Increase experimental throughput and decrease time to answer without compromise to data quality using the BD Rhapsody™ HT Xpress System

The BD Rhapsody™ HT Xpress System is designed and validated to work with the complete portfolio of BD single-cell multiomic assays and sequence analysis pipeline, helping to fast-track research and understand the complexity of biological systems.

The flexible cartridge design for use on the BD Rhapsody™ HT Xpress System enables flexibility with experimental design and sample processing

Figure 1. Process up to 192 samples per cartridge with a broad cell input range of 100–440,000 cells per cartridge.

The BD Rhapsody™ HT Xpress System is a higher-throughput system that leverages our proprietary, gentle, and robust microwell single-cell partitioning technology to perform single-cell analysis. It offers the same performance as the BD Rhapsody™ Express System and features a flexible cartridge design with the ability to run up to eight times the number of lanes at once in the same amount of time as the BD Rhapsody™ Express System. Using the BD Rhapsody™ 8-Lane Cartridge on the higher-throughput system, you can expect high cell capture rates and low cell multiplet rates across multiple cell input ranges, capture of different cell types and sizes (including fragile cells) with no batch effects, high assay sensitivity and equivalent gene correlation. The BD Rhapsody™ 8-Lane Cartridge can be stored for up to 4 months once opened with no decrease in performance, taking advantage of all eight lanes and allowing different experiments or samples to be run on different days.

The BD Rhapsody™ HT Xpress System is compatible with:

- BD Rhapsody™ Scanner
- BD® Single-Cell Multiplexing Kits
- BD® AbSeq Assays
- BD Rhapsody™ Targeted mRNA or Whole Transcriptome Amplification Kits
- BD Rhapsody™ TCR/BCR Multiomic Assays
- BD Rhapsody™ Analysis Pipeline

BD

High cell capture and low multiple rates across cell inputs

Desired number of cells	Live cells loaded		Viable cells captured in wells with a bead		Capture rate	
	8 Lane	Single Lane	8 Lane	Single Lane	8 Lane	Single Lane
55,000	57,749	67,604	45,412	40,959	0.79	0.61
25,000	26,256	30,740	20,976	20,002	0.80	0.65
10,000	10,506	12,295	8410	7,972	0.80	0.65

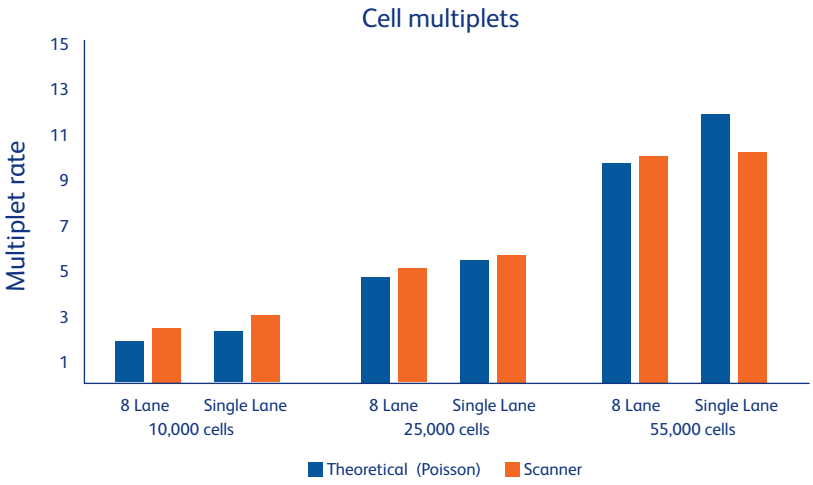


Figure 2. Four cell types (PBMC, Jurkat, Ramos and THP1) were pooled and loaded at 10,000, 25,000 or 55,000 cells per lane on an 8-lane cartridge and single-lane cartridge. Cell capture and multiplet rates were comparable at all cell load concentrations. The BD Rhapsody™ Scanner provides a measure of actual multiplet rate for cells loaded onto a BD Rhapsody™ Cartridge. Results may vary based on cell type and isolation method.

