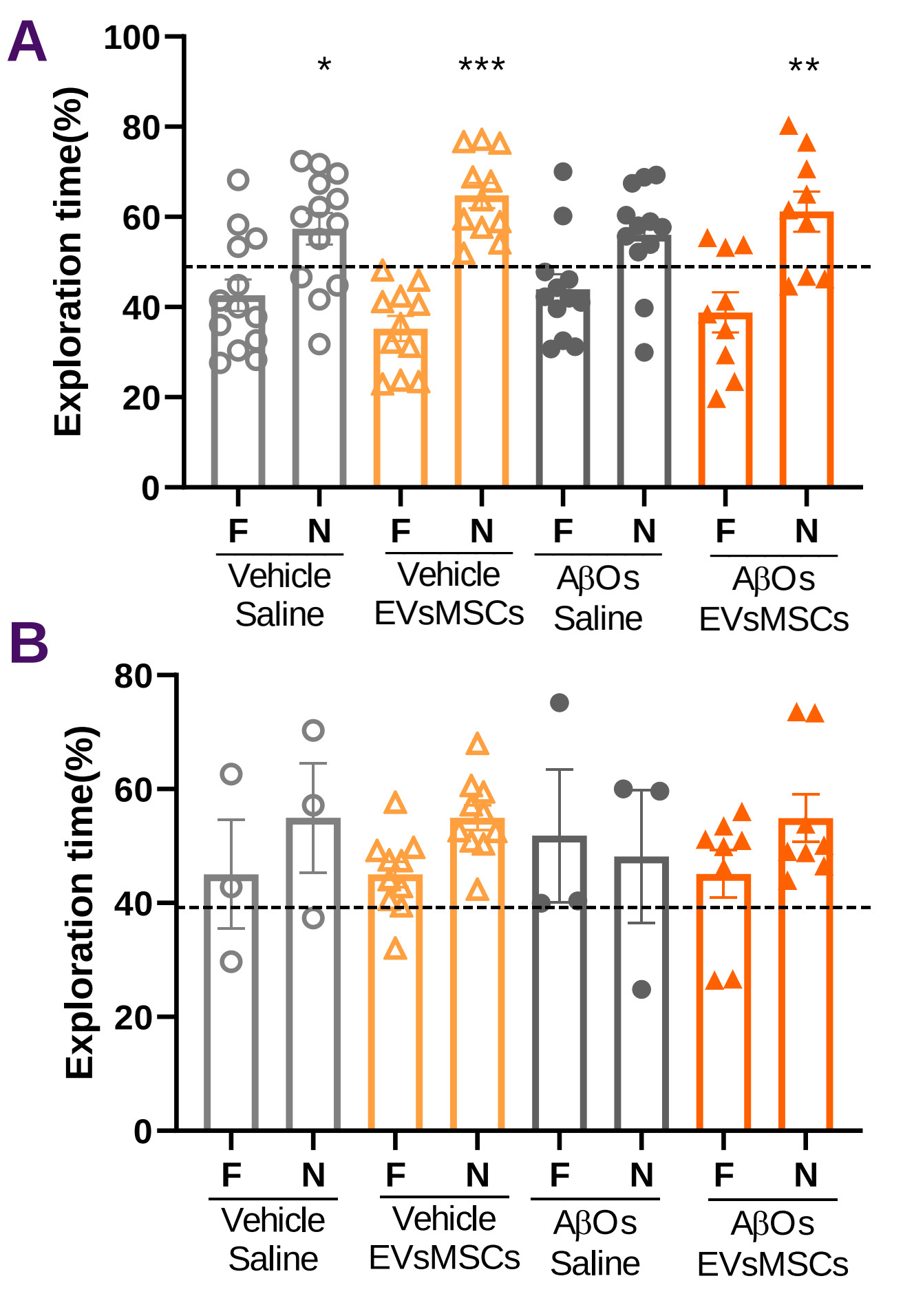
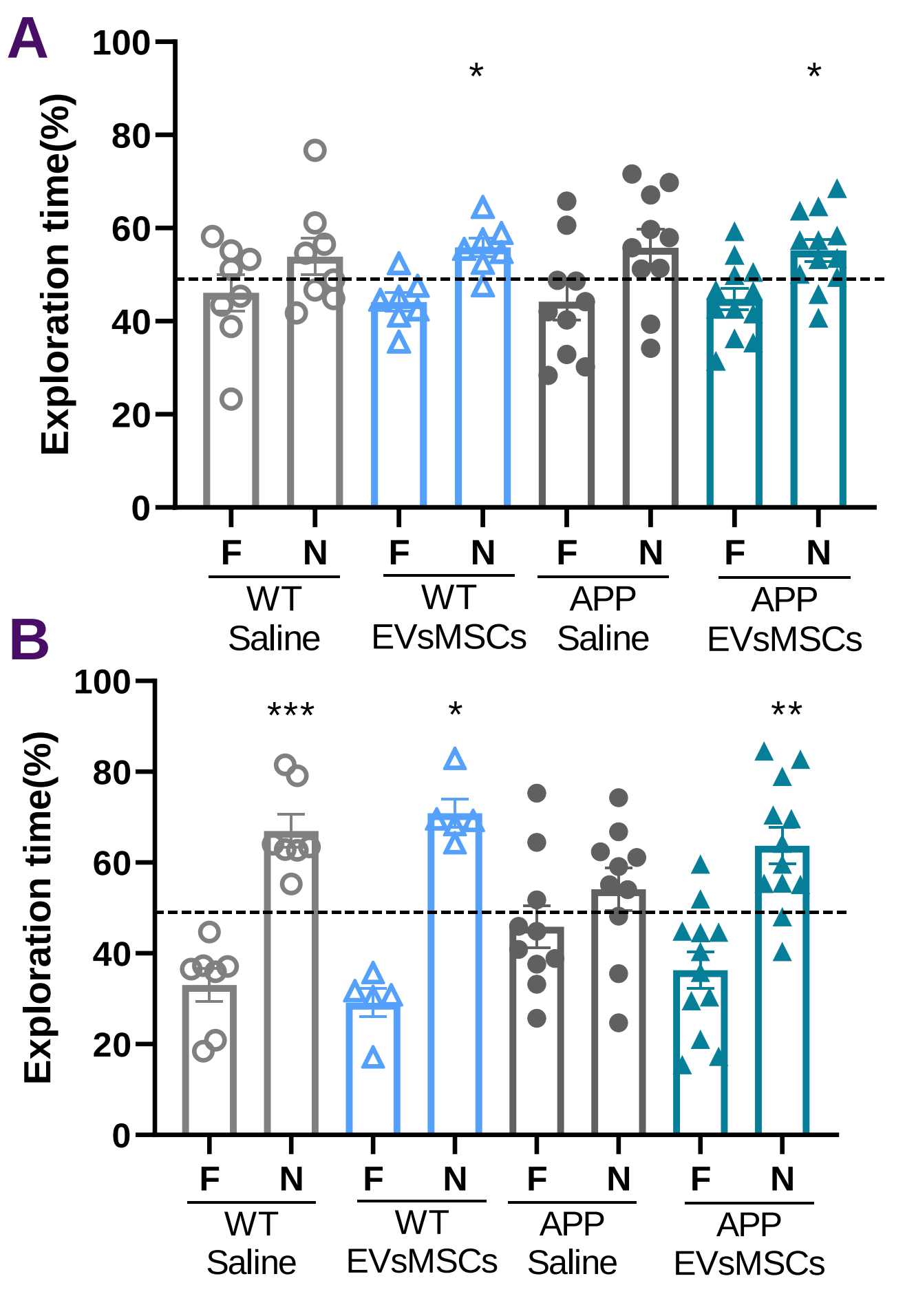


