



Application Note: FFPE Total RNA Purification Kit (48 reactions)

ExScale[®] Next Generation Extraction technology (NGEx[®]) Automated isolation of Total RNA from FFPE tissue

Introduction

Molecular research and diagnostics are constantly dependent on robust and efficient methods for extraction of high quality nucleic acids from human tissue samples. The most common method for long-term preservation of diagnostic tissue specimens is formalin-fixation and paraffin-embedding where the fixation and embedding conditions lead to crosslinking and degradation of the nucleic acids. Therefore, it has been challenging to isolate nucleic acids with high yield, integrity and purity from FFPE tissue samples where the degree of degradation depends on sample age and conditions for fixation and storing. This factor will compromise, or in worst case render downstream analysis impossible.

Standard methods for isolation of nucleic acids from FFPE tissue samples are time-consuming, often requiring overnight digestion. ExScale's FFPE Total RNA Purification Kit is designed to isolate RNA with high yield, integrity and purity without overnight processing. The ExScale technology is based on silica-coated magnetic beads and chemical reagents offering xylene-free extractions from FFPE tissue sections, making the kit efficient and convenient to handle.

Features and Benefits

ExScale offers nucleic acid purification kits and software that can isolate RNA from an FFPE tissue specimen in an automated system. The pre-filled cartridges and the user-friendly instrument start panel makes this system extremely versatile in a multiuser environment.

- Fully automated on Magtration[®] system magLEAD 12GC
- Reduction of manual handling errors
- Increased output with minimal sample consumption
- Releases RNA from FFPE without compromising integrity
- Completely non-toxic mineral oil deparaffinisation
- User and environmentally-friendly chemicals and processes
- Total turnaround time of under 2.5 hours



Figure 1. The Magtration[®] system magLEAD 12GC instrument (Precision System Science Co., Ltd) can process 1-12 samples simultaneously

Conclusion

The ExScale FFPE Total RNA Purification kit provides a highly efficient, automated method for extraction of RNA from FFPE tissue. The extraction protocol is fully automated using a liquid handling robotic workstation that can handle 1-12 samples simultaneously with a user-friendly interface.

All steps, including tissue deparaffinisation, are performed inside the instrument, resulting in minimal hands-on time for the user. Total run time is 2 hr 15 min.

The magLEAD 12GC is an easy-to-use instrument for a multiuser environment, which decreases the risks for human errors. Built in UV light and pre-filled cartridges reduce risk of sample contamination.



Figure 2. Prefilled cartridges reduce hands-on time and manual handling errors

Results

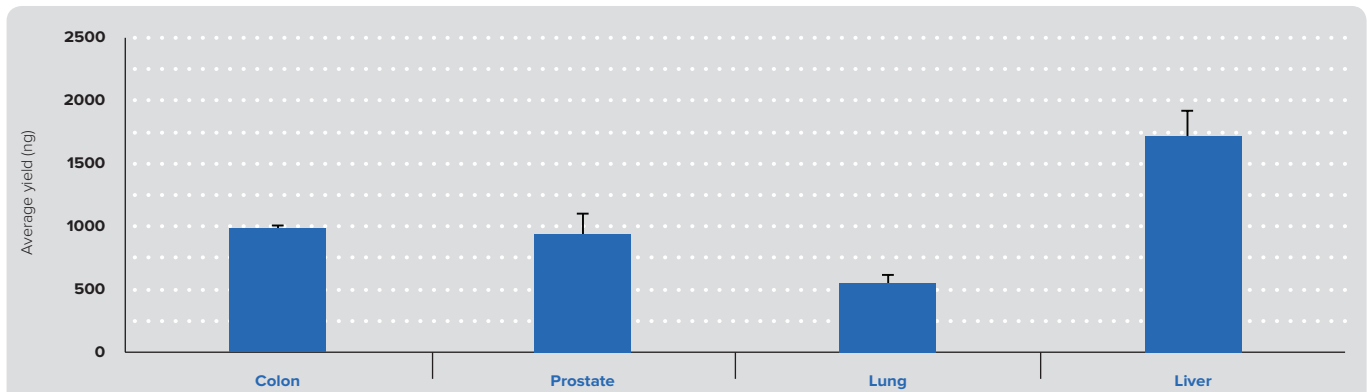


Figure 3. Average yields of total RNA from various tissue types using the ExScale FFPE Total RNA Purification kit and software. Yields assessed using Qubit RNA BR assay kit (ThermoFisher Scientific).

