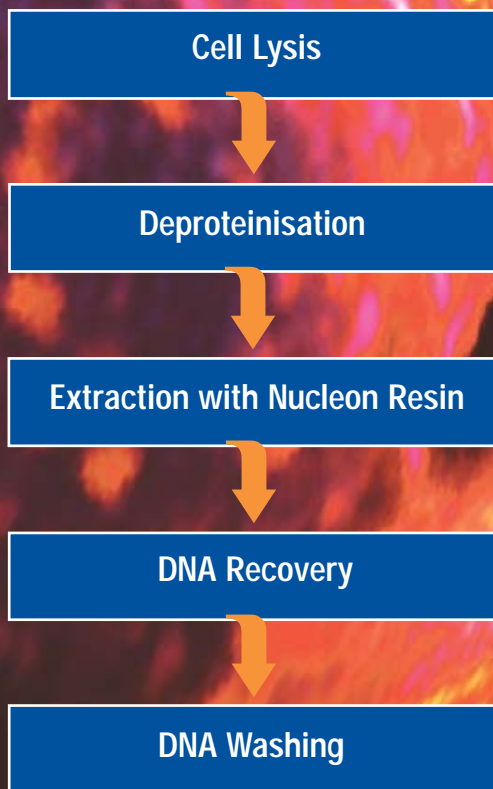


GENOMIC DNA FROM BLOOD

Principle steps in the Nucleon[®] genomic DNA blood protocol



- High speed (≤ 30 minutes)
- High yield ($\sim 400\mu\text{g}/10\text{ml}$ blood)
- High purity ($A_{260/280} \geq 1.8$)
- High MWt DNA ($\geq 50\text{kb}$)
- No phenol, chloroform or Proteinase K
- Suitable for use with cell cultures
- Fully scaleable (0.5ml to 10ml)

Introduction

The Nucleon genomic DNA extraction system for blood has been developed to rapidly and efficiently extract high molecular weight DNA from whole blood. It is designed to eliminate concerns over the use and disposal of chloroform.

Principle

Following cell lysis and deproteinisation, the Nucleon proprietary resin is added. This resin binds proteins by the formation of an imide bond and subsequently traps proteinaceous material in a tight pellet after centrifugation.

This enables easy removal of the DNA-containing supernatant, ensuring excellent recovery of high quality DNA (Table 1).

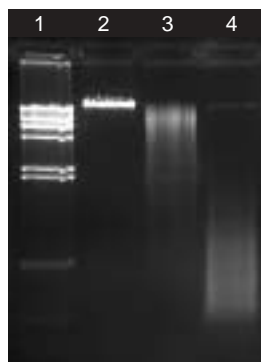
The Nucleon genomic DNA extraction system for blood is not based on the use of spin columns or magnetic beads. As a result, scaling up to large sample volumes is both simple and cost effective. Extraction from small blood volumes (0.5-1ml) is carried out in standard 2ml microtubes. Protocols for extraction from blood samples of 0.5ml to 10ml are supplied in each kit.

Applications

DNA recovered by the Nucleon DNA extraction system is suitable for restriction digests (Figure 1), PCR[†] (Figure 2), blotting and hybridisation.

It is also possible to use the blood kit to extract DNA from cultured cells (Figures 3 & 4).

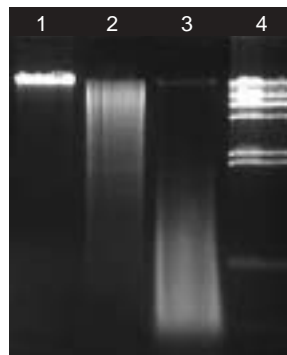
Figure 1 Genomic DNA isolation from blood and restriction enzyme digests



DNA, isolated from human blood using the Nucleon protocol, was digested with *Hind*III or *Alu*I restriction enzymes and analysed on a 1.0% agarose gel.

