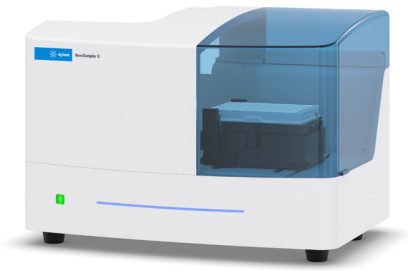
Agilent Low Profile Storage Plates for Automated NovoCyte Workflows

Flow cytometry has proved to be a critical method in research and clinical diagnostic settings for rapid, sensitive analysis of single cells. As flow-based methods continue to evolve, there is an increased need for automated, batch processing of large numbers of test samples. By combining Agilent 0.5 mL 96-well low profile storage plates with NovoCyte flow cytometers featuring NovoSampler autosamplers, users have an ideal method to store, prepare, and analyze precious cells.

0.5 mL Storage Plate

- Ideal for short- and long-term storage of test molecules
- 450 µL max volume
  - For assessment of linearity, accuracy and precision, the maximum tested sample volume was 300 µL
- Low temperature tolerant for refrigerator or freezer storage down to –80 ºC
- Round well with U-shaped well bottom to maximize mixing
- Easily perform serial dilutions of cells
- Molded from chemical-resistant polymers

NovoSampler



- Accommodates a variety of sample formats (40 tube rack, 24-, 48-, 96-, 384-well plates)
- Automated plate calibration eliminates the need for manual alignment and calibration
- High-throughput sampling, ≤ 20 minutes for 96-well plates; ≤ 80 minutes for 384-well plates.
- Integrated sample mixing and probe rinsing ensure consistency of results throughout assay

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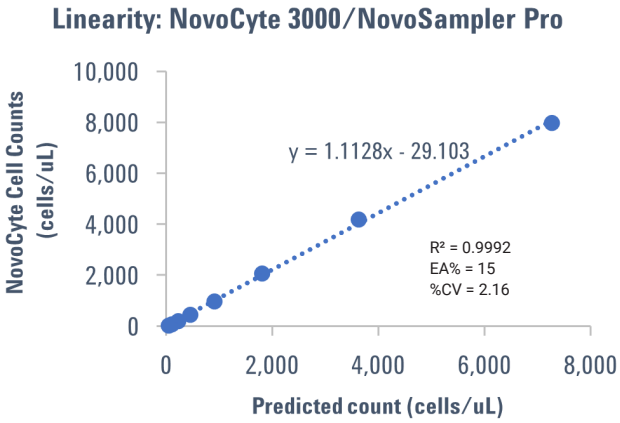
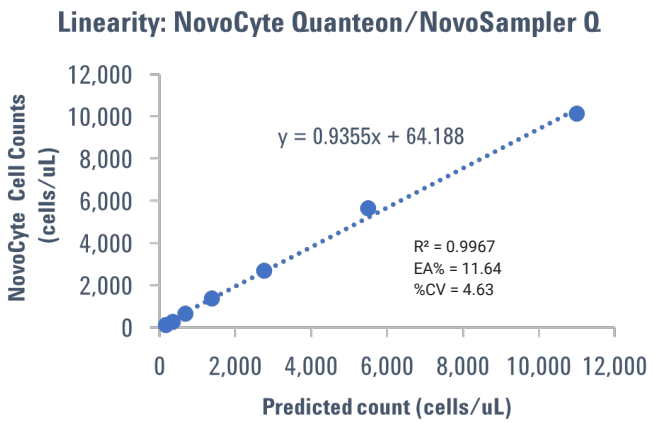
Accurate and consistent cell counting using Agilent low profile storage plates and NovoSampler instrumentation