Cell types with disparate size and morphology, including fragile cells, recovered in similar proportion to input concentration

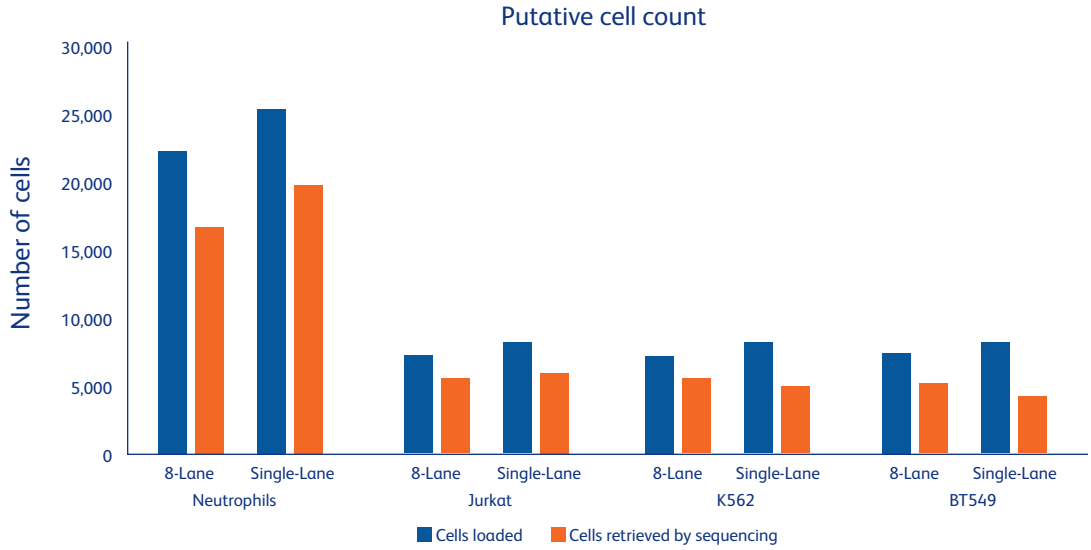


Figure 3. Jurkat (11 µm), K562 (16 µm) and BT549 (20 µm) cells were loaded at a given ratio (1:1:1), and neutrophils (10–14 µm) were loaded separately. Cells were recovered in matched input ratios at sequencing indicating faithful capture of cells of different sizes and morphologies.

Minimal batch effects across lanes in an 8-lane cartridge compared to single-lane cartridge, providing consistent and reliable results

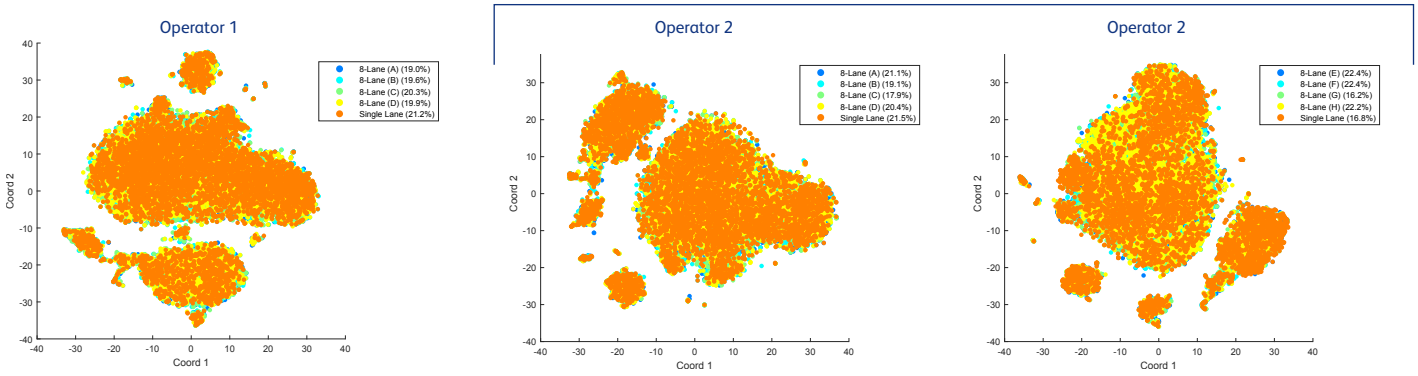
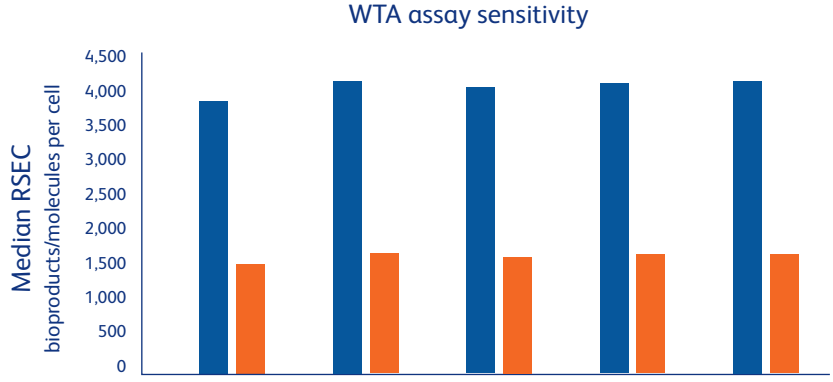