*Average yield from the same sample block of human FFPE tissue (2 x 10 um tissue per extraction), run in duplicate in 3 separate runs. Error bars show standard deviation.

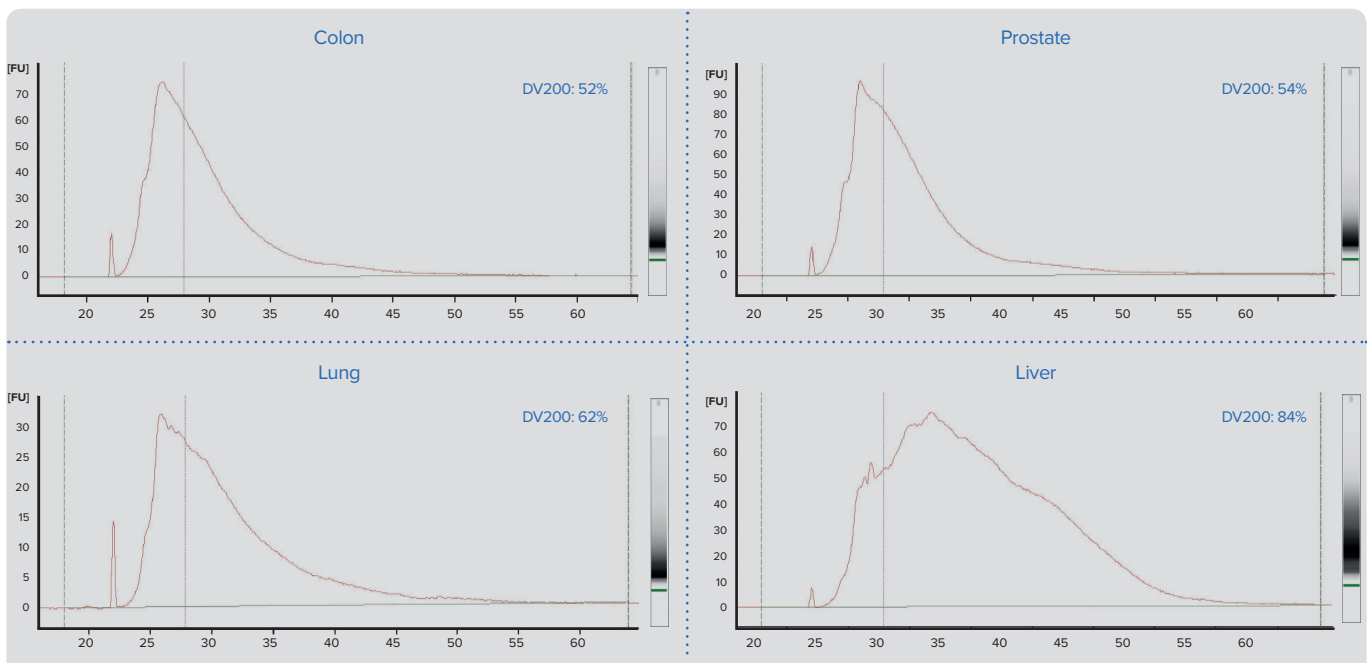


Figure 4. Bioanalyzer profiles of RNA extracted from the tissue samples represented in Figure 3. (Note that the integrity of extracted RNA also depends on pre-analytical factors).

Ordering information

Product	Description	Article no.
ExScale FFPE Total RNA Purification Kit	Prefilled reagent cartridges, deparaffinization agent and plasticware for 48 extractions	ES-K210FP
ExScale FFPE Total RNA Software*	IC card containing the extraction protocol	ES-SM210FP

* For general laboratory use on Magtraction[®] system magLEAD 12GC (Precision System Science Co., Ltd).

For more information, see our website exscalebio.com

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