Fluorescence Polarization Assay to Detect Protease Cleavage

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The Wisconsin Alumni Research Foundation (WARF) is seeking commercial partners interested in developing a fluorescence polarization method for measuring protease activity in real time.

OVERVIEW

SDS polyacrylamide gel electrophoresis (SDS PAGE) is the traditional method for analyzing the activity of proteases; however, it is time-consuming, cumbersome and not amenable to high throughput screening.

THE INVENTION

UW-Madison researchers have developed a fluorescence polarization technology to measure protease activity in real time. Fluorescent polarization can be used to estimate the size of a protein to which a fluorescent complex is attached. In the method, an uncharacterized protein is conjugated to a fluorescence tag. The fluorescent tag exhibits little fluorescence until it binds to a specific fluorescent ligand to create a highly fluorescent complex. The complex comprising the protein, fluorescent tag and fluorescent ligand is then placed in contact with a protease. When the protease cleaves the protein into two or more fragments, the fluorescence polarization of the complex decreases. The rate of change in fluorescence polarization can be measured in real time, and is equivalent to the rate of protease cleavage.

APPLICATIONS

• Detecting protein expression
• Determining if cleavage of fusion proteins is complete
• Monitoring the effects of sequence variations or environmental conditions on protease activity
• Identifying, isolating, characterizing or optimizing improvements in a protease

KEY BENEFITS
• Measures protease activity continuously in real time
• Suitable for high throughput assays
• Valuable in proteomics

ADDITIONAL INFORMATION

Tech Fields
Research Tools - Genomics & proteomics
Research Tools - Protein interactions & function

CONTACT INFORMATION

For current licensing status, please contact Jennifer Gottwald at jennifer@warf.org or 608-960-9854.