



Clean Viral

RNA Swab Kit

ISO 13485



Quick and
efficient viral RNA
extraction

Efficient viral RNA extraction to assess respiratory tract infections

Fast and reliable identification of viruses and in-depth virus research both became highly important over the last years. Proper isolation of viral RNA from nose or throat swabs is the first step in the workflow. Our Clean Viral RNA Swab Kit helps scientists by offering efficient RNA extraction from swabs in universal or viral transport media with magnetic beads.

In combination with our specially formulated lysis buffer system and elution in nuclease free water, the result is RNA free of PCR inhibiting compounds, that can be used for a high number of downstream applications. This makes the kit a perfect solution for the extraction of viruses such as SARS-CoV-2.

Benefits:



Easy automation with the CleanXtract 96



Suitable for PCR



Fast and efficient

Application

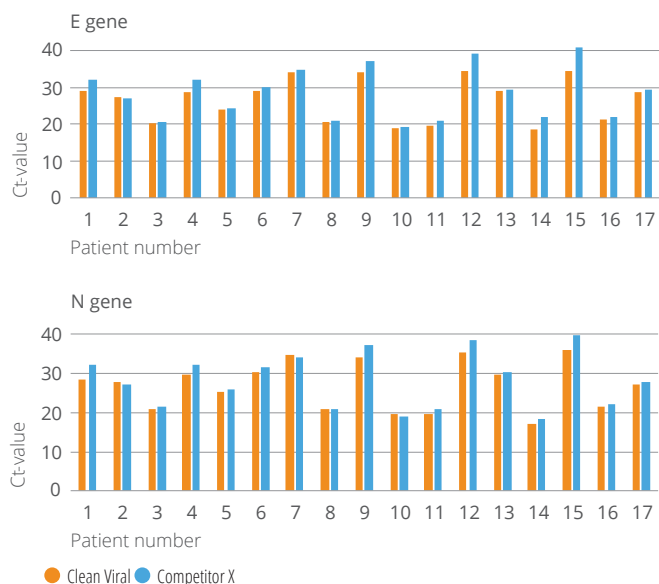
SARS-CoV-2 research is an important application of the Clean Viral RNA Swab Kit, but certainly not the only one. The system and kit can be used for many respiratory tract infections with swabs in either Universal or Virus Transport Medium, extracting the RNA for PCR or NGS experiments. Not only with existing viruses, but also variants that will appear in the future.

Proof of principle

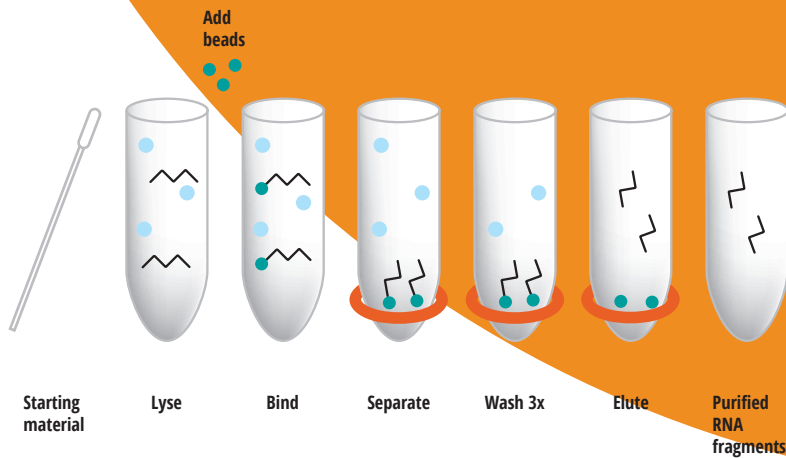
A qPCR for the detection of SARS-CoV-2 for 18 negative (data not shown) and 17 positive patients was performed. We compared the Clean Viral RNA Swab Kit on the CleanXtract 96 with the Competitor X extraction kit on their instrument. We added primers for E and N genes of SARS-CoV-2 to the qPCR master mix (Corman, V.M., Landt, O., et al. (2020)). Our Clean Viral kit has a lower Ct-value for most patients, by using only 200 µl input volume, compared to 300 µl for competitor X's kit (Figure 1). The elution volume is similar.