Neuroprotective Effects Of Extracellular Vesicles From Human Adipose-derived Mesenchymal Stem Cells In Alzheimer’s Disease Models

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Intravenous adMSC-derived extracellular vesicles improve memory in two Alzheimer's disease mouse models, supporting EVs as a promising therapeutic strategy.

INTRODUCTION	METHODS	RESULTS	RESULTS	CONCLUSIONS
- Alzheimer’s disease (AD) is the most common cause of dementia worldwide. - Current treatments offer limited efficacy and do not halt disease progression. - Extracellular vesicles (EVs) from mesenchymal stem cells (MSCs) can deliver therapeutic molecules safely. - EV-based therapies avoid challenges of cell transplantation, such as immune rejection. - EVs derived from adipose tissue MSCs (adMSC-EVs) show promising neuroprotective effects. - We investigated the therapeutic potential of adMSC-EVs in preclinical AD models.	 1) Adipose tissue-derived mesenchymal stem cells culture 2) Evs isolated from supernatant by ultracentrifugation 3) Intravenous injection of EVs 4) Behavioral tests: Novel Object Recognition (NOR) test	 Figure 1 Male C57BL/6 mice injected with AβOs and treated with adMSCs-EVs exhibited improved short-term memory. (A) Short-term memory performance in the NOR task. (B) Long-term memory performance in the NOR test. One sample t test, compared with 50%. *p < 0.03; ***p < 0.0003.	 Figure 2 Male APP/PS1 mice treated with adMSCs-EVs exhibited improved short and long-term memory. (A) Short-term memory performance in the NOR task. (B) Long-term memory performance in the NOR test. One sample t test, compared with 50%. *p < 0.04; **p < 0.05; ***p<0.03.	Both Aβ oligomer-injected and APP/PS1 transgenic AD mouse models displayed significant memory improvements following intravenous treatment with adMSC-derived Evs, particularly in male mice. These findings highlight the potential role of EVs in peripheral-brain communication and support EVs as a promising therapeutic strategy for AD. REFERENCES KNOPMAN, D. S. et al. Alzheimer disease. <i>Nature Reviews Disease Primers</i>, v. 7, n. 1, p. 33, 13 maio 2021. ZHANG, W. et al. Current Advances and Future Perspectives on Mesenchymal Stem Cell-Derived Extracellular Vesicles in Alzheimer’s Disease. <i>Aging and Disease</i>, v. 15, n. 5, p. 2015–2027, 2024. VAN HOECKE, L.; LUCCI, C.; VANDENBROUCKE, R. E. Mesenchymal stromal cell extracellular vesicles as immune modulators and drug carriers in neurodegenerative disorders. <i>Trends in Neurosciences</i>, v. 48, n. 11, p. 919–934, 2025. anna.conceicao@bioqmed.ufrj.br fernanda.defelice@queensu.ca ALZHEIMER’S ASSOCIATION AAIC>26