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### High-performance PCR template DNA from preserved blood samples using MagAttract technology and the BioRobot M48 workstation

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Clinical research applications, such as genotyping, require multiple assays to be performed from a single sample. The numbers of analyses that can be performed from a single DNA sample depend on both the concentration and the quality of the sample. This introduces the need for a robust and efficient purification technology that provides efficient yields of high-quality DNA. The purified DNA must also perform well in downstream assays and be free of PCR inhibitors. This study shows the PCR performance of DNA purified from citrate- (ACD), heparin-, and EDTA-preserved whole blood samples using MagAttract technology and the BioRobot M48 workstation.

#### Materials and methods

Automated DNA purification was performed on ACD-, heparin- and EDTA-preserved whole blood samples using the [MagAttract DNA Blood Mini M48 Kits](#) and [MagAttract DNA Blood Midi M48 Kits](#) on the BioRobot M48 workstation. All blood samples were collected from the same donor. Protocols using both 200 µl and 350 µl sample volumes were performed and purified DNA was eluted in 200 µl RNase-free water. A dilution series of the isolated DNA was used in PCR amplifications of a 900 bp fragment of the single-copy gene MECL-1 (proteasome-like subunit). PCR amplification was performed using 15–0.25 µl purified DNA in a 50 µl reaction.

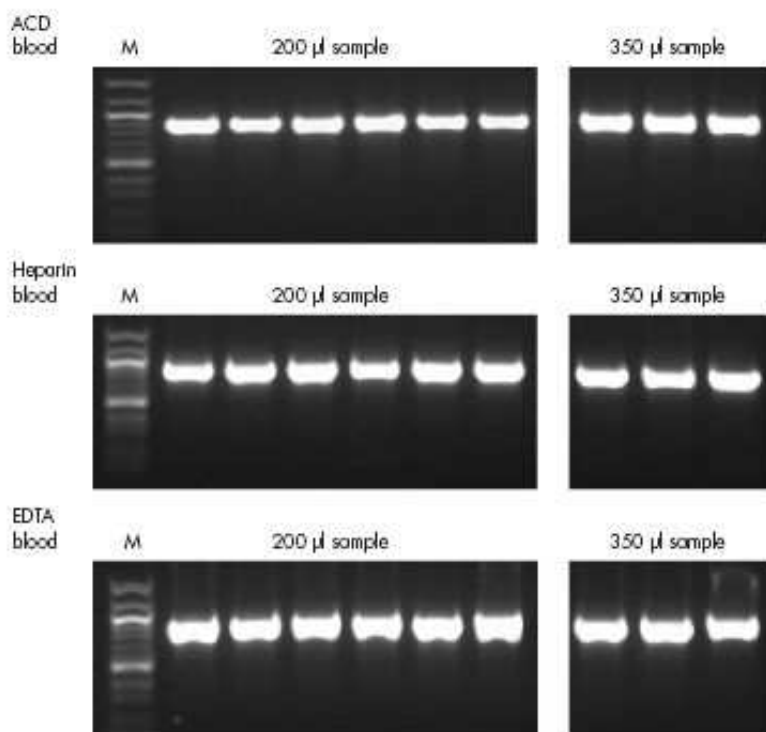
#### The BioRobot M48 workstation



#### Results

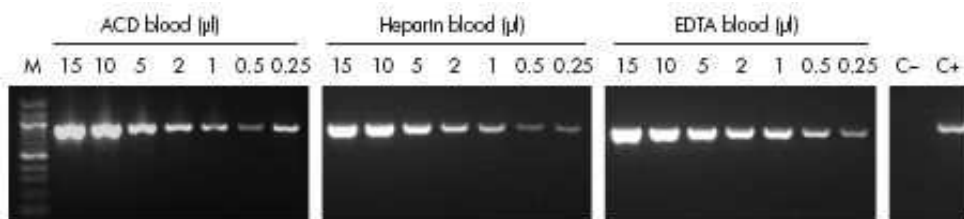
Strong, clean bands were observed for all single-copy amplifications using template DNA isolated from ACD-, heparin- and EDTA-preserved blood using the BioRobot M48 workstation in combination with MagAttract technology (see figure ["Efficient PCR from all Samples"](#)). PCR products were clearly visible using as little as 0.25 µl template DNA. No inhibition of PCR was observed, even when using 15 µl template DNA in a 50 µl PCR (see figure ["High-Purity DNA for Efficient PCR"](#)).

## Efficient PCR from all Samples



Amplification (34 cycles) of the MECL-1 single-copy gene from ACD-, heparin- and EDTA-preserved whole blood. 5 µl of 200 µl purified DNA was used in a 50 µl PCR. 5 µl of the PCR product was analyzed by agarose gel electrophoresis. **M**: 100 bp DNA ladder (100 ng).

## High-Purity DNA for Efficient PCR



Amplification (34 cycles) of the MECL-1 single-copy gene (900 bp fragment) from dilution series of DNA purified from 200 µl ACD-, heparin- and EDTA-preserved whole blood samples. **M**: 100 bp DNA ladder; **C-**: negative control; **C+**: positive control.

## Conclusions

MagAttract technology and the BioRobot M48 workstation provide a robust and efficient solution for fully automated purification of template DNA from whole blood samples.

- DNA purified from whole blood using MagAttract technology on the BioRobot M48 workstation performs well in sensitive PCR analysis
- Common blood preservatives (ACD, heparin, and EDTA) do not affect PCR performance of MagAttract purified DNA from whole blood
- Fully automated MagAttract technology yields high-quality DNA from 200 µl blood, sufficient for up to 800 PCR analyses

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