



APPLICATION NOTE

TrusPure Genomic DNA Extraction Kit

Cat. RE002003/ RE005002

High-Efficiency, High-Quality & High-Integrity in various specimen types

Abstract

In order to determine the extraction efficiency and integrity of TrusPure Genomic DNA Extraction Kit, genomic DNA was isolated from various specimen types, including whole blood sample, zebrafish tissue, *A. thaliana* leaf, bacteria, and FFPE (formalin-fixed paraffin-embedded) tissue. The Nanodrop spectrophotometer, agarose gel electrophoresis, qPCR assays, and capillary electrophoresis were further performed to analyze the quality or the specific targets of the purification products. The results show that TrusPure Genomic DNA Extraction Kit offers an high-efficient, high-quality, and high-integrity method for extracting DNA from a various clinical samples and the purified genomic DNA is ideal for directly use in downstream applications.

Introduction

TrusPure Genomic DNA Extraction Kit is designed for purification of genomics DNA from whole blood, serum, cell line, mammalian tissue, plant, bacteria, yeast, FFPE tissue, and saliva with different pre-treatment that dependents on the specimen types. The procedure upon sample loading until completes in about 20-25 minutes. The purification product is 20-50 kb which can be directly used for downstream

molecular biology applications such as PCR, qPCR, restriction enzyme digestion, and Southern blotting.

Materials and methods

● Sample type:

a. Human whole blood sample

Venous blood samples were collected using EDTA blood collection tubes.

b. Zebrafish tissue sample

20mg of 7dpf zebrafish (amount: 15) was grinded by TrusPure Grinding Microtube (2ml) with lysis buffer and supernatant was subjected to further extract process.

c. Plant sample

40mg of *A. thaliana* leaf tissue was grinded by TrusPure Grinding Microtube with buffer and the further steps are the same as the above description.

d. Bacteria sample

Gram-positive *S. aureus* and Gram-negative *E. coli* samples were grinded by TrusPure Grinding Microtube with buffer and the further steps are the same as the above description.

e. FFPE sample

Two sections in 20-50 mm² FFPE tissue was subjected to genomic DNA extract process.



- Sample volume: 200uL
- Elution volume: 100uL
- The details of the extraction process is described in the TrusPure Genomic DNA Extraction Kit Instructions for Use (Handbook).

Result

Genomic DNA was isolated from whole blood samples and fresh zebrafish tissues by the TrusPure Genomic DNA Extraction Kit and competitor kit Q and the quality of the extracts was determined by Nanodrop spectrophotometer and agarose gel electrophoresis. The data showed the efficient extraction of genomic DNA by both kits and a higher performance by TrusPure Genomic DNA Extraction Kit [Figure A and Figure B].

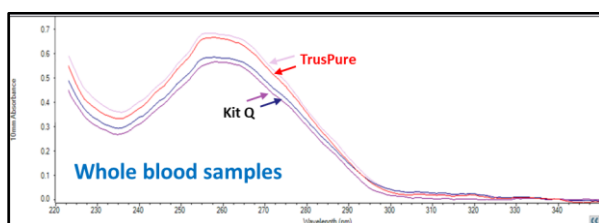


Figure A

A high integrity of whole blood sample extraction by TrusPure Genomic DNA Extraction Kit was also observed in the following Table :

Sample No.	1	2	3	4	5	6	AVG	SD
Con. (ng/ul)	103.2	102.5	102.2	104.2	105.3	103.3	103.5	1.1
260/230	1.80	1.81	1.80	1.81	1.81	1.83	1.81	0.01
260/280	1.80	1.82	1.80	1.79	1.82	1.79	1.81	0.01

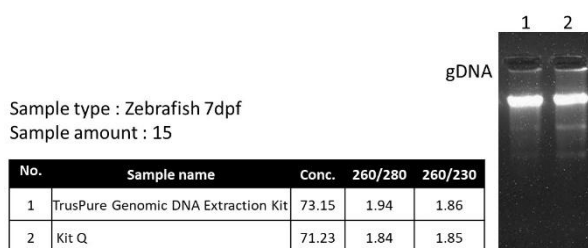


Figure B

Genomic DNA from *A. thaliana* leaf tissues was isolated by the TrusPure Grinding Microtube and Genomic DNA Extraction Kit and competitor kit Q and the quality of the extracts was determined by Nanodrop spectrophotometer and agarose gel electrophoresis. The results showed again a higher performance by TrusPure Genomic DNA Extraction Kit [Figure C].

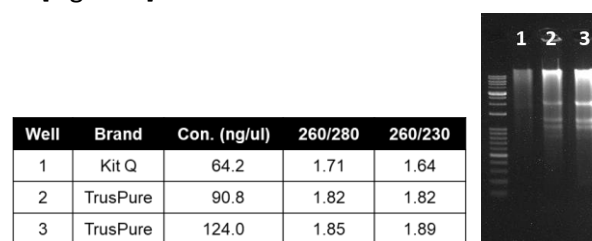


Figure C

Genomic DNA was extracted from Gram-positive *S. aureus* and Gram-negative *E.coli* samples by the TrusPure Grinding Microtube and Genomic DNA Extraction Kit and competitor kit Q. The presence of specific targets of *S. aureus* and *E.coli* was then analyzed by qPCR assays. The results showed again the efficient extraction by both kits [Figure C and Figure D].