Figure 4. Cells (20,000 per lane) from a single PBMC donor were loaded into four lanes of three BD Rhapsody™ 8-Lane Cartridges, and results were compared to a BD Rhapsody™ Single-Lane Cartridge control. Minimal batch effect was observed between site-to-site and user-to-user replicates.

Comparable WTA assay bioproducts and molecules per cell detection on the BD Rhapsody™ 8-Lane cartridge and the Single-Lane Cartridge



	Single Lane	8 Lane (A)	8 Lane (B)	8 Lane (C)	8 Lane (D)
Median molecules per cell	3,869	4,116	4,039	4,094	4,188
Median bioproducts per cell	1,583	1,661	1,649	1,672	1,679

Figure 5. Cells (20,000 per lane) from a single PBMC donor were loaded into four lanes (A–D) of a BD Rhapsody™ 8-Lane Cartridge, and results were compared to a BD Rhapsody™ Single-Lane Cartridge control (~10,000 reads per cell).

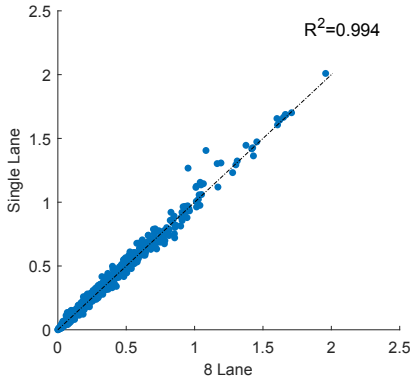


Figure 6. High concordance between WTA data (Log10(mean molecules per cell + 1) is plotted) from the BD Rhapsody™ 8-Lane Cartridge (x-axis) and Single-Lane Cartridge (y-axis) shows that changes in the cartridge configuration for cell capture do not bias molecule detection.

The BD Rhapsody™ 8-Lane Cartridge produces comparable data to the single-lane cartridge after storage of a partially used 8-lane cartridge, allowing samples or experiments to be run on the same or different days

