

# EFFECTS OF 4LIFE TRANSFER FACTOR RECALL ON AGING BRAIN CELLS\*

Technical White Paper

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## OBJECTIVE

The purpose of this study was to evaluate the neuroprotective effects of 4Life Transfer Factor ReCall formula in an in vitro model that simulated an aging brain.\*

## BACKGROUND

In a recent scientific study, a biological treatment targeted a key protein highly expressed in older subjects with cognitive impairments.<sup>1</sup> This key protein prevents the brain's immune cells, called microglial cells, from clearing away health threats that accumulate in an aging brain.

Microglial cells are the brain's primary immune system cells and play a crucial role in recognizing and destroying—called phagocytosing—any health threat to the brain. Microglial cells have long, flexible arms that allow them to extend and retract in all directions to recognize and respond to those health threats.

Considering this research, 4Life sponsored an independent study with 4Life Transfer Factor ReCall to investigate its ability to enhance the phagocytosing process in aging brain cells presented with a health threat.\*

## METHODS

BV-2 brain cells were cultured overnight and then pretreated with or without 4Life Transfer Factor ReCall. LPS (lipopolysaccharides) were used to simulate an aging brain. Cells were coincubated with beta-amyloid plaques (fA $\beta$ 42) and phagocytosis was measured using flow cytometry. Cell supernatants were also collected and analyzed for nitric oxide.

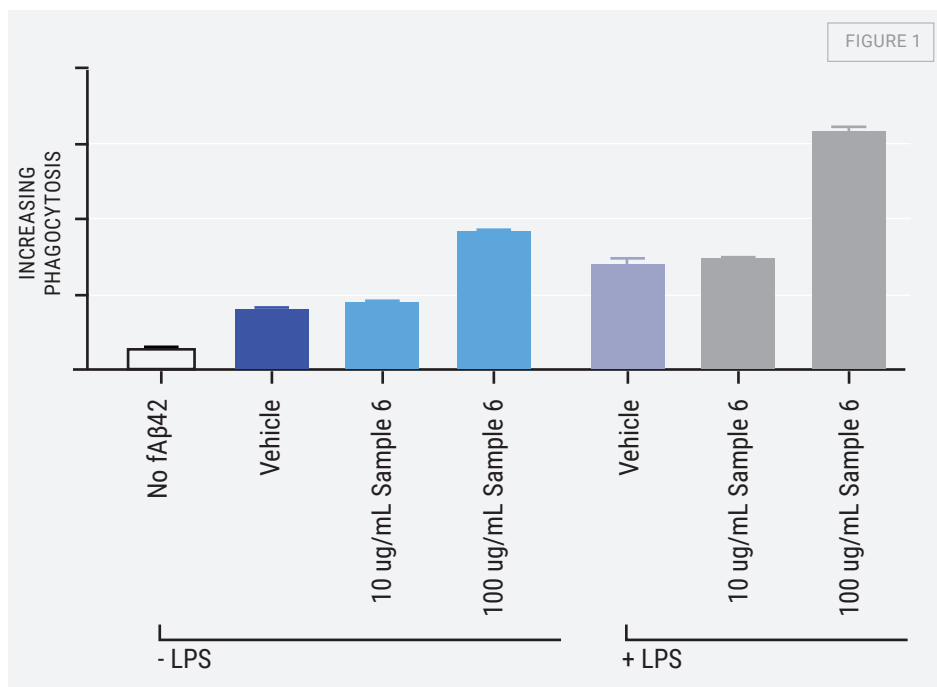


## RESULTS AND DISCUSSION

4Life Transfer Factor ReCall activated phagocytosis of the health threats at multiple concentrations. This effect was observed within the context of normal brain aging (without LPS) or stimulated brain aging (with LPS). (See Figure 1.) Using a different biomarker in those same experiments, 4Life Transfer Factor ReCall also increased nitric oxide levels, creating a neuroprotective effect under normal circumstances while providing a beneficial modulatory effect under stimulated conditions.\*

## CONCLUSION

This study highlighted the importance of a strong immune system for an aging brain and demonstrated the neuroprotective effects of 4Life Transfer Factor ReCall.\*



1. Hou et al. Antibody-mediated targeting of human microglial leukocyte Ig-like receptor B4 attenuates amyloid pathology in a mouse model. *Sci Transl Med.* 2024 Apr 3;16 (741).

\* These statements have not been evaluated by the Food and Drug Administration. This product is not intended to diagnose, treat, cure, or prevent any disease.