

## RNASEH-Assisted Detection Assay for RNA

### Summary (1024-character limit)

The National Cancer Institute (NCI) seeks research co-development partners and/or licensees for the development and commercialization of a diagnostic assay that detects sequence-specific (viral) RNA.

### NIH Reference Number

E-193-2020

### Product Type

- Diagnostics

### Keywords

- RNASEH, Covid-19, COVID, Sars-Cov2, Influenza, Viral RNA, RNA, Sterneck, Poria

### Collaboration Opportunity

This invention is available for licensing and co-development.

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### Description of Technology

Several viral epidemics – such as the epidemics caused by H1N1 influenza virus, human immunodeficiency virus (HIV), Ebola virus, Zika virus, severe acute respiratory syndrome (SARS) virus, Middle East respiratory syndrome (MERS) virus and SARS-CoV-2 – have profoundly impacted global human health. Early identification of infected and/or infectious persons and isolating them from the population are some of the most effective and evident measures to prevent human-to-human spreading. In addition, areas with low resources and infrastructure may benefit from this technique for the detection of any viral or non-viral pathogens.

Researchers at the National Cancer Institute (NCI) have developed a technology that describes an RNase-H-assisted detection assay for RNA (RADAR) that is rapid, inexpensive and highly sequence-specific. The assay is capable of detecting any RNA of interest, including cellular or viral RNA in a sequence-specific manner. The assay uses a modified isothermal rolling circle amplification (RCA) method that utilizes RNase H and a labeled RNA reporter molecule for the specific detection of a target RNA. The technology can detect viral RNA in approximately 2.5 hours and does not require expensive

thermocyclers. Furthermore, the technology circumvents potential supply bottlenecks associated with other techniques that require enzymes other than DNA ligase, DNA polymerase, and RNaseH. Mode of detection of the amplified product is flexible depending on the nature of the label on the RNA reporter.

The NCI seeks research co-development partners and/or licensees for the development and commercialization of a diagnostic assay that detects sequence-specific (viral) RNA.

### **Potential Commercial Applications**

- Diagnostic test for viral infection or any specific pathogen-derived RNA

### **Competitive Advantages**

- Rapid readout from isolated RNA of less than three hours
- May have the potential for point-of-care application
- Employs only three enzymes, which are relatively thermostable
- Does not require expensive and sophisticated thermocyclers
- Reagents are all commercially available and relatively low-cost

### **Inventor(s)**

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### **Development Stage**

- Prototype

### **Patent Status**

- **U.S. Provisional:** U.S. Provisional Patent Application Number 63/077,123 , Filed 11 Sep 2020

### **Therapeutic Area**

- Infectious Diseases