

ExScale[®] Next Generation Extraction technology (NGEx[®]) Automated isolation of DNA 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. Standard methods for isolation of nucleic acids from FFPE tissue samples are time-consuming, often requiring overnight digestion.

At ExScale, we have developed NGEx technology to reduce this bottleneck and provide high quality automated extraction techniques. ExScale's FFPE DNA Purification Kit is designed to isolate genomic DNA with high yield, integrity and purity without overnight processing. The 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 DNA 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
- CE marked for IVD
- Reduction of manual handling errors
- Increased output with minimal sample consumption
- Releases DNA from FFPE without compromising integrity
- User and environmentally-friendly chemicals and processes

Conclusion

The ExScale FFPE DNA Purification kit provides a highly efficient, automated method for extraction of DNA 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 deparaffinization, are performed inside the instrument, resulting in minimal hands-on time for the user. Total run time is 3 hr 40 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 1. The Magtration[®] system magLEAD 12GC instrument (Precision System Science Co., Ltd) can process 1-12 samples simultaneously



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

Results

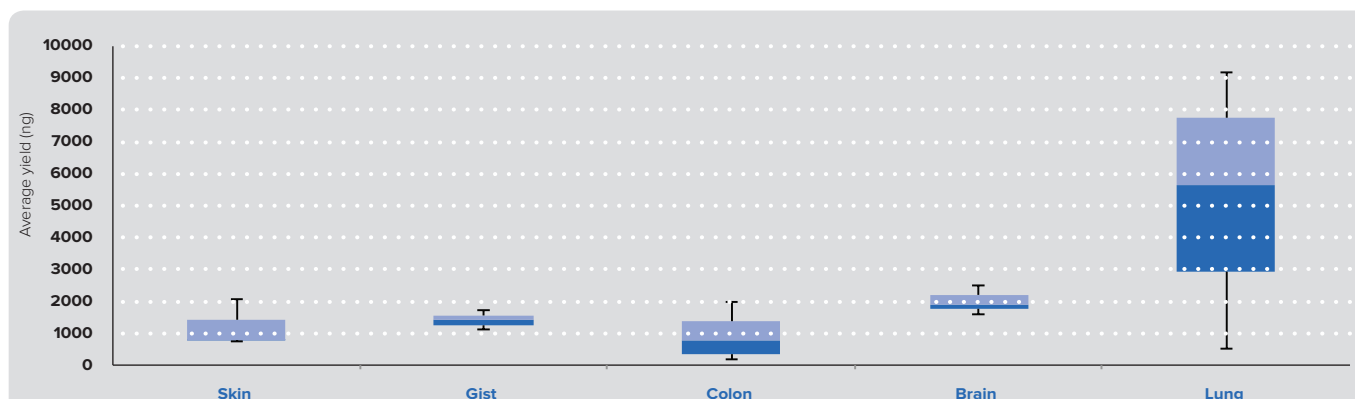


Figure 3. Average yields of DNA from various tissue types using the ExScale FFPE DNA/RNA purification kit and software. Yields assessed using Qubit[®] dsDNA BR assay kits (ThermoFisher Scientific).

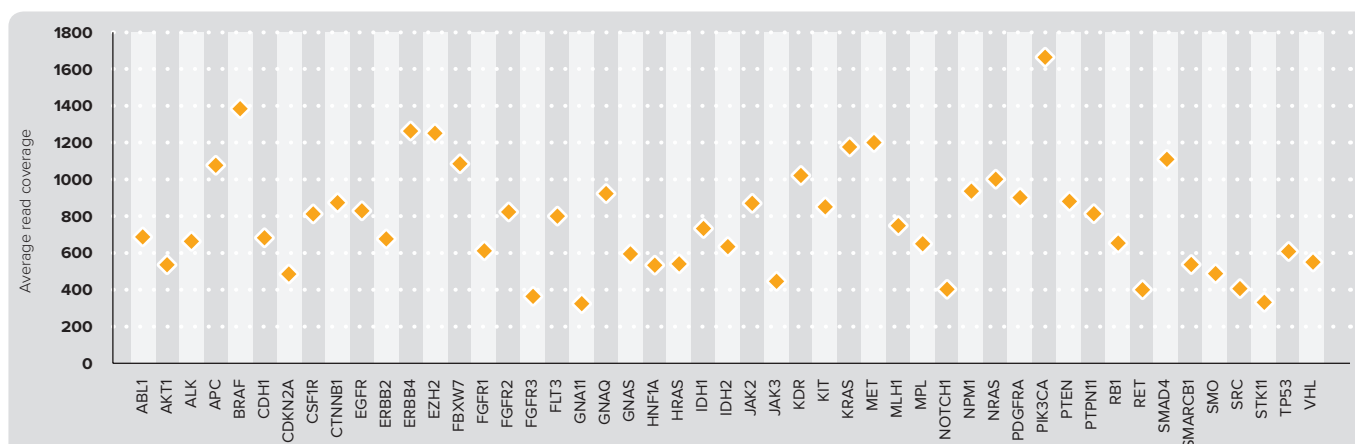


Figure 4. Next generation DNA sequencing performed using the Ion AmpliSeq[™] Cancer Hotsport panel which covers 50 oncogenes and tumor suppressor genes. Data analysis was performed using the Torrent Suite[™] Software and Ion Reporter[™] TM Software. A) An average depth of coverage calculated for the 50 target genes in the sequencing library of one colon samples, colored by gene. The median depth of coverage for all targets reached 1200x with 82% of targets had coverage of over 1000x.

Ordering information

| Product | Description | Article no. |
|---|--|-----------------------------|
| ExScale FFPE DNA Purification Kit and Software* | Prefilled reagent cartridges, deparaffinization agent and plasticware for 48 extractions | ES-K110FP-C and ES-S110FP-C |

*CE marked according to IVD 98/79/EC for use on Magtraction[®] system magLEAD 12GC (Precision System Science Co., Ltd).

For more information, see our website exscalebio.com

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