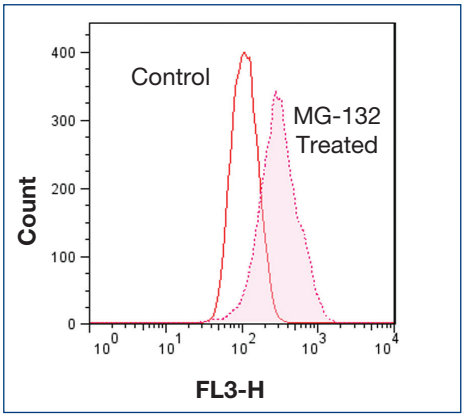
Quantitative Detection of Aggresomes

PROTEOSTAT® Aggresome Detection Kit (ENZ-51035)

A robust cell-based assay for the quantitative detection of aggresomes

Aggresomes are inclusion bodies that form when the ubiquitin–proteasome machinery is overwhelmed with aggregation-prone proteins. Typically, an aggresome forms in response to some cellular stress, such as hyperthermia, viral infection or exposure to reactive oxygen species. Aggresomes appear to provide a cytoprotective function by sequestering the toxic, aggregated proteins and may also facilitate their elimination from cells by autophagy. PROTEOSTAT® Aggresome Detection Kit contains a novel 488 nm excitable red fluorescent molecular rotor dye to specifically detect denatured protein cargo within aggresomes and aggresome-like inclusion bodies in fixed and permeabilized cells.

Identify Protein Accumulation within Aggresomes by Flow Cytometry



Flow cytometry-based analysis. Jurkat cells were mock-induced with 0.2% DMSO or induced with 5 µM MG-132 overnight at 37°C. After treatment, cells were fixed and incubated with PROTEOSTAT® dye, then analyzed by flow cytometry without washing using a 488 nm laser in the FL3 channel. In MG-132 treated cells, fluorescent red signal increases about 3-fold. The described assay allows assessment of the effects of protein aggregation.

Key Features

- Reliable and simple assay that does not require non-physiological protein mutations or genetically engineered cell lines
- Fixed-cell assay is optimized for antibody colocalization studies to identify interactions between aggregated protein cargo and various proteins implicated in aggresome formation
- Validated under a wide range of conditions with a variety of cell types demonstrating suitability for screening compounds of potential therapeutic value

Research Areas

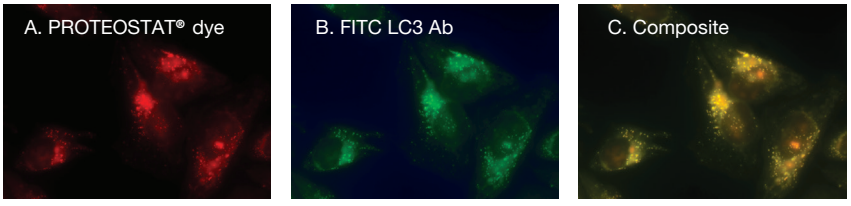
- Alzheimer's disease
- Amyotrophic Lateral Sclerosis (ALS)
- Parkinson's disease
- Liver disease
- Toxicology Studies

Platforms supported:

Microscopy Flow Cytometry

RELATED PRODUCTS	PRODUCT #
CYTO-ID® Autophagy Detection Kit 2.0	ENZ-KIT175
CYTO-ID® Autophagy Detection Kit	ENZ-51031
Apoptosis/Necrosis Detection Kit (GFP-CERTIFIED®)	ENZ-51002
NUCLEAR-ID® Blue DNA stain (GFP-CERTIFIED®)	ENZ-CHM103

PROTEOSTAT® Dye Co-Localizes with LC3 Antibody



Cell Aggresome detected by PROTEOSTAT® dye co-localizes fluorescein-labeled antibody recognizing LC3I/II, as observed by fluorescence microscopy. HeLa cells were treated for 12 hours with 5 µM MG-132 on a slide and stained with (A) PROTEOSTAT® dye and (B) Fluorescein-labeled antibody recognizing LC3I/II; (C) composite image shown.

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