Method to treat neurodegenerative disorders by reducing lipid droplet accumulating microglia

Stanford researchers have identified lipid droplet accumulating microglia (LAM) in aging brains, proposing that these microglia play a role in neurodegenerative disease. LAM cells are defective in phagocytosis, produce high levels of reactive oxygen species and secrete pro-inflammatory cytokines. This technology provides methods of treating neurodegenerative disorders by reducing LAM. Methods for identifying LAM may also serve as novel targets for therapeutic development.

Stage of research
The inventors have identified LAM and shown that they are a novel state of microglia with a unique transcriptional signature and functional impairments in the aging brain. Additional development is ongoing.

Applications

- Treatment of age-related neurodegenerative diseases including:
    - Alzheimer's disease
    - Parkinson's disease
    - Frontotemporal dementia

Advantages

- New therapeutic approach for treating neurodegenerative diseases
- Targets a subset of microglia known to be harmful to the brain

Publications

- J. Marschallinger, T. Iram, M. Zardeneta, ...T. Wyss-Coray [Lipid-droplet-accumulating microglia represent a dysfunctional and pro inflammatory state in the aging brain](#) *Nature Neuroscience* 20 January 2020.

Patents

- Published Application: [WO2020146632](#)
- Published Application: [20220010300](#)

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