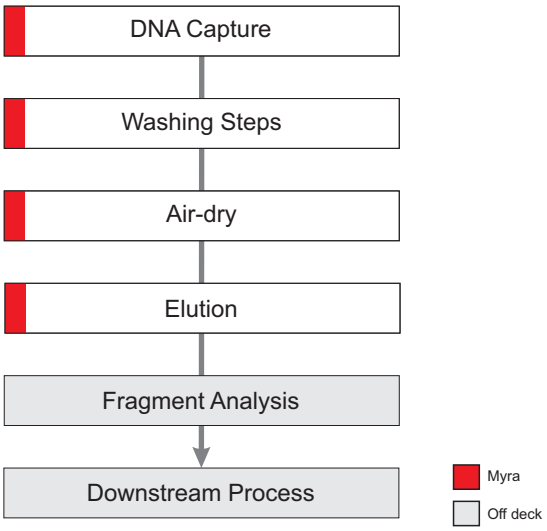
# Myra Liquid Handling System

# Bead Clean Up

## Bead Clean Up

Bead clean up is a tedious and complex task required by every single lab doing NGS. Pipetting precision plays an important role in yield and reproducibility, but is dependent on the technicians performing the pipetting.

Automation of the process with Myra guarantees consistent and precise protocol execution, reducing the likelihood of user errors. Myra makes bead clean up easy, reproducible, efficient, and cost-effective. This enhanced reproducibility is crucial for maintaining data quality and consistency.




## Key Features

Capable of processing up to 24 samples, Myra incorporates a 96 Well Magnetic Station for bead clean up. A protocol can be written in less than half a day in comparison to larger robots that can require days or weeks of optimization before they can do the job properly.

## Bead Clean Up Kits

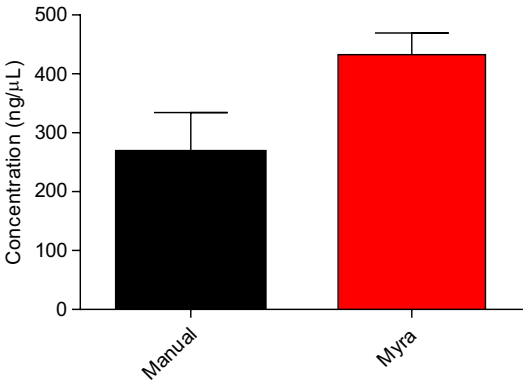
- CleanNGS (CleanNA)
- AMPure XP (Beckman Coulter)
- HighPrep PCR (MagBio Genomics)
- CeleMag Clean-up Bead (Celemics)
- KAPA HyperPure Beads (Roche)
- NucleoMag NGS Clean-up and Size Select (Machery-Nagle)
- HigherPurity PCR Clean Up (Canvax)

Full list available at
www.biomolecularsystems.com/myra/myra-script

Ask us to automate your bead clean up protocol.

## High Yield and Reproducibility

The results of our DNA purification case study clearly demonstrate the substantial advantages of employing the Myra over manual methods. Using the Myra consistently produces a greater amount of purified DNA, surpassing results obtained through manual processing. Furthermore, the Myra shows remarkable precision and reproducibility, with considerably less variation among samples compared to the manual method.




DNA yield using Myra vs. manual with CleanNGS beads.

## Summary

The results highlight the advantages of using Myra for bead clean up, as it not only increases the DNA yield but also makes the results more accurate and consistent. Myra automation reduces operator stress levels and allows you to focus on your research.

# Case Study: CleanNGS Bead Clean Up

When using CleanNGS beads for bead clean up on Myra, purified product was higher in yield and more consistent compared with manual method.

## Experimental Setup

Efficiency of DNA purification using CleanNGS beads (CleanNA, Netherlands) was evaluated on the Myra liquid handling system in comparison to manual purification.