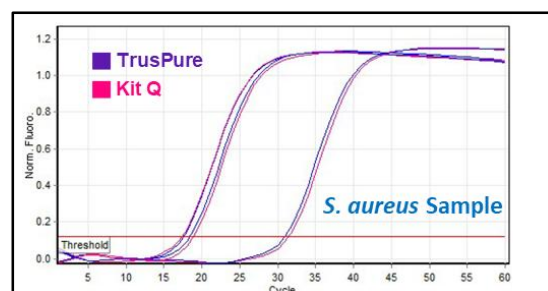


Figure C

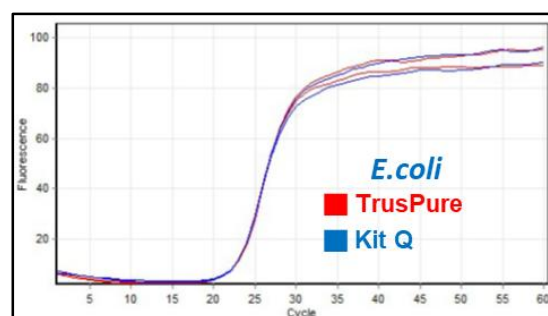


Figure D



Genomic DNA was extracted from 20 *S. aureus* samples and serial diluted *E.coli* samples by the TrusPure Grinding Microtube and Genomic DNA Extraction Kit. The reproducibility and the quality of the extracts was analyzed by qPCR assays. The results of amplification curve showed a high integrity and an excellent performance of DNA extraction by TrusPure Genomic DNA Extraction Kit [Figure E and Figure F].

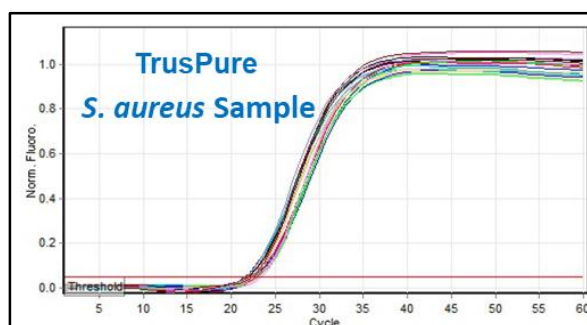


Figure E

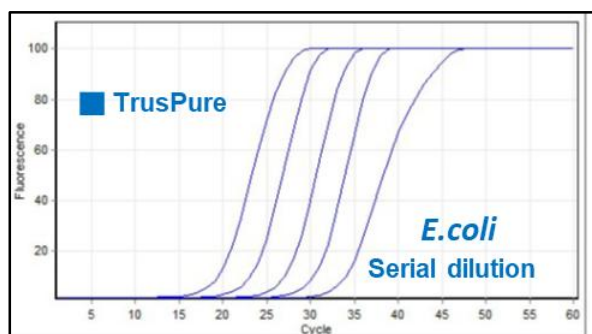


Figure F

Genomic DNA was isolated from FFPE tissues by the TrusPure Grinding Microtube and Genomic DNA Extraction Kit and competitor kit Q and the capillary electrophoresis and qPCR assay were performed to examine the quality of the extracts. Both of the analyses showed that genomic DNA products had good quality extracted by both kit and a better performance was also indicated by the Genomic DNA Extraction Kit [Figure G and Figure H].

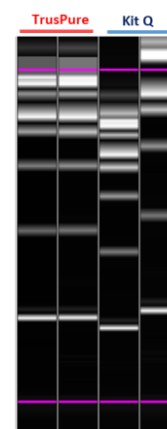


Figure G

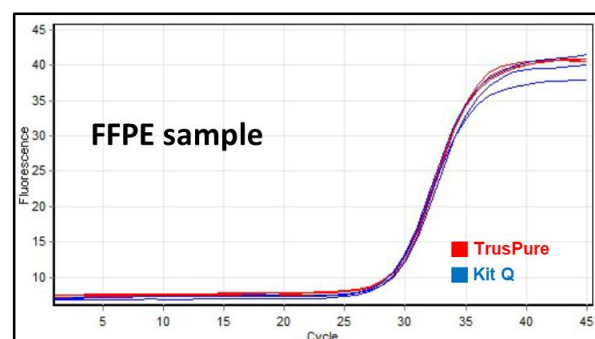


Figure H

Discussion and Conclusion

In our data, genomic DNA was extracted from a variety of sample types (including whole blood, mammalian tissue, plant tissue, bacteria, and FFPE tissue) and the results of all analyses (including spectrophotometer, agarose gel electrophoresis, qPCR assays, and capillary electrophoresis) revealed that TrusPure Genomic DNA Extraction Kit offers a high-efficient, high-quality, and high-integrity method of genomic DNA extraction and the purified DNA is ideal for use in a variety of downstream applications.