Technical Note
PAXgene® Blood DNA System

Integrity and quality of purified DNA obtained using the PAXgene Blood DNA System and stored for 10 years at 4°C or –20°C

Study Design

Human whole blood samples from multiple donors were drawn into PAXgene Blood DNA Tubes. Blood tubes were processed within one day to obtain DNA using the PAXgene Blood DNA Kit according to the standard protocol described in the PAXgene Blood DNA System handbook. DNA which had been resuspended in 1 ml Buffer BG4 (resuspension buffer) was stored at 4°C (8 donors) and –20°C (7 donors) for 10 years as part of ongoing stability studies. The DNA samples stored at 4°C and –20°C were analyzed by agarose gel electrophoresis, as well as with standard and long-range PCR assays.

Results

Agarose gel analysis showed that, after 10 years of sample storage at either 4°C or –20°C, DNA obtained with the PAXgene Blood DNA System is larger than a 23 kb DNA marker (Figure 1). The DNA appears as a sharp band with no evidence of smaller molecular weight fragments that would indicate DNA degradation. All DNA samples from either storage temperature (4°C or –20°C) could be used for amplification of a 1100 base pair (bp) fragment of the human single-copy gene Hug l (human homolog of giant larvae) in standard PCR (Figure 2). In addition, all DNA samples could be used for amplification of a 5093 bp fragment of human tuberous sclerosis complex (Dabora et al. [2000] J Med Genet **37**, 877; Figure 3).

Conclusions

DNA samples from whole blood collected and processed with the PAXgene Blood DNA System and stored for up to 10 years at 4°C or –20°C are of high quality and high molecular weight.

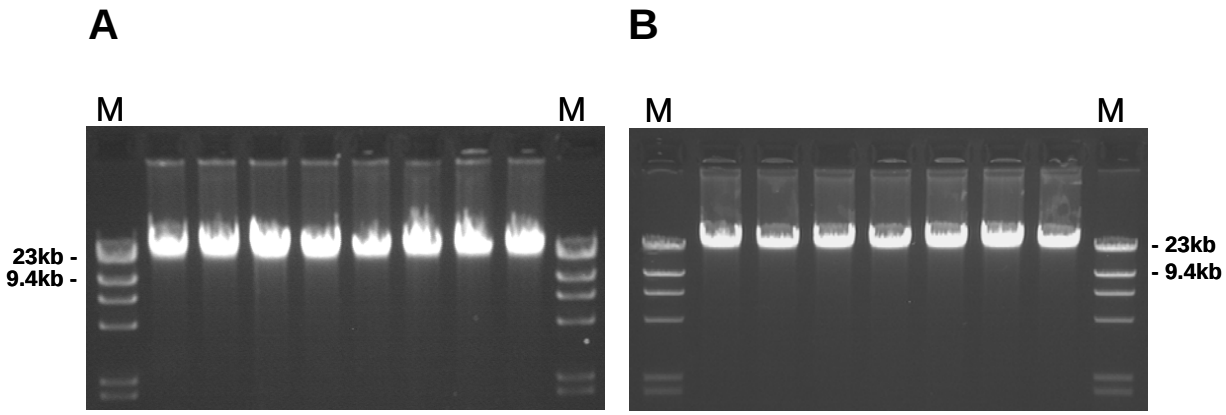

Figure 1. High-molecular-weight DNA after storage for 10 years at 4°C or –20°C. Agarose gel analysis (0.8% [w/v] agarose gel, 1 x TAE buffer pH 8) of 400 ng DNA each sample from a different donor. DNA was resuspended in buffer BG4 and stored for **A** 10 years at 4°C or **B** 10 years at –20°C. **M**: Molecular weight marker lane showing *Hin*dIII digested Lambda DNA (23 kb and 9.4 kb bands indicated).

