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FireLAMP Protocol

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Protocol status: Working We use this protocol and it's working

Created: September 07, 2020

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Materials

Reagent or Consumable	Supplier	Catalog #	Cost per item (e.g., cost of a tube of enzyme)
Text	Text	Numeric	Numeric
SARS-CoV-2 Primers	IDT	Custom	\$100.00
SARS-CoV-2 Probes	IDT	Custom	\$280.00
Internal Control Primers	IDT	Custom	\$100.00
Internal Control Probes	IDT	Custom	\$280.00
WarmStart [®] LAMP Kit (DNA & RNA)	NEB	E1700L	\$844.00
Antarctic thermolabile UDG	NEB	M0372L	\$310.00
RNase Inhibitor, Murine	NEB	M0314L	\$286.00
dUTP	NEB	N0459S	\$60.00
Elution solution	Firebird Biomolecular Sciences, LLC	Custom	\$0.50
1.5 mL microcentrifuge tubes	Genesee Scientific	24-281	\$25.90
Genie® Strips	Optigene	OP- 0008- 500	\$528.15

Genie® II Optigene GEN2-01 \$10,000.00		Genie® II	Optigene	GEN2-01	\$10,000.00
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1 SETTING UP THE GENIE II

1.1 Plug In

Equipment	
Genie® II	NAME
Heat Block and Reader	TYPE
Genie	BRAND
GEN2-01	SKU

1.2	Set the block temperature to § 65 °C . Make sure temperatures are reached to set temperature before placing the assay tubes into heat-block for amplification.	15s	
2	Setting up Workplace with Reagents	4m	
2.1	Take Red Strips and Geen Strips out of freezer and thaw for 1-2 min at room temperature	2m	
2.2	Set Blue Tubes in work area	10s	
2.3	Set up biohazard disposal	10s	
3	Take a swab	2m	
3.1	Hand testee a sterile swab, packaged in 15 mL falcon tube, and instruct patient on use	30s	

30s

15s

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3.2	Testee to remove swab from 15 mL falcon tube	10s
3.3	Testee inserts swab into each nasal cavity, rotating for 10 seconds	30s
3.4	Testee returns swab to 15 mL falcon tube	30s
3.5	Testee hands tube to supervisor	10s
4	Preparing a sample batch (up to 8 samples different testees)	5m
4.1	Open sample swab with caution and transfer swab to a blue tube, which contains elution solution and mix/swirl the swab 4-5 times.	30s
4.2	Discard the swab in a biohazardous waste container	5s
4.3	Pipette $\boxed{4}5 \mu\text{L}$ of eluted swab sample from the blue tube into a tube on the red strip , which contains SARS-CoV-2 master mix. Pipette up and down 2 times to mix assay components, then close the lid	20s
4.4	Pipette $45 \ \mu L$ of eluted swab sample from blue tube into a tube on the green strip , which contains the internal control master mix. NOTE: samples from each patient should be put in the same tube number on the red strip and green strip	20s
4.5	Repeat steps 4.1 through 4.4 for all samples in the batch	

4.6 Open the

10s

Equipment	
Genie® II	NAME
Heat Block and Reader	TYPE
Genie	BRAND
GEN2-01	SKU

. Place the red batch into Block A and the green batch into Block B. Close the Genie II.

5	Running a sample	30m
5.1	On the Genie II touch screen, select blocks A and B	10s
5.2	Run program called "FireLAMP"	10s
5.3	Wait for incubation to complete (~30 minutes for negative samples)	30m
6	Interpretation of results	1m
6.1	Touch results tab.	10s
6.2	Record results based on the "results column" column for block A and block B. Positive result in the block with the red strip (typically block A) indicate a positive result for COVID19 . Positive results in the block with the green strip (typically block B) indicate that the sample was taken correctly.	10s
6.3	Record results	20s
7	Preparing for Next Block	5m

7.1 Discard all used blue tubes, red strips, and green strips in biohazard container
7.2 Wait 5 minutes for Genie II to cool before starting analyis of a new batch.