

# SIMOA

## HD-X Analyzer™



# SENSITIVITY MEANS KNOWING

## What will you do with a 1000-fold improvement?

Researchers and clinicians just want to know more. With Simoa's remarkable sensitivity comes the ability to see things more clearly than ever before. This advanced level of clarity puts answers in plain sight. It lets you count molecules. It tells you yes or no. It gives you the information and the confidence you need to make smart decisions. With Simoa, sensitivity means knowing.

The Simoa HD-X Analyzer™ is the latest model of the fully automated Simoa bead-based immunoassay platform. Re-engineered, the platform's ultra-sensitivity and dependability empower researchers with 1000x greater sensitivity than traditional immunoassays.

Leveraging years of experience with the ground-breaking Simoa HD-1 analyzer, the HD-X delivers increased productivity, user flexibility, unparalleled sensitivity and best in class assay performance.

The Simoa bead-based technology isolates each bead-immunocomplex to allow for enzyme bound to the capture antibody to produce sufficient fluorescence in each well to be detectable, even when just a single molecule is present.

As a result, the analyzer produces a map of the array—each of which contains more than 200,000 wells—where each well can be digitally analyzed as either “on” (containing a target molecule) or “off”. The proprietary Simoa algorithm then converts the measurement into a concentration which reaches femtomolar levels for most analytes. This revolutionary approach to digitalizing ELISA offers on average a 1000-fold improvement in sensitivity over current immunoassay techniques.

# INSTRUMENT SPECIFICATIONS



## Assay performance

Metric	Simoa HD-X
Sensitivity	Average of 1000x improvement over leading assays available
Dynamic Range	>4 logs
Precision	<10% CVs

## Instrument performance

Metric	Simoa HD-X
Throughput	3 plates/8 hr shift About 300 data points per day
Workflow	Batch (plates or tubes)
Total Assay Time	<2.5 hours per 96-well plate
Hands on Time	Startup time <20 minutes
Automation	Full (sample in to data out)
Sample Input	96-well plate and tubes
Sample Volume	1 µl * - 100 µl
Instrument Footprint	135 x 60 x 160 cm (freestanding)
Multiplex Capability	Up to 6-plex
Assay Flexibility	1, 2 or 3-step assays, with variable incubation time and number of wash steps

\*<10 µl requires pre-dilution step

## Simoa HD-X Benefits

**Ultra-sensitivity** – Up to 1000x greater sensitivity than traditional immunoassays

**Automation** – Reproducibility and convenience of sample->answer workflow

**Multiplexing** – Measure up to 6 biomarkers in single sample at fg/ml concentrations

**Flexibility** – Supports both high-throughput and rapid result workflows

**Efficiency** – Precise control of assay conditions allows for use of stored assay calibration values

**Menu** – Fully compatible with 80+ assays also available on HD-1 as well as customized homebrew assays

**Regulatory Compliance** – Enables 21CFR Part 11 compliance with streamlined run reports and user management

## Simoa Immunoassay Kits

Quanterix offers a broad range of complete immunoassay kits as well as a robust homebrew list.

Please visit [www.quanterix.com](http://www.quanterix.com) for an updated list of all available assays and for detailed specifications.

Contact [sales@quanterix.com](mailto:sales@quanterix.com) for assays available in prototype format and custom assay development services.

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# Instrument features and benefits

## Ultra-Sensitivity:

With an average of 1000x greater sensitivity than current immunoassays, analyte concentrations can be measured where they previously were not possible. Such a dramatic improvement in sensitivity opens new avenues of research and allows measurements of previously undetectable markers. Users with very low sample volumes can also pre-dilute samples to preserve samples and reduce matrix effects and still achieve greater sensitivity than ever before.

## Automation:

Running immunoassays is a time consuming, largely manual technique. Users must either dedicate significant time to running assays or make use of expensive auxiliary automation systems. The Simoa HD-X Analyzer performs all the steps of the assay, which both drives efficiencies but also provides more consistent, precise results by minimizing the variability of results common in manual approaches.

## Multiplexing:

The Simoa HD-X Analyzer is capable of measuring up to 6 biomarkers in a single assay; providing the cost and sample preservation benefits researchers need without sacrificing sensitivity or precision.

## Value:

The Simoa HD-X Analyzer is remarkably affordable and is available to researchers on nearly any budget. Assays are also surprisingly cost-effective, especially given the savings obtained through automation and ability to use smaller sample volumes.

## Precision:

Thanks to the digital nature of Simoa and the consistency obtained through automation, CV's are below 10%.

## Dynamic range:

The proprietary Simoa algorithm uses both digital measurements at low concentrations and analog measurements at higher concentrations, allowing a remarkable dynamic range of >4 logs.

## Homebrew:

The Simoa HD-X Analyzer helps users develop and optimize their own assays, leveraging all the benefits of Simoa on markers for which pre-packaged assay kits do not exist.