FIGURE 1.

qPCR (with Fast 1-step RT qPCR mix) for detection of E and N genes of SARS-CoV-2 after Clean Viral RNA Swab Kit and Competitor X extractions.



Workflow



We lyse the sample with the lysis buffer, after which the nucleic acids bind to the magnetic beads. During this step, DNases and RNases are deactivated. The magnetic plate separates the magnetic beads with RNA from the lysates. After a few rapid wash steps to remove trace contaminants (e.g. proteins and cellular debris), we elute the RNA in nuclease free water.

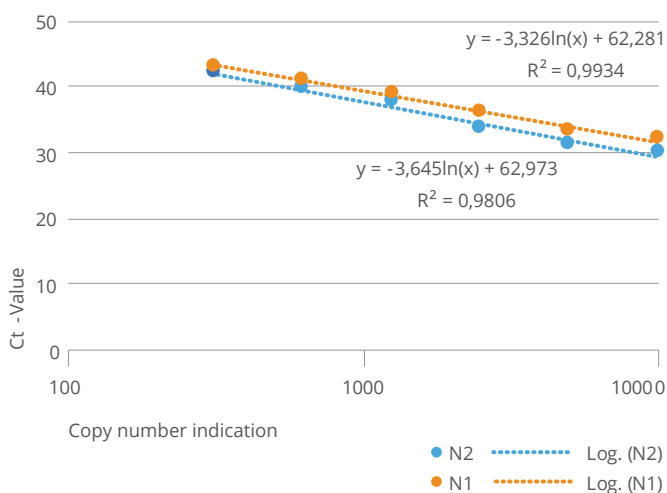
In another experiment, we spiked negative swabs collected in Viral Transport Medium with non-infectious synthetic SARS-CoV-2 RNA. After making a 2 times dilution series, we extracted the RNA with the Clean Viral RNA Swab kit. N1 and N2 genes of SARS-CoV-2 were detected with an RT-PCR. For N1, the slope is -3,326, meaning that the PCR efficiency is 99,8%. N2 has a slope of -3,645 and a PCR efficiency of 88,1% (see Figure 2).

Automated solution for high throughput

For scientists looking for an automated way of working with the Clean Viral RNA Swab Kit, our CleanXtract 96 offers the perfect solution.

Multiple functions such as UV-decontamination result in high quality RNA of up to 96 samples per run. Pre-programmed protocols make the system easy to work with. You can find more information on this device in the Clean Viral RNA Swab Kit and CleanXtract 96 brochure or on our website.

FIGURE 2. RT-PCR (with ProbeSure™ COVID-19 One Step RT-PCR) results of N1 and N2 genes after extraction from a 2 times dilution series of SARS-CoV-2 spiked swabs.



References:

Corman, V. M., Landt, O., Kaiser, M., Molenkamp, R., Meijer, A., Chu, D. K., Bleicker, T., Brünink, S., Schneider, J., Schmidt, M. L., Mulders, D. G., Haagmans, B. L., van der Veer, B., van den Brink, S., Wijsman, L., Goderski, G., Romette, J. L., Ellis, J., Zambon, M., Peiris, M., ... Drosten, C. (2020). Detection of 2019 novel coronavirus (2019-nCoV) by real-time RT-PCR. *Euro surveillance : bulletin European sur les maladies transmissibles = European communicable disease bulletin*, 25(3), 2000045. <https://doi.org/10.2807/1560-7917.ES.2020.25.3.2000045>



About CleanNA

Isolation of nucleic acids often comes with challenges and CleanNA thinks that no researcher should have to face them alone. At our facilities in the Netherlands, we produce nucleic acid isolation kits and reagents under ISO13485 standard. We offer complete solutions with magnetic beads that meet researcher's needs while significantly reducing their hands-on time.

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Order info

Product	Preps	Part Number
Clean Viral RNA Swab Kit (24 x 96)	2304	CV-R2304

Product	Pack size	Part Number
CleanXtract 96	1 System	CXT-I096
96-Well Deep Well plate	50 pcs/box	503621
96-Well Comb	50 pcs/box	503361
Clean Magnet Plate 96-Well	1 Plate	CMAG-96-RN50

The Clean Viral RNA Swab Kit is distributed by: