Automated Nucleic Acid Isolation Fulfilling Biobanking Needs

Biobanking applications, biospecimen repositories and Microbiome 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

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

Conc. (ng/µl)

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<th>No of obs</th>
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<td>0</td>
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20 100 180 260 340 420 500 580 660

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_{280} = 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

Fig. 3: Protocols optimized for Biobanking

<table>
<thead>
<tr>
<th>Blood</th>
<th>Saliva</th>
<th>Feces</th>
<th>Tissue</th>
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<tr>
<td>10 - 400 µl</td>
<td>600 µl</td>
<td>(up to 1 g)</td>
<td>10 mg</td>
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<tr>
<td>0.5 - 4 ml</td>
<td>2 - 4 ml</td>
<td>FFPE</td>
<td>10 µm section</td>
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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

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