## Bead Clean Up Protocol

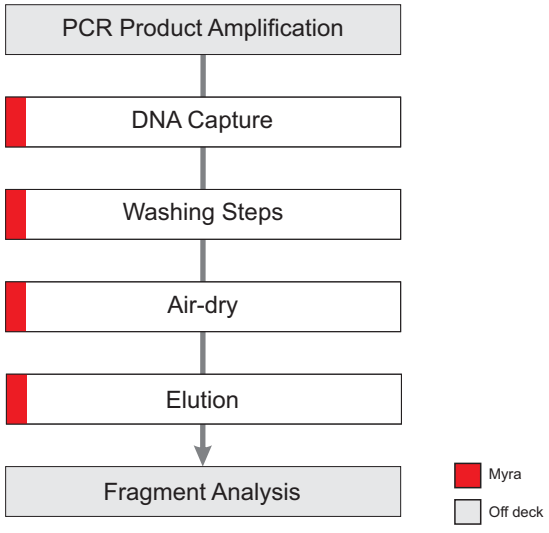
The following protocol was performed:

1. Pipette 22 µL of beads into a 200 µL PCR plate
2. Thoroughly mix beads with sample to bind DNA
3. Capture beads using magnets (3 min)
4. Perform 2x wash steps with 100 µL of 80% Ethanol to remove impurities and contaminants
5. Air-dry to remove residual traces of Ethanol (5 min)
6. Pipette 21 µL of elution buffer to the beads and release magnets
7. Resuspend beads and mix with the elution buffer to release DNA
8. Capture beads using magnets (3 min)
9. Elute 15 µL of purified DNA into new tubes

For the experiment, a PCR product (550 bp) was purified in sets of 8 replicates, using the two different methods in parallel (Myra and manual). For the manual purification, the exact same protocol was performed by hand.

Purification yield and purity were compared using the Qsep100 Capillary Electrophoresis System and S2 Quantitative Cartridge (BiOptic Inc., Taiwan).

All experiments were conducted by our Swiss partner Labgene Scientific.




## Results

The data clearly showed the Myra achieved significantly higher yields of purified PCR product compared with the manual method (**Table 1**).

Reproducibility of yield was also tighter when using the Myra.

| Sample | Final Yield Produced (ng/µL) | |
|---|---|---|
| | Manual | Myra |
| 1 | 213 | 425 |
| 2 | 346 | 461 |
| 3 | 294 | 450 |
| 4 | 261 | 466 |
| 5 | 308 | 461 |
| 6 | 346 | 424 |
| 7 | 204 | 419 |
| 8 | 168 | 356 |
| **Average** | **267** | **433** |
| **%CV** | **23%** | **8%** |

**Table 1**. Mean DNA yield after CleanNGS bead clean up.

Fragment analyzer results showed correct fragment sizes across all 16 PCR samples purified using both the Myra and manual methods (**Figure 1**).

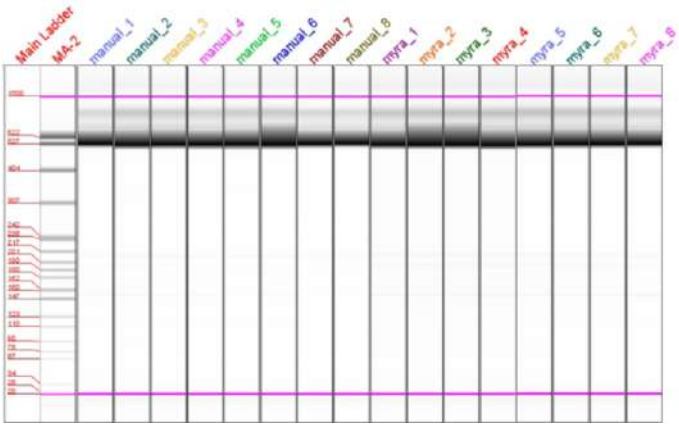



**Figure 1**. Capillary electrophoresis gels of PCR product purification analysed on BiOptic Qsep1-Plus with S2 Cartridge for two sets of 8 replicates Myra vs. manual.

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