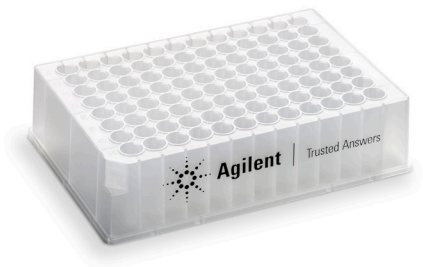
Agilent Deepwell Storage Plates for Automated NovoCyte Workflows

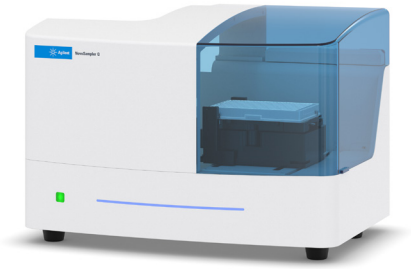
Flow cytometry has proved to be a critical method in research and clinical diagnostic settings for rapid, sensitive analysis of single cells. As flow-based methods continue to evolve, there is an increased need for automated, batch processing of large numbers of test samples. By combining Agilent 1.0 mL 96-well deepwell storage plates with Agilent NovoCyte NovoSampler automated sampling instrumentation, users have an ideal method to store, prepare, and analyze precious cells.

1.0 mL Storage Plate



- Ideal for short- and long-term storage of test molecules
- 1.0 mL max volume allows containment of a variety of sample volumes
  - 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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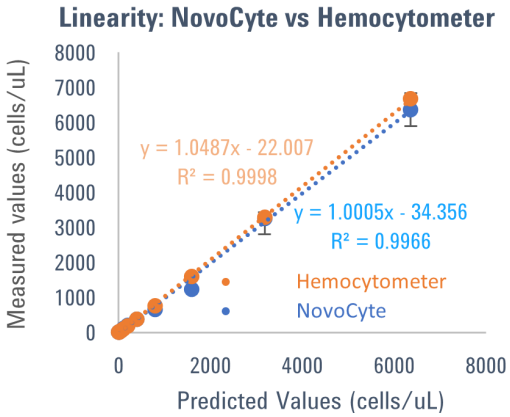
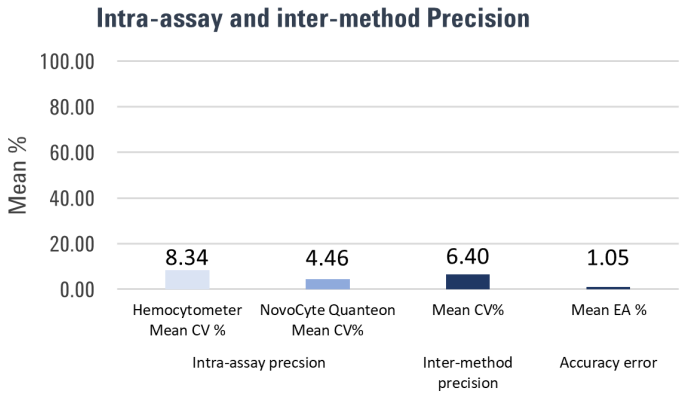
Accurate and consistent cell counting using Agilent deepwell storage plates and NovoSampler instrumentation

