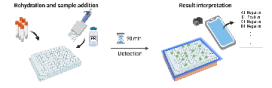


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# XPRIZE SHINE - In-tube Fluorescent SARS-CoV-2 NP Test

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**Protocol status:** Working

**We use this protocol in our workspace and it is working.**

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## Abstract

This protocol describes how to perform a SHINE in-tube fluorescent assay to detect SARS-CoV-2 RNA from a self-collected nasopharyngeal sample. This protocol is intended for point-of-care use. All enzymatic components are provided as a single-test freeze-dried pellet for shelf-stable storage, and all steps of the protocol are performed at ambient temperature. The protocol requires a transilluminator or another equivalent blue light emitting device. The protocol presented here is an improved version of the method presented in Arizti-Sanz J\*, Freije CA\*, *et al.* Integrated sample inactivation, amplification, and Cas13-based detection of SARS-CoV-2. *bioRxiv* (2020).

## Image Attribution

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## Materials

### MATERIALS

⊗ FastAmp® Viral and Cell Solution for Covid-19 Testing Solution B **Catalog #4633**

⊗ Custom nasopharyngeal swab and collection tube

⊗ Reagent Mix A (In-tube SARS-CoV-2 resuspension mix)

⊗ Lyophilized Reagent Mix B (In-tube SARS-CoV-2 detection mix)

### STEP MATERIALS

⊗ Custom nasopharyngeal swab and collection tube

⊗ FastAmp® Viral and Cell Solution for Covid-19 Testing Solution B **Catalog #4633**

⊗ Reagent Mix A (In-tube SARS-CoV-2 resuspension mix)

⊗ Lyophilized Reagent Mix B (In-tube SARS-CoV-2 detection mix)

The necessary volume of FastAmp Viral and Cell Solution is provided in the tube used for sample collection. All enzymatic components, reagents, and compatible buffers required for SARS-CoV-2 detection are included within Lyophilized Reagent Mix B and are reconstituted with Reagent Mix A (see protocol for details). A transilluminator or equivalent blue light emitting device is needed to visualize the assay results. A smartphone or smart device is necessary for automated interpretation of the SARS-CoV-2 detection results using the HandLens application.

## Protocol materials

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## Troubleshooting

## Safety warnings

- ⚠ Please take care with potentially infectious sample material that does not come into contact with the provided viral lysis solution contained within the NP sample collection tube.

## Before start


Download the HandLens application on the user-provided smart device (smartphone, tablet, etc.). Clean workspace with disinfectant prior to starting the protocol.






## Sample Collection and Viral Lysis

- 1 Open the nasopharyngeal (NP) collection tube and rotate the nasal swab (attached to the NP collection tube cap) 4 times around the inside of each nostril. Return the swab to the collection tube and cap the tube.


*Nasopharyngeal collection tube contains necessary volume of FastAmp® Viral and Cell Solution.*

 Custom nasopharyngeal swab and collection tube


 FastAmp® Viral and Cell Solution for Covid-19 Testing Solution B **Catalog #4633**




- 2 Mix NP sample and FastAmp® Viral and Cell Solution by vortexing the closed sample collection tube for  00:00:05 .
- 3 Wait  00:05:00 , incubating sample at  Room temperature , before proceeding to Step 4.

## SARS-CoV-2 Detection

- 4 Pipette  15 µL of Reagent Mix A into a single uncapped well of the 96-well plate containing lyophilized Reagent Mix B. Mix by pipetting up and down gently.

 Reagent Mix A (In-tube SARS-CoV-2 resuspension mix)

 Lyophilized Reagent Mix B (In-tube SARS-CoV-2 detection mix)

- 5 Add  5 µL sample-viral lysis mix to Reagent Mix A and B well. Mix by pipetting up and down gently. Recap sample.
- 6 Wait  01:30:00 , incubating sample at  Room temperature , before proceeding to Step 7.

## In-tube Fluorescent Readout and Automated Analysis



- 7 Visualize the fluorescence of the sample using a transilluminator or equivalent blue light emitting device.

#### Equipment

**13 × 12 cm mini Transilluminator**

NAME

Clare Chemical Research

BRAND

DR22A

SKU

- 8 With the user-provided smart device such as a smartphone, open the HandLens application and select in-tube as the test type.
- 9 Take a photo of the plate, and select upload. The result of the test will appear on the smart device screen.