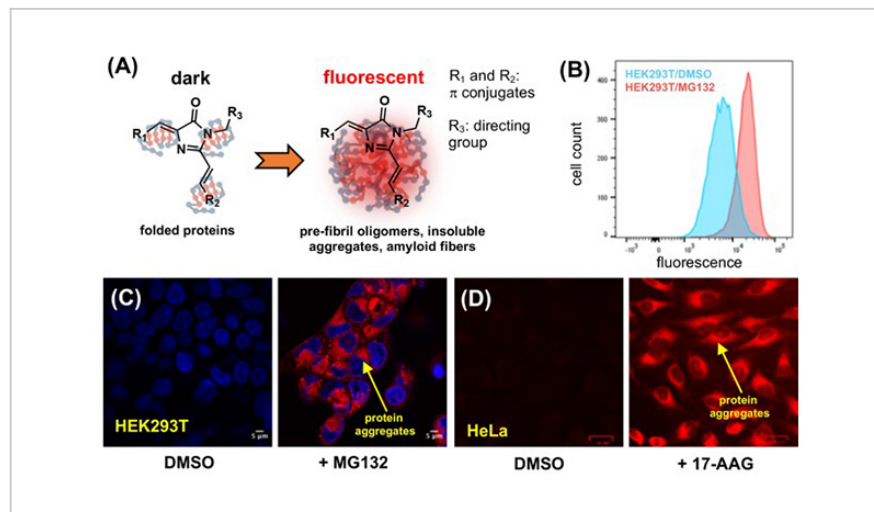


Fluorophores to Detect Misfolded Proteins and Protein Aggregates

ID# 2018-4737



Overview of the AgGlow Method

Technology Summary

Misfolding of proteins leads to formation of pre-fibril protein oligomers, insoluble protein aggregates, and amyloid fibers. This phenomenon has been associated with numerous neurodegenerative and metabolic disorders, including Huntington's, Parkinson's, and Alzheimer's disease. In order to detect and quantify these anomalies, a series of small molecule fluorophores called AgGlow was created. These fluorophores can be used to detect and quantify pre-fibril protein oligomers and insoluble protein aggregates both in vitro and in vivo. These novel fluorophores recognize and bind to misfolded proteins, are cell permeable, and have quantum yields compatible with common molecular biology instrumentation (such as flow cytometers and fluorescent microscopes).

Application & Market Utility

Currently, there's no product to detect pre-fibril protein oligomers in live cells. Current products that detect protein aggregates are limited in application and can only be used in vitro or in fixed cells with permeabilized membranes. Detection of misfolded proteins in live cells will enable research to determine how pre-fibril protein oligomers, insoluble protein aggregates, and amyloid fibers contribute to disease.

Next Steps

R&D is ongoing in the Zhang lab. The inventors seek to collaborate with industry partners to continue development of the fluorophores and develop secondary applications.

TECHNOLOGY READINESS LEVEL

4-7

Seeking

Investment | Licensing | Research

Keywords

- Misfolded Proteins
- Protein Aggregates
- Amyloid Fibers
- Fluorescent Sensor
- Fluorogenic detection

Researchers

Xin Zhang

Assistant Professor of Chemistry and BMB

[Website](#)

Originating College

Eberly College of Science

Office of Technology Management Contact

Long, Melissa

mkl137@psu.edu

814-865-5730



Invent Penn State is a Commonwealth-wide initiative to spur economic development, job creation, and student career success. Invent Penn State blends entrepreneurship-focused academic programs, business startup training and incubation, funding for commercialization, and university-community collaborations to facilitate the challenging process of turning research discoveries into valuable products and services that can benefit Pennsylvanians and humankind. Learn more at invent.psu.edu.

Penn State is an equal opportunity, affirmative action employer, and is committed to providing employment opportunities to all qualified applicants without regard to race, color, religion, age, sex, sexual orientation, gender identity, national origin, disability or protected veteran status.