- 1) *Hind*III λ digest marker
- 2) undigested DNA purified from human whole blood
- 3) DNA purified from human whole blood and digested with *Hind*III
- 4) DNA purified from human whole blood and digested with *Alu*I

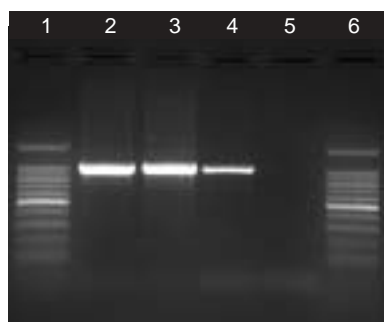
Figure 3 Genomic DNA isolation from cultured cells and restriction enzyme digests



DNA, isolated from HeLa cells using the Nucleon protocol, was digested with *Hind*III or *Alu*I restriction enzymes and analysed on a 1.0% agarose gel.

- 1) undigested DNA purified from HeLa cells
- 2) DNA purified from HeLa cells and digested with *Hind*III
- 3) DNA purified from HeLa cells and digested with *Alu*I
- 4) *Hind*III λ digest marker

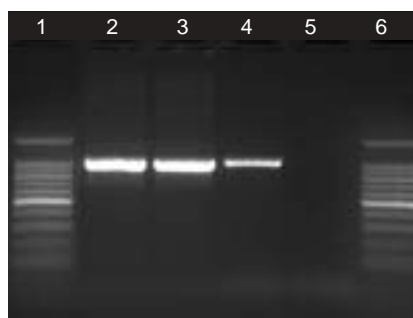
Figure 2 Blood PCR amplification



DNA, isolated from human blood using the Nucleon protocol, was used as a template for PCR amplification using a GA3PDH gene model. The products were separated on a 1.0% agarose gel.

- 1) 100bp ladder
- 2) blood DNA (prep 1)
- 3) blood DNA (prep 2)
- 4) positive control (human placenta DNA)
- 5) negative control
- 6) 100bp ladder

Figure 4 Cell Culture PCR amplification



DNA, isolated from HeLa cells using the Nucleon protocol, was used as a template for PCR amplification using a GA3PDH gene model. The products were separated on a 1.0% agarose gel.

- 1) 100bp ladder
- 2) HeLa cell DNA (prep 1)
- 3) HeLa cell DNA (prep 2)
- 4) positive control (human placenta DNA)
- 5) negative control
- 6) 100bp ladder

Table 1 Yields and purity of recovered DNA

Sample	Yield of DNA (μ g)	Average $A_{260/280}$
10ml whole blood	350-400	1.8

Ordering Information

44100 Nucleon Genomic DNA Extraction kit for 50 preps of 10ml whole blood

Other kits available in the Nucleon range:

- SL8501** Nucleon BACC1 kit for 50 extractions of up to 1ml whole blood or cell cultures
- SL8502** Nucleon BACC2 kit for 50 extractions of between 3 to 10ml of whole blood or cell cultures
- SL8512** Nucleon BACC3 kit for 50 extractions of up to 10ml of whole blood or cell cultures
- SL8508** Nucleon ST kit for 50 preps of up to 250mg of soft tissue
- SL8509** Nucleon HT kit for 50 preps of up to 25mg of hard tissue or paraffin-embedded sections
- SL8510** Nucleon PhytoPure® kit for 50 extractions of 0.1g of plant tissue
- SL8511** Nucleon PhytoPure kit for 50 extractions of 1.0g of plant tissue
- 44200** Nucleon Genomic DNA Extraction kit for 50 preps of 1cm mouse tail
- 44201** Nucleon Genomic DNA Extraction kit for 200 preps of 1cm mouse tail
- 44300** Nucleon Genomic DNA Extraction kit for 50 extractions of 0.1g of plant tissue

Other kits available in the Nucleopure™ range for use with the Nucleopure Automated System for mouse tail DNA extraction:

- 35100** Nucleopure Mouse Tail kit for up to 960 extractions

Other kits available in the Nucleoplex™ range for use with the Nucleoplex Automated System for BAC/Plasmid DNA extraction:

- 33100** Nucleoplex Plasmid DNA extraction kit for up to 192 extractions
- 33200** Nucleoplex BAC DNA extraction kit for up to 192 extractions
- 33201** Nucleoplex BAC DNA extraction kit for up to 192 extractions (plasticware not included)