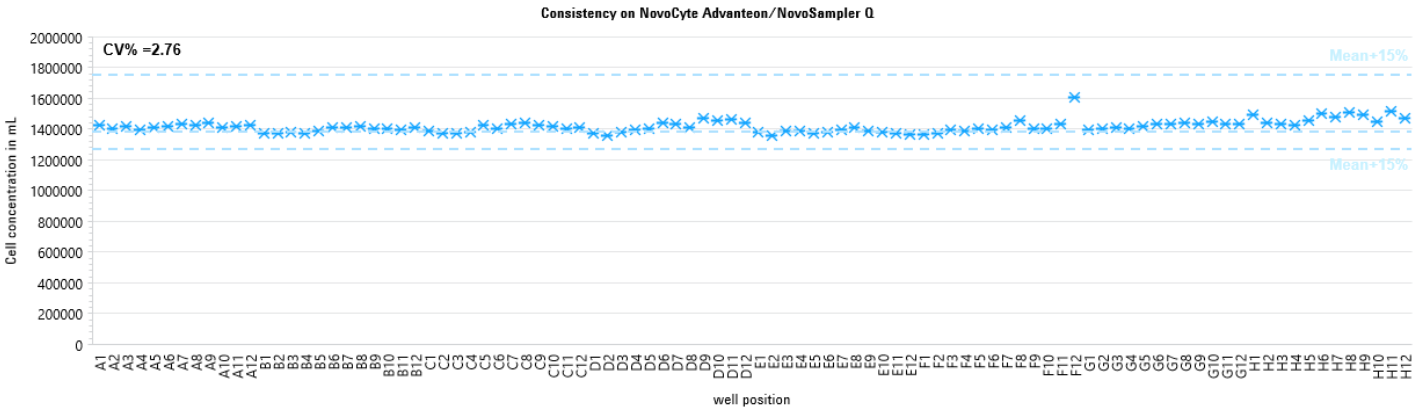
Linearity





Raji cells from two cultures were labeled with either a solution of Trypan blue for manual count of viable cells using hemocytometer or labeled with propidium Iodine (PI) for automatic absolute counting using NovoCyte, and plated in quadruplicate using a 300 µL volume. The hemocytometer counts were considered as predicted counts and NovoCyte counts as measured values. Graphs represent linearity for two-fold serial dilution of automated viable cell count acquired using a NovoCyte 3000/NovoSampler PRO combination (8 points dilution) or NovoCyte Quanteon/NovoSampler Q combination (7 points dilution). R^2, accuracy error, and percent CV values confirm that consistent, accurate cell count data is achieved when the 0.5 mL storage plate is incorporated, compared to manual hemocytometer counts.

Consistency



Raji cells were labeled with PI, and plated in a 300 µL volume into each well of a 0.5 mL deep 96-well U-bottom plate. Cells were sampled with a NovoSampler Q, and analyzed using NovoCyte Advanteon. Sample loading settings: automatic mixing 1,000 rpm, 10 seconds, stop condition of 100 µL, flow rate of 66 µL/min. NovoCyte samples were plated in 96 replicates. Representation of the consistency in count across all 96 replicates when acquired on NovoCyte Advanteon. Boundaries of precision defined as mean ± 15%. The full plate data demonstrates how placing cells into the 0.5 mL 96-well U-bottom storage plate delivers highly consistent and precise counting.

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Carryover

Sample	Counts	Sample	Counts	Sample	Counts	Sample	Counts
RAJI 1-1	243,050	RAJI 2-1	259,273	RAJI 3-1	261,256	RAJI 4-1	264,608
RAJI 1-2	257,211	RAJI 2-2	259,230	RAJI 3-2	260,966	RAJI 4-2	271,736
RAJI 1-3	259,102	RAJI 2-3	259,377	RAJI 3-3	262,175	RAJI 4-3	269,786
PBS 1-1	11	PBS 2-1	11	PBS 3-1	18	PBS 4-1	8
PBS 1-2	10	PBS 2-2	4	PBS 3-2	4	PBS 4-2	1
PBS 1-3	3	PBS 2-3	1	PBS 3-3	4	PBS 4-3	2
Carryover %	0.003		0.002		0.003		0.001

Raji cells and PBS were plated at a 200 µL volume into three wells, each, of a 0.5 mL deep 96-well U-bottom plate. Three Raji samples were acquired using an Advanteon/NovoSampler Q combination from a well containing cells, followed by a PBS containing well, using the following sample loading settings: automatic mixing 1000 rpm, one mix and one wash per well, stop condition of 100 µL, sample flow rate 35 µL/min. The table shows cell counts from each well, followed by calculated carryover percentage for each test. The carryover assay method was calculated following CLSI H62 guidelines (2022). A similar test was run using the Quanteon and NovoSampler Q. All carryover percentages were less than 0.01%.

Find out more and place an order

204601-100:

Storage/reaction microplate, 96-well polypropylene, 0.5 mL/round well, round bottom, 14.3 mm height, irradiated, 25/pk
https://www.agilent.com/store/productDetail.jsp?catalogId=204601-100

Also available

204357-100:

Storage/reaction microplate, 96-well polypropylene, 1.0 mL/round well, round bottom, 32 mm height, irradiated, 25/pk
https://www.agilent.com/store/productDetail.jsp?catalogId=204357-100

NovoCyte instrumentation:
https://www.agilent.com/en/product/research-flow-cytometry/flow-cytometers

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