

# KingFisher Presto Sample Purification System

Optimized for High Throughput Automation



Figure 1: KingFisher Presto instrument.

## Introduction

The Thermo Scientific™ KingFisher™ Presto sample purification instrument is the latest addition to the KingFisher family (Figure 1). KingFisher Presto is optimized for automation and offers a whole new level of convenience for nucleic acid, protein and cell extractions for high throughput laboratories that wish to streamline their workflows. The instrument is designed to function as a vital part of an automation line that uses a liquid handler with a gripper or a robot arm for plate transfer, and potentially other devices such as plate sealers or PCR instrumentation. The KingFisher Presto utilizes proven KingFisher magnetic particle-based technology to provide high-quality target nucleic acids and proteins. Its small footprint is ideal for automation and helps to save valuable laboratory space. The KingFisher Presto is optimized for purification processes up to 1 ml volume with 96-well format and up to 5 ml volume using 24-well plates.

In this application note we compare data from the KingFisher Flex and KingFisher Presto instruments. Our results clearly indicate that the instruments produce equivalent yields and quality of extracted products. DNA extraction from human whole blood is shown as an example.

## Materials and Methods

Genomic DNA was extracted from 1 ml of EDTA-blood with the Thermo Scientific KingFisher Pure DNA Blood kit (#98010496) on the KingFisher Flex with 24 deep-well head (#5400640), and the KingFisher Presto with 24 deep-well head (#5400840) instruments according to the kit manual. The obtained DNA was eluted to 900 µl of the kits elution buffer.

Leucocytes are the main source of genomic DNA of blood samples. The number of the cells can vary substantially even between healthy individuals and it is expected that blood obtained from different persons will typically produce dissimilar DNA yields. Here we have used blood from two healthy donors. Six blood samples (1 ml per well) from each donor were pipetted to two 24 deep-well plates (Figure 2). The plates were then run on either the KingFisher Flex or the KingFisher Presto instrument.

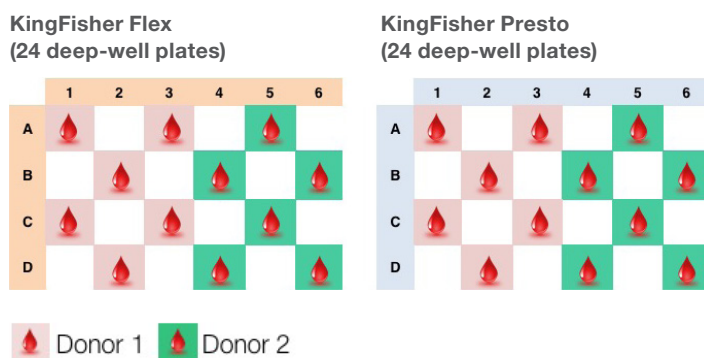
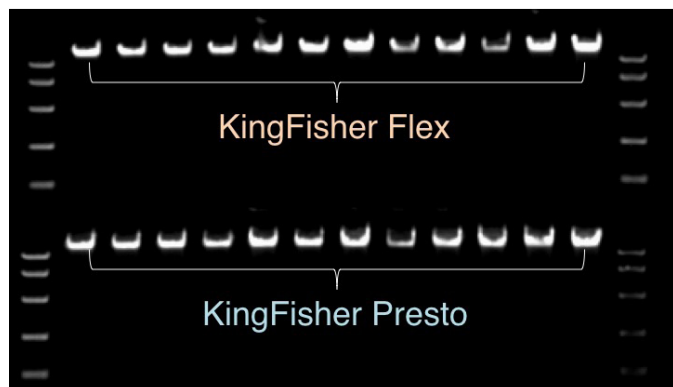


Figure 2: 24 deep-well plate layouts for KingFisher Flex and KingFisher Presto. Blood from two donors was pipetted to both plates and the extractions were performed with the indicated instruments.

