

# Optimized RNA-Seq Protocol for Pathogen Detection and Diagnostic Innovation

Tech ID: 34572 / UC Case 2023-173-0

## TECHNOLOGY DESCRIPTION

UCSF researchers have developed an optimized RNA sequencing (RNA-Seq) protocol designed for metagenomic next-generation sequencing (mNGS) assays to enhance pathogen detection. This invention addresses critical challenges in infectious disease diagnostics, public health surveillance, and environmental monitoring by streamlining RNA extraction, DNase treatment, ribosomal RNA depletion, reverse transcription, and cDNA library construction—steps crucial for improving assay speed, efficiency, and reliability while reducing technical variability. The protocol also serves as the backbone of a respiratory mNGS assay for pathogen detection, currently being developed with support from CDC and BARDA grants. The UCSF protocol outperforms existing RNA-Seq kits in speed and data reliability, offering a differentiated solution for accurate and efficient diagnostics. It is actively deployed in respiratory mNGS assays, with licensing opportunities for biotech companies to scale and commercialize the technology.

## RELATED MATERIALS

- ▶ [Laboratory validation of a clinical metagenomic next-generation sequencing assay for respiratory virus detection and discovery. PMID: 39532844, doi: 10.1038/s41467-024-51470-y. - 11/12/2024](#)

## CONTACT

Darya (Dasha) Bubman  
[Darya.Bubman@ucsf.edu](mailto:Darya.Bubman@ucsf.edu)  
tel: 415-237-1585.



## OTHER INFORMATION

### KEYWORDS

Optimized RNA sequencing protocol, Metagenomic next-generation sequencing (mNGS), Enhanced pathogen detection technology, Automated RNA workflows, Infectious disease diagnostics, CDC and BARDA-supported technology, Respiratory mNGS assay

### CATEGORIZED AS

- ▶ **Medical**
  - ▶ Diagnostics
  - ▶ Disease: Infectious Diseases
  - ▶ Disease: Respiratory and Pulmonary System

▶ [Research Tools](#)

▶ **[Research Tools](#)**

▶ [Screening Assays](#)

#### RELATED CASES

2023-173-0

#### ADDRESS

**UCSF**

**Innovation Ventures**

600 16th St, Genentech Hall, S-272,

San Francisco, CA 94158

#### CONTACT

Tel:

[innovation@ucsf.edu](mailto:innovation@ucsf.edu)

<https://innovation.ucsf.edu>

Fax:

#### CONNECT

 Follow  Connect

© 2026, The Regents of the University of  
California

[Terms of use](#) [Privacy Notice](#)