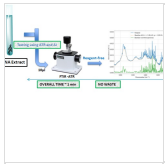

Version 2

Dec 05, 2020

COVID 19 testing using ATR spectrometer and AI. V.2

Driss LAHLOU KITANE[1], Salma LOUKMAN[2], Salma LOUKMAN[2]

[1]Massachusetts Institute of Technology; [2]Anoual LABORATORY

In Development dx.doi.org/10.17504/protocols.io.bqfymtpw

Coronavirus Method Development Community | Team Spectra

Salma LOUKMAN

DOI

dx.doi.org/10.17504/protocols.io.bqfymtpw

PROTOCOL CITATION

Driss LAHLOU KITANE, Salma LOUKMAN, Salma LOUKMAN 2020. COVID 19 testing using ATR spectrometer and AI.. **protocols.io**
https://dx.doi.org/10.17504/protocols.io.bqfymtpw
Version created by Salma LOUKMAN

CREATED

Dec 05, 2020

LAST MODIFIED

Dec 05, 2020

PROTOCOL INTEGER ID

45272

DISCLAIMER:

DISCLAIMER – FOR INFORMATIONAL PURPOSES ONLY; USE AT YOUR OWN RISK

The protocol content here is for informational purposes only and does not constitute legal, medical, clinical, or safety advice, or otherwise; content added to protocols.io is not peer reviewed and may not have undergone a formal approval of any kind. Information presented in this protocol should not substitute for independent professional judgment, advice, diagnosis, or treatment. Any action you take or refrain from taking using or relying upon the information presented here is strictly at your own risk. You agree that neither the Company nor any of the authors, contributors, administrators, or anyone else associated with protocols.io, can be held responsible for your use of the information contained in or linked to this protocol or any of our Sites/Apps and Services.

1 Sample collection **300 µl Saliva Swab or NP Swab** 5m

A sample of saliva swab or Naso-pharyngeal swab is collected using only swab with a synthetic tip. Swab is immediately inserted into sterile tubes containing 1ml of viral transport media
the VTM used is the VTM-N of Citoswab

2 RNA extract 25m

2500 rpm, 22°C shake the sample collected for two seconds

we use extraction kits that are based on a magnetic beads method followed by washing steps then elution. We add **100 µl** of the shaked sample to the preloaded Kit, while the remaining purification process is fully automated by the extractor in Viral Mode. The sample output is the RNA extract in a **50 µl** elution amount.
RNA extraction used kit are Genrui and Bioer kits.

2.1 Saliva direct extract 3m
we are studing the direct use of saliva swab, we desactivate the sample by heat and add lysis buffer and proteinaze K to liberate the genetic material ,
the output is of about **300 µl**

Genetic extract spectra measurement and classification 1m 12s

3 **22 °C**
2500 rpm, Room temperature

3.1 shake the extract sample 2s
the **50 µl** RNA is shaked and we are studing to do the same for Saliva extract

3.2 with a micro pipette take **10 µl of the shaked extract** , place it 1m
on the ATR spectrometer crystal and launch the spectra measurement

Spectrophotomètre infrarouge FT/IR 4600
Jasco
Spectrometer
Jasco **702818**

3.3 Launch the machine learning sub routine for sample classification and save the results 5s

4 clean the spectrometer surface with an Hydro-Alcoholic solution and dry it with paper towel for the next use. 5s

5 Extract conservation
for the conservation of the remaining extract we place it under **-80 °C**

Citation: Driss LAHLOU KITANE, Salma LOUKMAN, Salma LOUKMAN (12/05/2020). COVID 19 testing using ATR spectrometer and AI.. https://dx.doi.org/10.17504/protocols.io.bqfymtpw

6 If any change in the experiments conditions(ATR spectrometer, the VTM matrix, the RNA extraction kit) a new model calibration is needed based on the new reference data

Citation: Driss LAHLOU KITANE, Salma LOUKMAN, Salma LOUKMAN (12/05/2020). COVID 19 testing using ATR spectrometer and AI.. https://dx.doi.org/10.17504/protocols.io.bqfymtpw