



## Cell-Based Assay for Identifying Inhibitors of Viral Translational Recoding

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**The Wisconsin Alumni Research Foundation is seeking commercial partners interested in developing a biomaterial assay that could be used for screening, particularly for SARS-CoV-2.**

### Overview

Viruses maximize their genetic potential through several mechanisms including expressing multiple protein products from a single mRNA template. A crucial mechanism is conserved by both retroviruses, including the human immunodeficiency virus type 1 (HIV-1), that causes AIDS, and coronaviruses including the SARS-CoV-2, that causes COVID-19. Both types of viruses use -1 programmed ribosomal frameshifting (PRF) to produce multiple proteins from a single transcript.

### The Invention

UW-Madison researchers have developed a cell-based assay for screening inhibitors of SARS-CoV-2 PRF, suitable for high throughput and high content screening. This technology builds upon previous work to screen for inhibitors of translational frame shifting in HIV, and could be useful for identifying potential drugs that inhibit frame shifting in SARS-CoV-2.

### Applications

- Research tool for studying viral infectivity of cells

### Key Benefits

- Most current drug screening for the SARS-CoV-2 focuses on ACE2 receptor interaction with viral protein; this assay would provide a different mechanism to develop drugs against SARS-CoV-2.
- The PRF cell-based assay allows for genetic studies of viral and cellular frameshift efficiency in a wide variety of cellular environments (e.g., for HIV-1 in T cells vs. macrophages and SARS-CoV-2 in lung vs gut epithelial cells and with or without interferon or growth factors).
- Features of the assay include a greater relevance to natural infection and its modularity, with the capacity for multiple markers allowing for the flexible design of high content, multivariate drug and genetic screening initiatives.

### Additional Information

#### For More Information About the Inventors

- [Nathan Sherer](#)

#### Tech Fields

- [Drug Discovery & Development : Preclinical testing](#)

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