## DNA Extraction Performance of KingFisher Presto

### Results

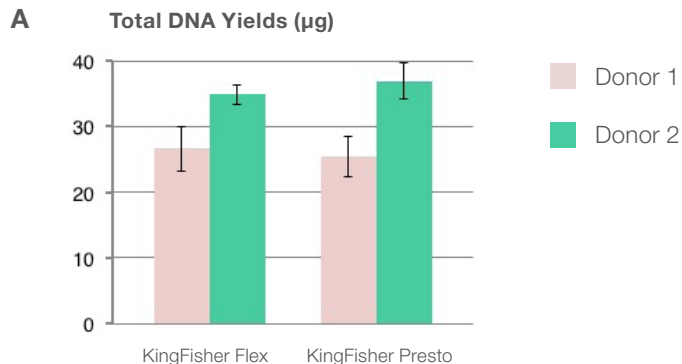
The results demonstrate that both the KingFisher Flex and KingFisher Presto produce high quality DNA extracts. The instruments displayed practically identical performance levels as indicated by the DNA yields obtained from the runs (Figure 3).



**Figure 3:** Extracted DNA samples run on an agarose gel. Upper row KingFisher Flex, lower row KingFisher Presto.

Average DNA yields from donor 1 were 26.6 µg with the KingFisher Flex and 25.4 µg with the KingFisher Presto. Yields from donor 2 were 34.9 µg and 36.9 µg with the KingFisher Flex and KingFisher Presto, respectively. The A260/A280 purity ratios were consistent between the samples and were 1.8 for each set. The A260/A230 ratios were similarly excellent and remained between 2.2–2.3 for all samples (Figures 4 A–B).

In addition, particle collection tests were performed with two different bead sets (diameter of 1 µm and 2.8 µm



		Yield (µg)	A260/A280	A260/A230
KingFisher Flex	Donor 1	26.6	1.8	2.2
	Donor 2	34.9	1.8	2.3
KingFisher Presto	Donor 1	25.4	1.8	2.3
	Donor 2	36.9	1.8	2.3

**Figure 4: A.** Total DNA Yields from extractions (from 1 ml of EDTA-blood) with the KingFisher Flex and the KingFisher Presto were equivalent. Error bars represent the standard deviations of the samples. **B.** All sample groups showed consistent yields and purity.

Dynabeads). The collection efficiency was over 98% (1 µm particles) and over 99% (2.8 µm particles) with both 24- and 96 deep-well magnet heads on the KingFisher Presto. The result is equal to the KingFisher Flex.

### Summary

The KingFisher Presto offers reliable and robust biomolecule extraction for laboratories looking to increase their sample throughput and fully automate extraction processes. The compact size of the instrument ensures that laboratory space can be fully utilized and enough room can be allocated to the other instruments of the workflow. KingFisher Presto produces both high quality and quantity of extracted materials, something users of all KingFisher instruments have grown accustomed to.

**North America:**  
USA/Canada +1 800 625 4327

**Europe:**  
Austria +43 1 801 40 0  
Belgium +32 2 482 30 30  
France +33 2 28 03 20 00  
Germany National Toll Free 08001-536 376

**Germany International** +49 6184 90 6940  
Italy +39 02 95059 1  
Netherlands +31 76 571 4440  
Nordic/Baltic/CIS countries +358 10 329 2200  
Russia +7 (812) 703 42 15  
Spain/Portugal +34 93 223 3154  
Switzerland +41 44 454 12 12  
UK/Ireland +44 870 609 9203

**Asia:**  
India +91 22 5542 9494  
Japan +81 45 453 9220  
China +86 21 6865 4588 or +86 10 5850 3588  
Other Asian countries +852 2885 4613  
Countries not listed: +49 6184 90 6940  
or +33 2 28 03 20 00

Find out more at [thermofisher.com/kingfisher](http://thermofisher.com/kingfisher)

**For Research Use Only. Not for use in diagnostic procedures.** © 2016 Thermo Fisher Scientific Inc. All rights reserved. All trademarks are the property of Thermo Fisher Scientific and its subsidiaries unless otherwise specified.  
AN\_KingFisherPresto\_8-16