

MDx1500 - FISH

AUTOMATED DISPENSING SYSTEM FOR FLUORESCENCE IN SITU HYBRIDIZATION

FEATURES AND BENEFITS

- Automated Cell Dropping
- Improve Metaphase Spread Quality
- Designed to Use Accepted Methods and Protocols
- Apply Multiple Patient Samples Per Slide
- Automated Probe Dispensing
- Reduce Probe/Assay Cost
- Multiple Slide Processing Capability

PERFORMANCE OF THE MDx1500 - FISH

Accuracy of Dispense Volume

- $\pm 5\%$ of Target

Precision of Dispense Volume

- $\leq 10\%$ CV at 20 nL

Total System Positional Accuracy

- $\pm 150 \mu\text{m}$ (typically $\pm 75 \mu\text{m}$)
- SD $50 \mu\text{m}$ (typically $\leq 25 \mu\text{m}$)

Humidity

- $60 \pm 5\%$ RH

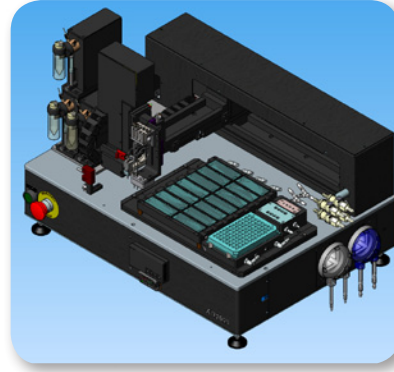
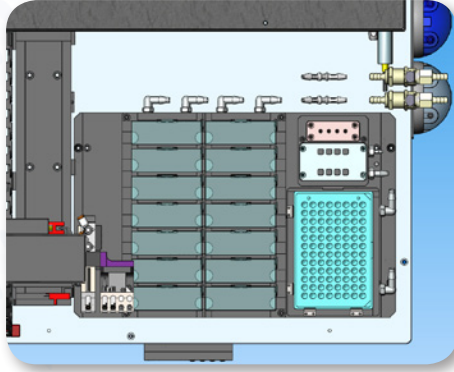


Use of cells for rapid analysis of chromosomal analysis and genomic diagnostics continues to expand and increase in clinical and research applications. Both direct interphase analysis using FISH and analysis of chromosomes through karyotyping have proven to be successful in providing relevant chromosomal information. With the expansion of these analytical techniques increased throughput and decreased cost of sample preparation and processing have become critical and important factors.

The BioDot automation and dispensing technology have been demonstrated to enable sample and probe multiplexing along with miniaturizing sample volumes, thereby reducing costs, increasing sample throughput, and improving test accuracy.

The BioDot technology can be used for both spotting of cells or metaphase chromosome preparations in nanoliter volumes for FISH and microscopic analysis. After spotting of cell or chromosome preparations, the BioDot technology can also be used to spot probe preparations onto samples in reduced volumes, saving on reagent usage and enabling multiplexing of samples and probes.

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The BioDot BioJet Plus™ dispensing technology has been used to automate the slide dropping process for fluorescent in situ hybridization (FISH). In addition to developing an automated workstation for the application of patient cells to glass microscope slides, the dispense method is capable of jetting droplets as low as 10 nL in volume. This reduction in dispense volume now makes it possible to apply more than one cell spot per slide; consequently, lab throughput may be further increased, as multiple patients can be applied to one slide.

RESULTS

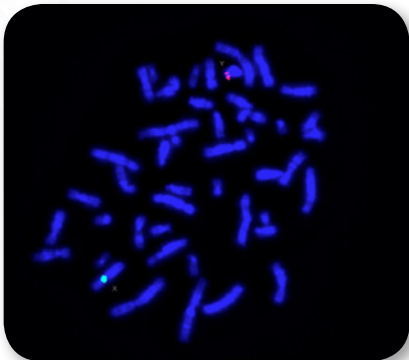


Image 1: Metaphase cell labeled with X Centromere (green) and Y Centromere (red) probes. Cells counterstained with DAPI plus Vectashield. Image taken with the Zeiss Axio Imager. M1 using the 100x Oil objective.

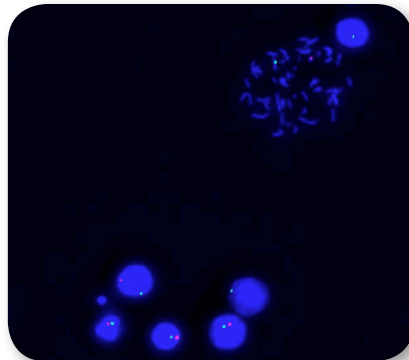


Image 2: Male and female metaphase and interphase cells labeled with X Centromere (green) and Y Centromere (red) probes. Cells counterstained with DAPI plus Vectashield. Image taken with the Zeiss Axio Imager. M1 using the 20x objective.

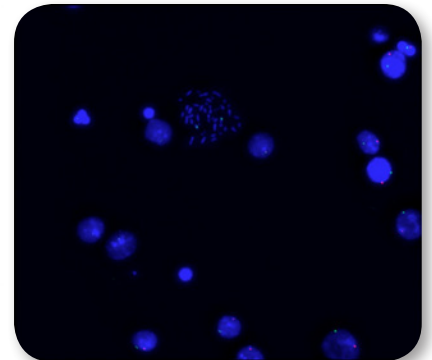


Image 3: Male and female metaphase and interphase cells labeled with X Centromere (green) and Y Centromere (red) probes. Cells counterstained with DAPI plus Vectashield. Image taken with the Zeiss Axio Imager. M1 using the 20x objective.

THE BIODOT DIFFERENCE

The BioJet Plus™ Technology has been optimized to consistently generate metaphase spreads for the clinical laboratory setting. The miniaturization of the dropping volume from 10,000 nL to 500 nL has enabled high throughput capabilities in the area of FISH and karyotype analysis. Multiple patients can now be applied to a single slide with an automated dispensing system, which will have a significant impact on throughput by improving technician output.