NGEx®

- Next Generation Extraction -

Application Note: FFPE DNA Purification Kit (48 reactions)

ONCODIA

NGEx® – Next Generation Extraction technology
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 specimen is formalin fixation and paraffin-embedding. This producedure leads 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 of isolation of nucleic acids from FFPE tissue samples are time-consuming, often requiring overnight digestion.

The NGEx technology has been developed to reduce this bottleneck and provide a high quality automated solution for nucleic acid extraction. The 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, safe and easy to handle.

Features and Benefits

The NGEx technology offers nucleic acid purification kits and software that can isolate DNA from FFPE tissue specimens in an automated system. The pre-filled reagent cartridges and the user-friendly instrument start panel makes this system extremely robust and versitale 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 NGEx FFPE DNA Purification kit provides a highly efficient method for extraction of DNA from FFPE tissue sections. The extraction protocol is fully automated using a liquid handling robotic workstation that can handle 1-12 samples simultaneously. All steps, including tissue deparaffinization, are performed inside the instrument, resulting in minimal hands-on time for the user. Total protocol run time is 3 hours 40 minutes.

The magLEAD 12GC is an easy-to-use instrument with pre-defined protocols and built in UV light for decontamination between runs.

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

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

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Results

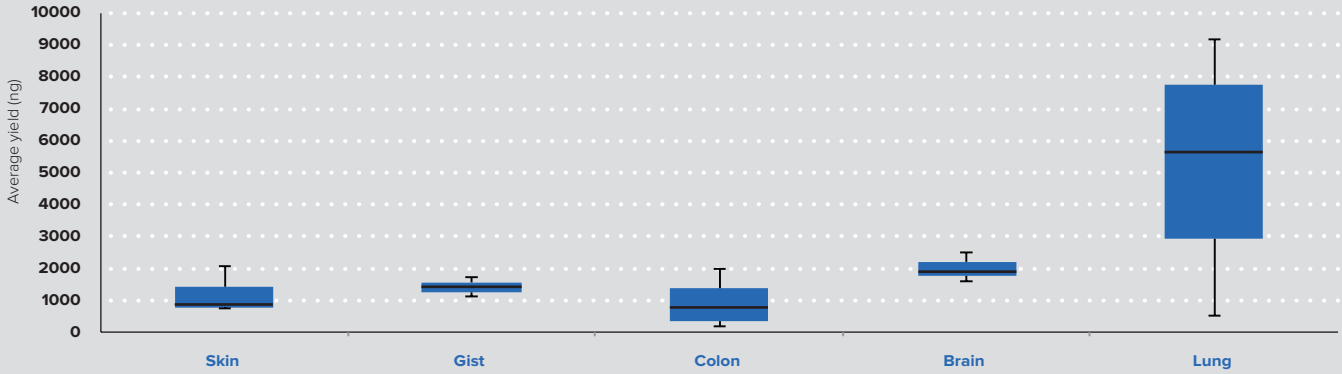

Figure 3. Range of average DNA yields obtained from various tissue types using NGEx FFPE DNA Purification kit and software. The data for each tissue is based on extration of several different specimens. The black line represents the median yield. Yields assessed using Qubit® dsDNA BR Assay kits (ThermoFisher Scientific).

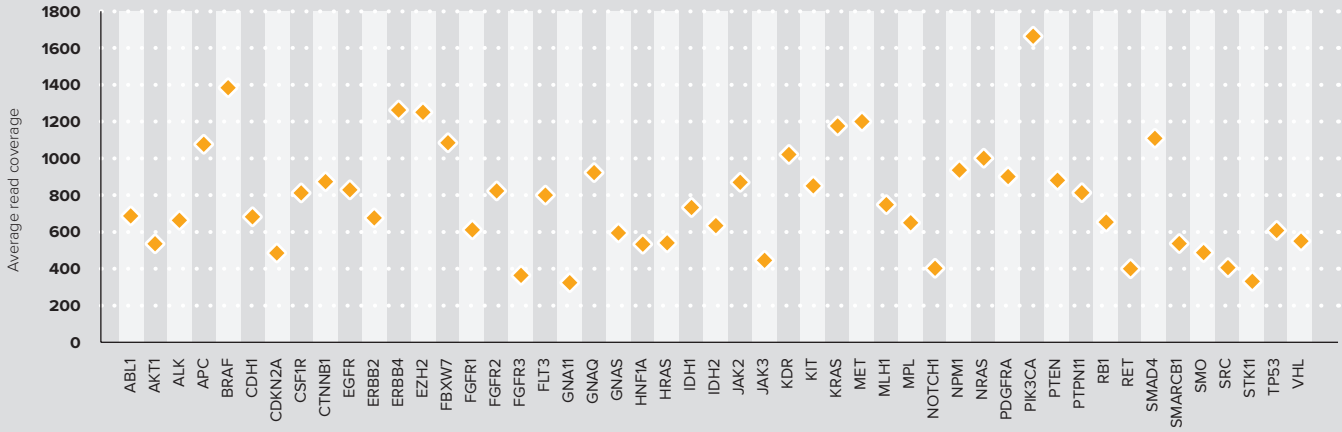

Figure 4. Next generation DNA sequencing performed using the Ion AmpliSeqTM Canver Hostpot panel which covers 50 oncogenes and tumor suppressor genes. Data analysis was performed using the Torrent SuiteTM Software and Ion Reporter TM Softwarel A) An average depth of coverage calculated to the 50 target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

Ordering information

Product	Description	Article no.
NGEx FFPE DNA Purification Kit	Prefilled reagent cartridges, deparaffinization agent and plasticware for 48 extractions	ES-K110FP-C
NGEx FFPE DNA Software*	IC card containing the extraction protocol	ES-S110FP-C

**For general laboratory use on Magtration system magLEAD 12GC (Precision System Science Co., Ltd)*

For more information, see our website oncodia.com

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