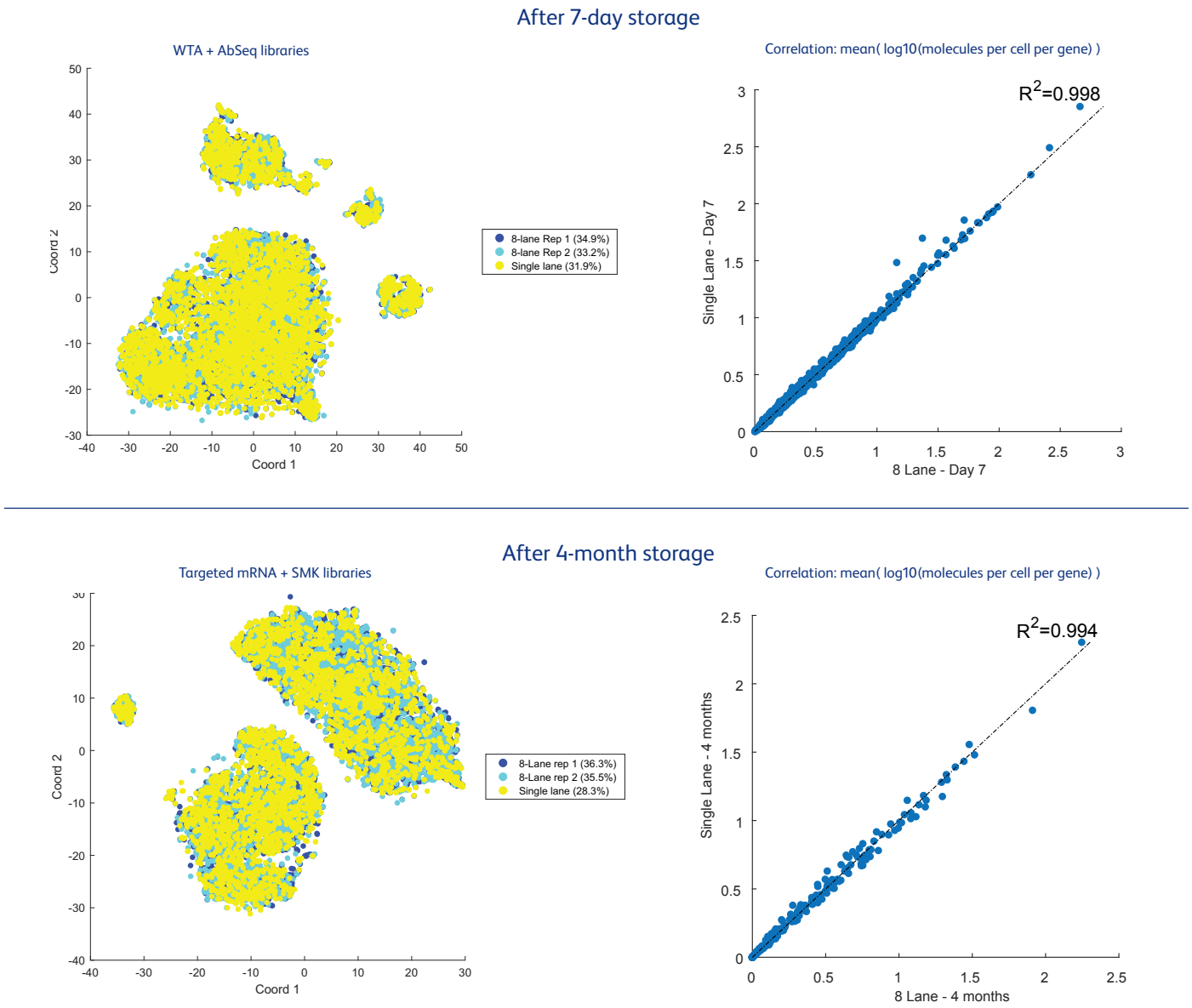


Figure 7. Two lanes of a partially used 8-lane cartridge that was stored after 7 days were loaded with 20,000 cells from a single PBMC donor and WTA and AbSeq (10-plex) libraries were prepared to determine cartridge performance (7A). On the same 8-lane cartridge, another two lanes were loaded with 20,000 cells consisting of Jurkat and Ramos cells at 1:1 ratio after storage for 4 months storage and Targeted and SMK libraries were prepared. Libraries from the 8-lane cartridge were compared to libraries prepared from a new single-lane cartridge. No batch effect was observed, and the correlation of gene expression was high between the single-lane and 8-lane cartridge after partial-use storage. Lane-to-lane variability was also minimal. Results may vary based on cell type and isolation method.

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