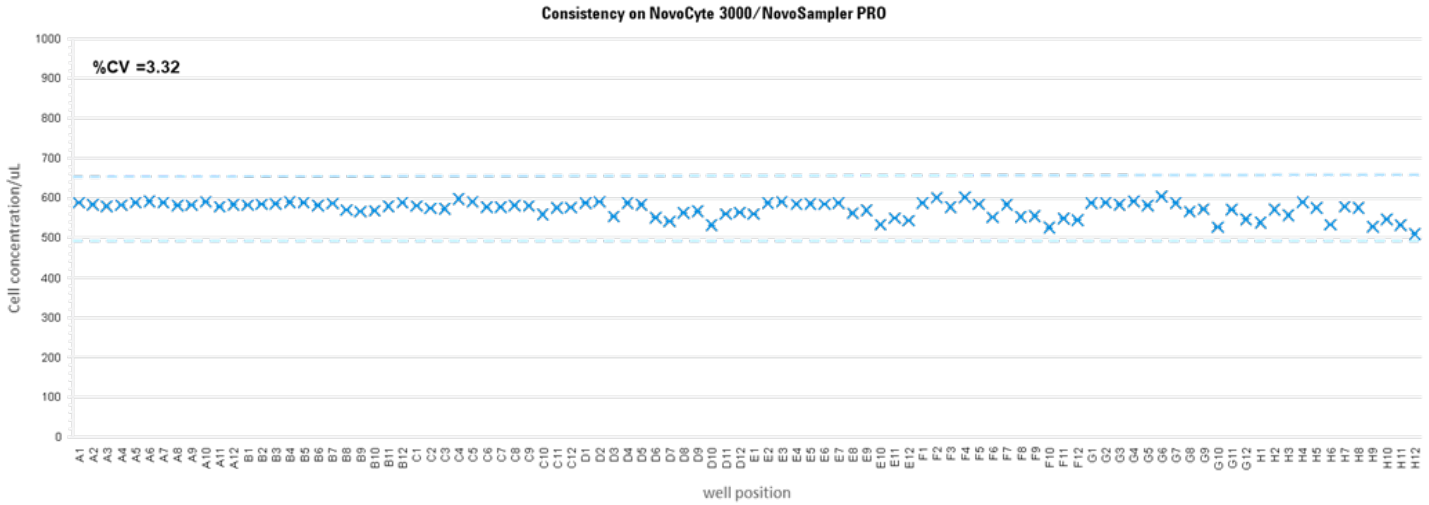
Linearity





Raji cells, labeled with either a solution of Trypan blue for manual count of viable cells using hemocytometer or labeled with PI for automatic absolute counting using NovoCyte, and plated in quadruplicate using a 300 µL volume. Graphs represent linearity for 2-fold 12-point serial dilutions of viable cell counts acquired using a NovoCyte Quanteon/NovoSampler Q combination or hemocytometer. Intra-assay and Inter-method precision expressed as %CV for both counting methods as well as accuracy error (EA) (considering the hemocytometer count as the expected value). Linearity and assay precision results confirm that incorporation of the 1.0 mL deepwell storage plate with the NovoCyte platform provides an easy to use method to generate accurate, repeatable cell counting data.

Consistency



Raji cells were labeled with PI, and plated in a 300 µL volume into each well of a 1.0 mL deepwell 96-well U-bottom plate. Cells were sampled with a NovoSampler Pro, and analyzed using NovoCyte 3000. Sample loading settings: 1,200 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 3000. Boundaries of precision defined as mean ± 15%. The full plate data demonstrates how placing cells into the 1.0 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	225,171	RAJI 2-1	207,146	RAJI 3-1	201,965	RAJI 4-1	192,745
RAJI 1-2	218,932	RAJI 2-2	211,930	RAJI 3-2	200,793	RAJI 4-2	197,047
RAJI 1-3	213,687	RAJI 2-3	206,399	RAJI 3-3	201,737	RAJI 4-3	190,632
PBS 1-1	10	PBS 2-1	9	PBS 3-1	16	PBS 4-1	7
PBS 1-2	3	PBS 2-2	1	PBS 3-2	5	PBS 4-2	5
PBS 1-3	8	PBS 2-3	9	PBS 3-3	7	PBS 4-3	5
Carryover %	0.003		0.003		0.005		0.003

Raji cells and PBS were plated at a 200 µL volume into four wells, each, of a 1.0 mL deepwell 96-well U-bottom plate. Three samples were acquired using a Quanteon/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. Carryover assay method was calculated following CLSI H62 guidelines (2022). All results show negligible carryover rates of less than 0.01%.

Find out more and place an order

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

Also available

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

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

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