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Reporter Molecule for Study of Alzheimer's Disease

Live-cell fluorogenic amyloid-beta reporters enable real-time tracking of microglial phagocytosis, accelerating the development of Alzheimer's disease therapeutics.

Researchers at Purdue University have developed pH-dependent fluorogenic amyloid-beta reporters for the study of Alzheimer's disease (AD). Microglial phagocytosis of amyloid-beta peptides is a critical step in the regulation of brain homeostasis during the initiation and progression of AD. Unlike common methods to study this phenomenon, this technology is specific for amyloid-beta and functions in live cells. The reporter, an isoform of human amyloid-beta tagged with a pH-dependent fluorogenic moiety, fluoresces only upon phagocytosis in the acidic intracellular phagosomes. It clearly differentiates between phagocytic and non-phagocytic cells within live human and nonhuman microglial cells. This technology promises to aid in the discovery of new therapeutics for AD.

Advantages:

-Facilitates live cell tracking of microglial phagocytosis

-Differentiates between phagocytic and non-phagocytic microglial cells

Potential Applications:

-Development of Alzheimer's Therapeutics

Publication: Monitoring phagocytic uptake of amyloid Î² into glial cell lysosomes in real time.

doi: https://doi.org/10.1101/2020.03.29.002857

TRL: 4

Intellectual Property:

Technology ID
2019-CHOP-68541

Category
Biotechnology & Life Sciences/Analytical & Diagnostic Instrumentation
Pharmaceuticals/Research Tools & Assays

Authors
Gaurav Chopra
Krupal Jethava
Priya Prakash

Further information
Joe Kasper
JRKasper@prf.org

Nathan Smith
nesmith@prf.org

View online

Provisional-Patent, 2019-03-29, United States | PCT-Patent, 2020-03-27, WO | NATL-Patent, 2021-09-27, United States