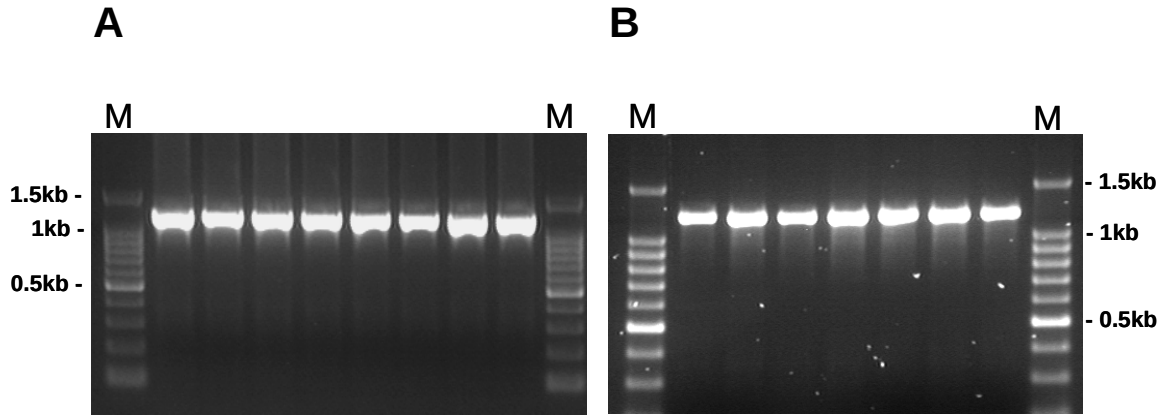

Figure 2. Successful amplification in standard and long-range PCR. Amplificationof a 1.1 kb fragment of the single-copy gene Hug l (human homolog of giant larvae) using 50 ng genomic DNA from different donors as reaction template. DNA was dissolved in resuspension buffer BG4 and stored for **A** 10 years at 4°C or **B** 10 years at –20°C. **M**: Lane showing GelPilot 100 bp PlusLadder (QIAGEN®) (1.5 kb, 1 kb, and 0.5 kb bands indicated).

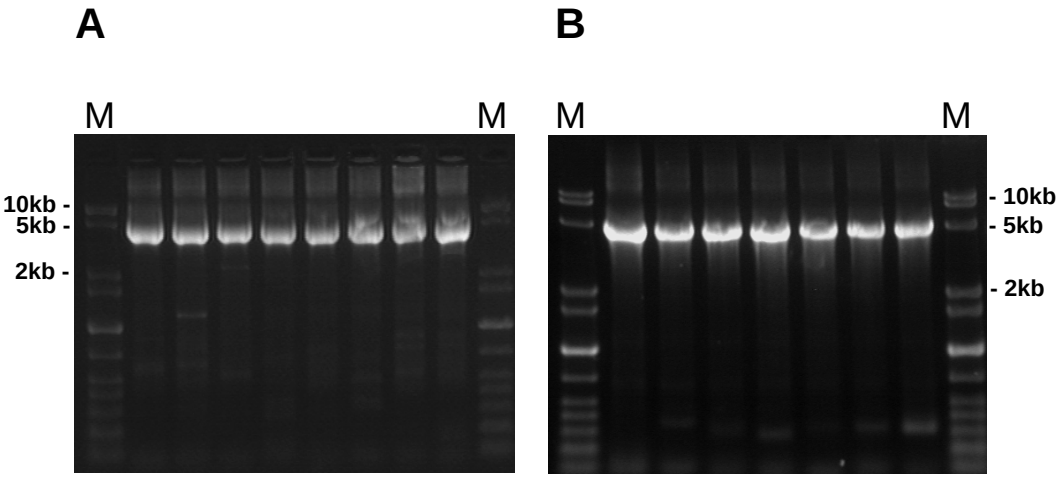

Figure 3. Amplification of a 5093 base pair (bp) fragment of the human tuberous sclerosis complex using 50 ng genomic DNA from different donors as template with the QIAGEN LongRange PCR Kit. DNA was dissolved in resuspension buffer BG4 and storedfor **A** 10 years at 4°C or **B** 10 years at –20°C. **M**: Lane showing GelPilot 1 kb Plus Ladder (QIAGEN) (10 kb, 5 kb, and 2 kb bands indicated).

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