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Maximizing the Efficiency of Genomic Laboratories through Robotic Liquid Handling

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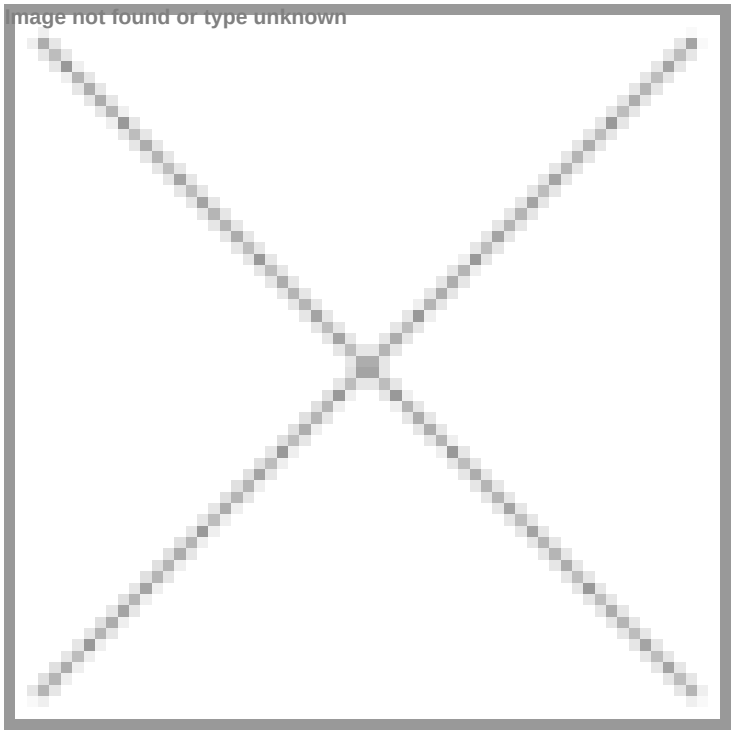
Next Generation sequencing, or massively parallel , high-throughput technology continues to play integral role in genomic research, supporting the investigation into various biological processes in human disease, genetic inheritance, immunity, cancer, and others.



For many labs across the globe, speeding-up assays and increasing experimental throughput are essential for maintaining a productive workflow amid ever-growing demand. In the dynamic and demanding field of genomic research, the adoption of automated liquid handling technologies represents a pivotal advancement. BRAND's state-of-the-art liquid handling system provides unmatched precision, adaptability, and efficiency, underpinning the robustness and dependability of high-throughput genomic methods.

Sample Preparation: Liquid handling systems are used to accurately dispense reagents, enzymes, and DNA/RNA samples during the NGS library preparation process. Precision in pipetting ensures that the correct volumes are added, minimizing errors in library construction.

Reducing Contamination: Precise liquid handling minimizes the risk of cross-contamination between samples, which is critical in NGS to avoid mixing genetic material from different sources.

Pooling and Dilutions: Accurate pipetting is essential when creating sample pools or diluting samples to achieve the desired

concentration. This affects the uniformity of sequencing coverage across samples.

Minimizing Sample Loss: High precision ensures that minimal sample material is wasted during the process, which can be especially important when dealing with limited or precious samples.

Consistency: Liquid handling systems provide consistent results across multiple runs, reducing variability in NGS data, and making experiments more reproducible.

Error Detection: Modern liquid handling systems often include error detection mechanisms to alert users to potential issues during pipetting, further enhancing accuracy.

High-Throughput: Automation and robotics in liquid handling enable high-throughput NGS, allowing researchers to process a large number of samples efficiently.

When dealing with a situation where you accidentally miss pipetting into the right well of a microplate, it's a good practice to maintain transparency and take corrective actions.

The BRAND Pipetting Robot/ liquid handling system can be an important solution to minimize human errors and ensure precise and accurate pipetting. These automated systems are designed to handle liquid transfer tasks with high precision, reducing the risk of accidental mistakes and improving the overall reliability of laboratory work. Using such a system can greatly enhance the accuracy and reproducibility of experiments. This approach allows you to acknowledge the mistake and implement a clear solution to ensure the integrity of your experiment or analysis.

In essence, the accuracy and precision of liquid handling systems are critical for obtaining reliable and high-quality NGS data, especially when dealing with large-scale sequencing projects or valuable samples. Proper calibration, maintenance, and validation of these systems are essential to ensure their performance in NGS workflows.

BRAND Scientific Equipment Pvt. Ltd.

Ph : 91-22-42957790

Email : customersuport@brand.co.in | **Website:** www.brand.co.in