Aug 27, 2021

Step 1: Swab sample collection

In 1 collection

Peter H L Krijger[1], Tim A Hoek[1], Sanne Boersma[1], Lieke I P M Donders[2], Maaike M C Broeders[2], Mark Pieterse[1], Pim W Toonen[1], Ive Logister[1], Bram M P Verhagen[1], Marjon J A M Verstegen[1], Thomas W van Ravesteyn[1], Rene J T M Roymans[2], Francesca Mattiroli[1], Jo Vandesompele[3], Monique Nijhuis[4], Stefan Meijer[5], Anton van Weert[5], Edwin Dekker[6], Fred J Dom[7], Rob Ruijtenbeek[8], Lieven B J van der Velden[2], Jeroen H B van de Bovenkamp[2], Martijn Bosch[8], Wouter de Laat[1], Marvin E Tanenbaum[1]

[1]Oncode Institute, Hubrecht Institute–KNAW and University Medical Center Utrecht, Utrecht, the Netherlands.;
[2]Laboratory of Medical Microbiology, Stichting PAMM, Veldhoven, the Netherlands.;
[3]InActiv Blue, Beernem, Belgium. Biogazelle, Zwijnaarde, Belgium.;
[4]Dept of Medical Microbiology, University Medical Center, Utrecht, the Netherlands.;
[5]Tecan labwerx, Tecan Trading AG, Männedorf, Switzerland.; [6]Bodegro B.V., Breda, the Netherlands.;
[7]HiFiBio Therapeutics, Saint-Jacques, France.;
[8]Department of Laboratory Automation, Genmab B.V., Utrecht, the Netherlands.

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This protocol is published without a DOI.

Peter Krijger

DISCLAIMER

J.V. is co-founder and CSO of InActiv Blue; S.M. is an employee of Tecan Trading AG; L.M.P.D., M.M.C.B., R.J.T.M.R., L.B.J.V. and J.H.B.B. are employees of Stichting PAMM Veldhoven; A.vW. is an employee of Sanquin;, E.D. is a founder and employee of Bodegro; and F.J.D. is CEO and co-founder HiFIBiO France.

ABSTRACT

One of the most critical innovations within STRIP is the collection of samples in small tubes (0.8 ml compared with 5–15 ml in standard diagnostics) with virus-inactivating and RNA-stabilizing lysis buffer (InActiv Blue) spiked with a control RNA (PDV). The use of small tubes enables the collection of sample tubes in small 96-tube boxes at sample collection sites. These 96-tube boxes are directly compatible with automated sample processing in the lab without slow and often laborious transfer of samples from collection tubes to plates that are compatible with robotics.

PROTOCOL CITATION

Peter H L Krijger, Tim A Hoek, Sanne Boersma, Lieke I P M Donders, Maaike M C Broeders, Mark Pieterse, Pim W Toonen, Ive Logister, Bram M P Verhagen, Marjon J A M Verstegen, Thomas W van Ravesteyn, Rene J T M Roymans, Francesca Mattiroli, Jo Vandesompele, Monique Nijhuis, Stefan Meijer, Anton van Weert, Edwin Dekker, Fred J Dom, Rob Ruijtenbeek, Lieven B J van der Velden, Jeroen H B van de Bovenkamp, Martijn Bosch, Wouter de Laat, Marvin E Tanenbaum 2021. Step 1: Swab sample collection. **protocols.io** https://protocols.io/view/step-1-swab-sample-collection-buvenw3e

FUNDERS ACKNOWLEDGEMENT

Oncode Institute
Grant ID:

Foundation Friends of the Hubrecht Institute
Grant ID:

the Royal Dutch Academy of Sciences (KNAW)
Grant ID:

Health~Holland Top Sector Life Sciences & Health
Grant ID:

COLLECTIONS

STRIP: Systematic Testing using Robotics and Innovation during Pandemics

CREATED

May 10, 2021

LAST MODIFIED

Aug 27, 2021

PROTOCOL INTEGER ID

49798

PARENT PROTOCOLS

Part of collection
STRIP: Systematic Testing using Robotics and Innovation during Pandemics

MATERIALS TEXT

Sample collection tubes

- 0.8 ml 2D Data-Matrix coded tube with external thread, Micronic, #MP52720.
- Micronic tube rack: Micronic, #MP51207.
- Micronic tube manual recapper: Micronic, #MP35480.
- Micronic tube barcode scanner: Single TUBE HQ SCANNER, HQ healthcare, #268821.
- InActive Blue, virus inactivating and RNA stabilizing transport medium. InActiv Blue, #IB1000.
- Virus transport buffer: InActive Blue mixed with a spike-in control RNA (We use home-made Phocine Distemper Virus, PDV).

0.8 ml Micronic tubes are filled by Micronic with 0.4 ml virus transport buffer and can be stored at RT for at least 8 months. Before shipment to the collection sites the tubes are centrifuged (1 min 500G).

SAFETY WARNINGS

InActive Blue contains Guanidine thiocyanate. Guanidine thiocyanate is harmful if inhaled, swallowed or if it comes into contact with skin and causes severe skin burns and eye damage. In addition, never clean up InActive Blue with bleach as Guanidine thiocyanate reacts with bleach to produce cyanide gas.

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BEFORE STARTING

Collection personnel should be trained in the proper collection procedure.

Sample collection

1 Person 1 scans the 2D barcode at the bottom of a 0.8 ml Micronic tube prefilled with 0.4 ml virus transport buffer and places it in a Micronic tube rack (tube rack A).

2 Person 1 removes cap from the Micronic tube using the manual recapping device (cap stays on the recapping device).

3 After instructing the patient to blow their nose, the naso- oropharyngeal swab specimen is collected by person 2 using 1 flocked swab using standard procedures. Importantly: Make sure no mucus is attached. Repeat swab collection when needed.

4 Person 2 places the swap in the tube placed in tube rack A, rotates the swab 10 times between thumb and index finger, and trashes the swab.

5 Person 1 close the tube with the cap and transfers the tube to a new tube collection rack (tube rack B).

6 Store at room temperature until shipment to the RNA extraction site. Samples are processed as soon as possible after arrival at the lab. Samples are regularly processed within 24h but can be stored up to 72h if required.