TECHNICAL NOTE

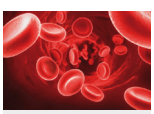
Automated DNA/RNA Isolation

Automated Nucleic Acid Isolation Fulfilling Biobanking Needs

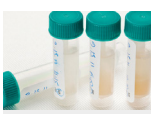
Biobanking applications, biospecimen repositories and Mircrobiome research projects are facing demanding and diverse sample materials like whole blood, FFPE-tissue to feces-material in all kind of sample volumes and conditions. To fulfill the needs of sensitive genetic research applications such as whole genome sequencing, real time/digital PCR, and methylation analysis etc., the extraction of high quality and high yield nucleic acids is an essential initial step, especially when it comes to long-term storage of the extracted DNA/RNA samples as required in Biobanking.

PerkinElmer offers the perfect solutions for this challenge by providing

- Automated Nucleic Acid Isolation, highly flexible in sample volume (10 µl - 10 ml), sample material and throughput
- Huge variety of processable sample materials (blood, buffy coat, saliva, tissue, feces, etc.)
- Maximum yields and best purities (up to 50 µg DNA/ml blood; $OD_{260/280}$ 1.9; $OD_{260/230}$ >2.0)
- Long term stable nucleic acids

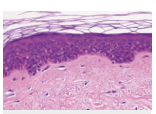


Blood
10 - 400 µl
0.5 - 4 ml
1 - 10 ml



Saliva
600 µl
2 - 4 ml

Feces
(up to 1 g)



Tissue
10 mg
FFPE
10 µm section

Fig. 3: Protocols optimized for Biobanking

Further chemagic Kits are available on request.

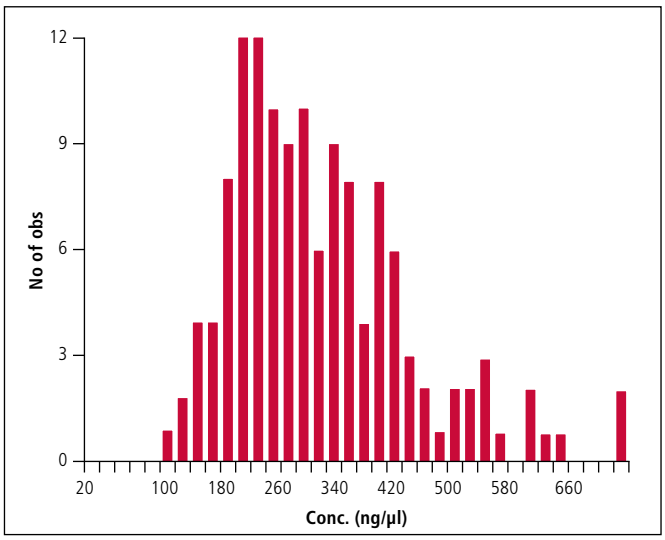


Fig. 1: DNA concentration of 133 extractions from 4 ml whole blood, elution vol. 500 µl. Mean conc.: 314 ng/µl, mean yield: 157 µg

Genomic DNA isolation from ≤ 7 ml human blood (with chemagic DNA Blood Kit special CMG-715), elution volume = 500 µl

Achieving high average yields: 63 µg/ml blood,
DNA concentration: 346,6 ng/µl±163,01
High DNA quality: A_{260}/A_{260} = 1,98±0,26

> 2,500 DNA extractions per year
> 200 runs per year

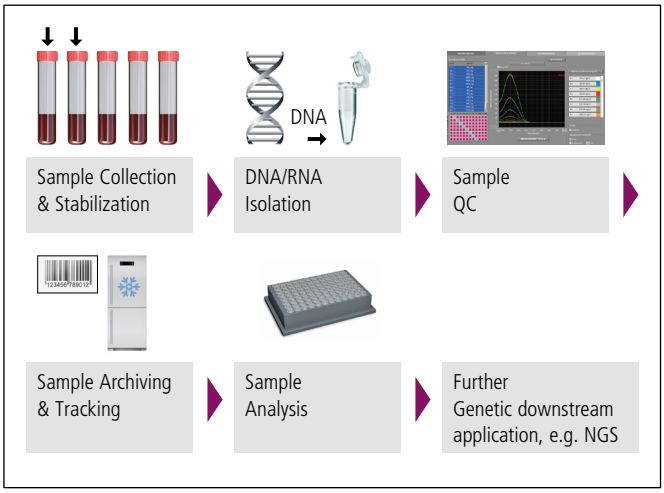
Fig. 2: Customer results of Biobank HCB-IDIBAPS, Barcelona, Spain, Blood and Fluid Bank, Veronica Fernandez Pascual, PhD

PerkinElmer®
For the Better

Your Tool for DNA/RNA Isolation Workflows in Biobanking

Based on your automation needs PerkinElmer offers full workflow solutions covering high throughput DNA/RNA isolation, liquid handling robotics, Nucleic Acid quality control and analysis, optimized for Biobanking and Biorepository demands.

Biobanking Workflow



All from a single-source PerkinElmer delivers Biobanking application support from DNA to Data.

Next Generation Sequencing Workflow

For more information please visit
www.perkinelmer.de/category/genomic-analysis

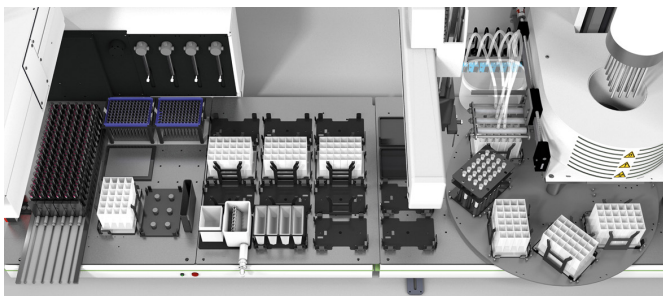
chemagic™ 360 Nucleic Acid Extractor

Key features

- Sample volumes from 10 µl - 10 ml
- High throughput
- LIMS compatible log files, barcode reading

Benefits

- Ready to use DNA/RNA – up to 50 µg DNA/ml blood
- Compact benchtop design
- Integrates with Liquid Handling Systems



chemagic 360i Nucleic Acid Extractor integrated in PerkinElmer JANUS® Liquid Handling Workstation

Automation solutions

- High throughput primary sample transfer and DNA/RNA Isolation
- Optional: normalization, PCR setup applications, eluate transfer into storage formats
- Numerous sample tube and plate formats for primary sample input and eluate output
- Barcode sample and eluate tracking for seamless integration to LIMS systems, sample security and storage solutions

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