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Functional yields of DNA from blood with varying white cell counts using the BioRobot M48 workstation and MagAttract technology

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The white cell count of whole blood samples can vary greatly between different individuals according to age, sex, immune status, and many other factors, and can influence DNA yield. This inherent variation creates a need for reproducible purification technologies that are sufficiently robust to give usable yields of high-quality DNA from blood with a range of white cell counts. This study records the yield of MagAttract purified DNA from whole blood samples taken from different donors, purified using the [BioRobot M48](#) workstation.

Materials and methods

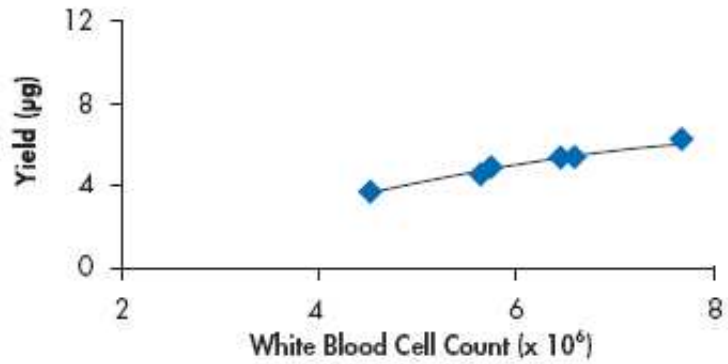
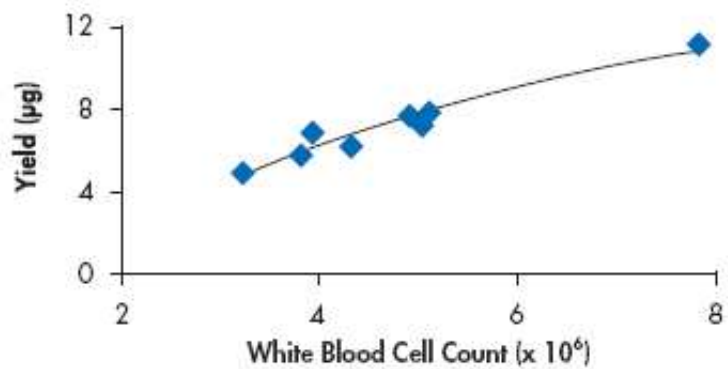
Automated DNA isolations were performed on EDTA-preserved whole blood samples from 6 and 8 different donors using the [MagAttract DNA Blood Mini M48 Kit](#) and [MagAttract DNA Blood Midi M48 Kit](#), respectively. Donors with varying, though typical, cell counts were used. Purification was fully automated using the BioRobot M48 workstation. Each sample was purified in triplicate. Samples were eluted in 200 µl RNase-free water, and DNA was quantified by absorbance (A_{260}) measurement adjusted for background.



Results

Average yields for each sample donor are shown in the figure "[DNA Yield from Different Donors](#)". The figures show the relationship between yield and white blood cell count. In general, increased white blood cell count gives increased DNA yields. The 200 µl Blood protocol yielded 3.87–6.17 µg DNA, while the 350 µl Blood protocol yielded 4.88–11.23 µg DNA.

DNA Yield from Different Donors

DNA Yield from Different Donors (200 μ l Sample)DNA Yield from Different Donors (350 μ l Sample)

Each data-point shows the average yield from each sample donor.

Conclusions

The results clearly show that MagAttract technology in combination with the BioRobot M48 workstation gives DNA yields appropriate for a wide range of downstream applications — even using blood samples with a range of white cell counts.

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