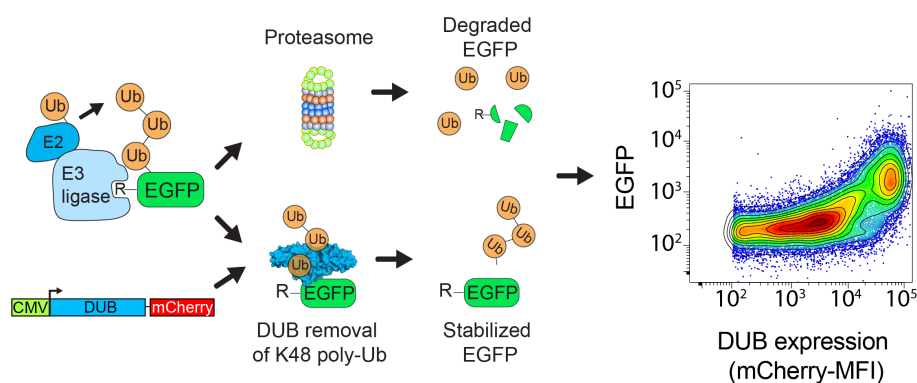




Cellular assays for quantifying deubiquitinase (DUB) activity and inhibition

Novel flow cytometry-based assays that allow for quantification of DUB activity and inhibition in living cells.



IP Status: Provisional Patent Application Filed

Applications

- Drug discovery and development

Key Benefits & Differentiators

- **High throughput:** Capable of screening large libraries of potential DUB inhibitors quickly
- **Versatile:** Applicable to both viral and cellular DUBs

Technology Overview

Deubiquitinases (DUBs) are proteolytic enzymes that regulate protein ubiquitination, a key process in cellular signaling and homeostasis. Given their role, DUBs are attractive drug targets for treating diseases such as cancer, neurodegenerative disorders, and viral infections.

However, traditional biochemical assays have limitations when it comes to evaluating DUB inhibitors within a cellular context, which is crucial for advancing clinical drug development.

Researchers at the University of Minnesota have developed a novel two-color flow cytometry-based assay designed to quantify DUB activity and inhibition in living cells. The assay employs a ubiquitinated green fluorescent protein (EGFP) reporter that degrades unless DUB activity is present. Overexpression of a DUB stabilizes the EGFP signal, which can be quantified using flow cytometry. The assay has been optimized for both viral and cellular DUBs, allowing for comprehensive evaluation of DUB inhibitors.

Phase of Development

TRL: 4

Assays have been applied to various DUBs, including those from viral sources like SARS-CoV-2.

Technology ID

2024-032

Category

Life Sciences/Biomarkers
Life Sciences/Biochemicals & Small Molecules
Life Sciences/Diagnostics & Imaging
Life Sciences/Therapeutics

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Researchers

- [Reuben Harris, PhD](#) Professor, Howard Hughes Medical Institute and UT Health San Antonio

References

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