



APPLICATION NOTE

TrusPure Viral Nucleic Acids Extraction Kit

Cat. RE002001/ RE005001

High-Efficiency & High-Reproducibility in various specimen types

Abstract

In order to determine the extraction efficiency and integrity of TrusPure Viral Nucleic Acids Extraction Kit, viral DNA/RNA was isolated from HBV-positive plasma samples, SARS-CoV-2-positive nasal/oral swab samples and also HPV-positive cervical swab samples and qPCR assays were performed to analyze their specific targets from these purification products. The results show that TrusPure Viral Nucleic Acids Extraction Kit offers an efficient method for extracting high-integrity nucleic acids from clinical samples with viral DNA/RNA and the purified viral nucleic acids is ideal for directly use in downstream applications.

Introduction

TrusPure Viral Nucleic Acids Extraction Kit is designed for purification of viral nucleic acids from serum, plasma, swab, saliva samples or other cell-free body fluids. The whole procedure upon sample loading until completes is in about 20-25 minutes. It is also designed for extraction of nucleic acids from a broad range of DNA and RNA viruses. The purification product can be directly used in a variety of downstream molecular biology applications such as PCR, qPCR, RT-qPCR, Sanger sequencing and Next Generation Sequencing (NGS).

Version 1.2

Materials and methods

- Sample type:
 - a. Plasma samples
All blood samples were first collected using EDTA blood collection tubes and the plasma from the blood samples was separated by centrifugation.
 - b. Nasal/oral swab samples
Nasal/oral swab samples were stored in liquid preservation solution. Before extraction process, swab samples were re-suspended by vortex.
 - c. Cervical swab samples
Cervical swab samples were stored in liquid preservation solution. Before extraction process, extra pretreatment buffer was added and swab samples were re-suspended by vortex.
- Sample volume: 200uL
- Elution volume: 100uL
- The details of the extraction process is described in the TrusPure Viral Nucleic Acids Extraction Kit Instructions for Use (Handbook)

Result

Viral DNA was isolated from plasma samples of patients by TrusPure Viral Nucleic Acids Extraction Kit and competitor kit Q and the presence of HBV DNA was then analyzed by qPCR assay. The results



showed the efficient extraction of viral DNA by both kits and a higher performance by TrusPure Viral Nucleic Acids Extraction Kit [Figure A].

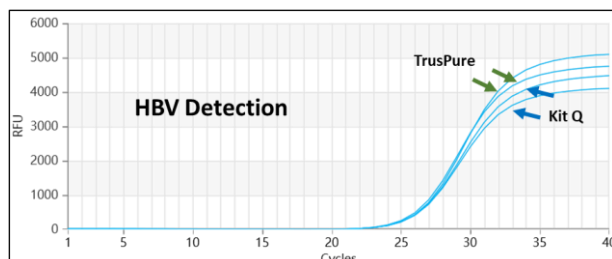


Figure A

Viral RNA was isolated from SARS-CoV-2 positive national standard plasma by TrusPure Viral Nucleic Acids Extraction Kit and the purification products were further analyzed by qPCR assay to examine the presence of SARS-CoV-2 RNA. The results showed a high integrity of viral RNA extraction by TrusPure Viral Nucleic Acids Extraction Kit [Figure B].

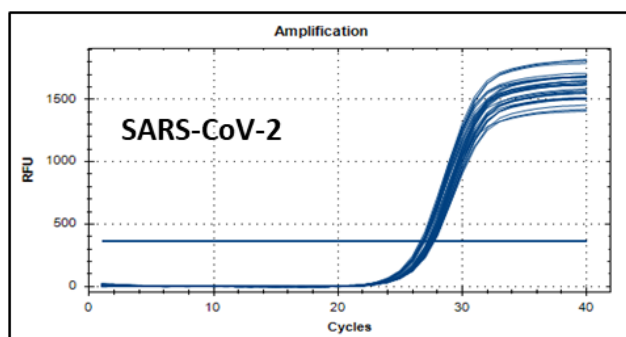


Figure B

Viral RNA was isolated from SARS-CoV-2-positive nasal/oral swab samples by TrusPure Viral Nucleic Acids Extraction Kit and competitor kit Q and the presence of SARS-CoV-2 RNA was next analyzed by qPCR assay. The results showed again the efficient extraction by both kits and a higher performance by TrusPure Viral Nucleic Acids Extraction Kit [Figure C].

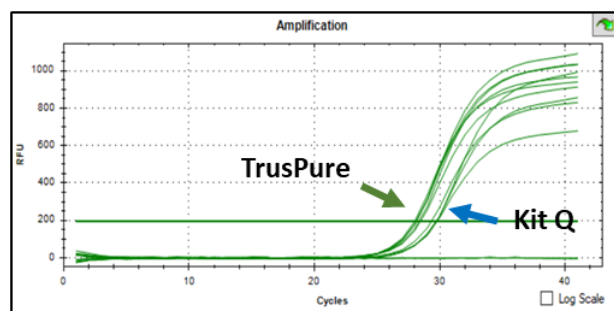


Figure C

Viral DNA was isolated from HPV-positive cervical swab samples by the TrusPure Viral Nucleic Acids Extraction Kit and viral DNA was then analyzed by qPCR assay to examine the presence of HPV DNA. The results showed again a high integrity of viral DNA extraction by TrusPure Viral Nucleic Acids Extraction Kit [Figure D].

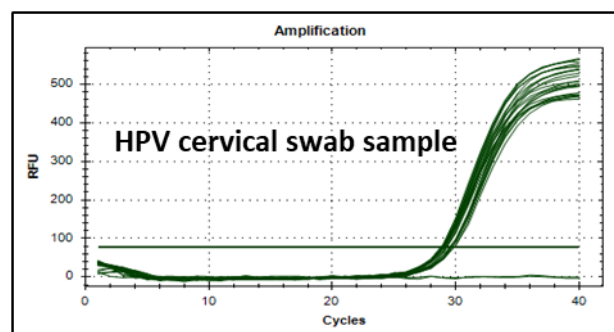


Figure D

Discussion and Conclusion

In our data, viral nucleic acids was extracted from a variety of sample types (including plasma samples, nasal/oral swabs and cervical swab samples) and the present of specific targets (including HBV, COVID-19 and HPV) was analyzed by qPCR assay to determine the efficiency and integrity of TrusPure Viral Nucleic Acids Extraction Kit. The results indicate that TrusPure Viral Nucleic Acids Extraction Kit offers a high efficient extraction and reproducibility and the purified viral DNA and RNA are ideal for use in a variety of downstream applications.