LifeOS Genomics
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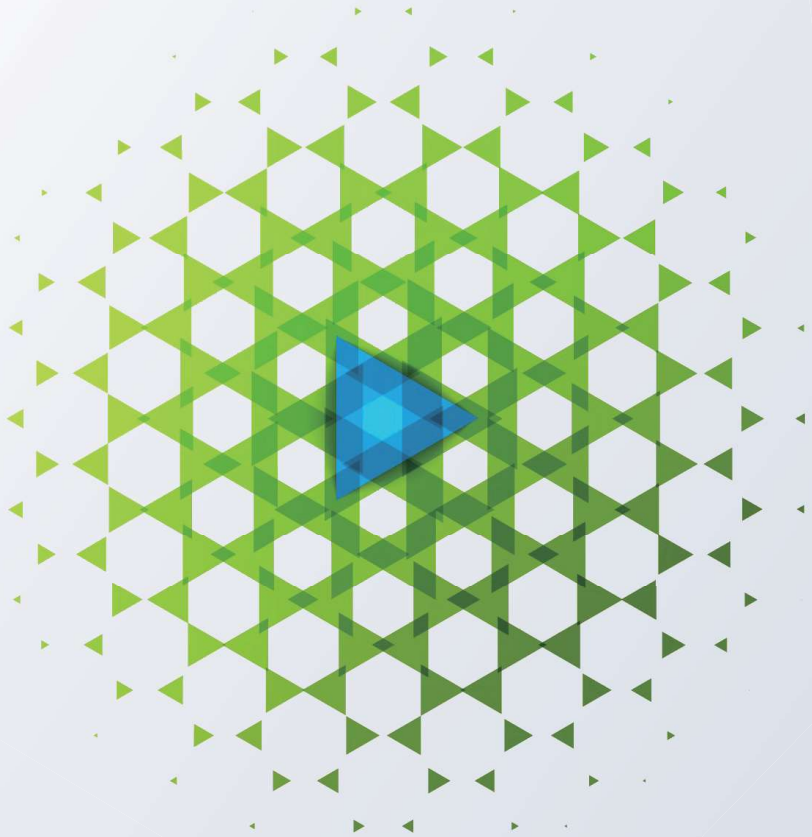

QLoci™ mdPCR™ Platform

Next Generation Multiplexing
For Liquid Biopsy Application Development

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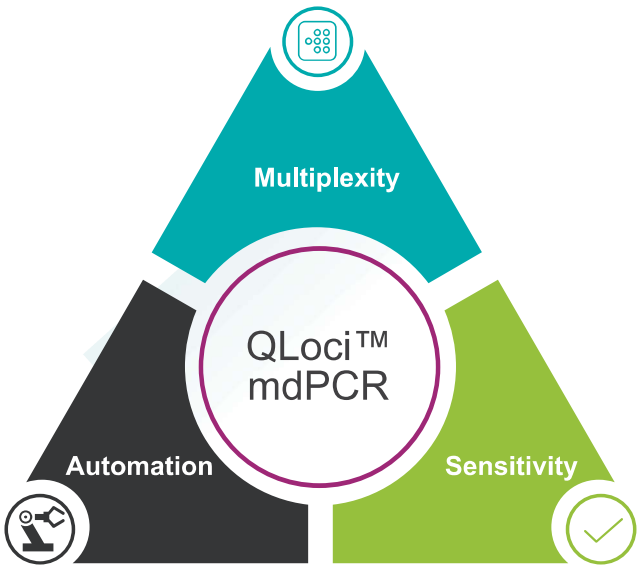
A New Frontier in Liquid Biopsy

The QLoci™ System, with its breakthrough mdPCR™ technology, enables the genetic testing of biological samples for medical purposes at an unprecedented combination of multiplexity and sensitivity. We've created the most uncompromising liquid biopsy platform yet.

What is Liquid Biopsy?

Since making its first appearance in the public spotlight as one of MIT Technology Review's Top 10 Breakthrough Technologies of 2015, the term liquid biopsy has attracted global attention. Using a single vial of blood, geneticists can analyze and decipher information contained within trace amounts of DNA fragments with remarkable accuracy. Exciting recent developments can be found in prenatal genetic testing, cancer screening, precision medicine, treatment and prognosis, infectious disease monitoring, and health examinations.



Detects up to 100 Targets of Interest

Upgrade assay multiplexity from the 2-4 of current generation of commercial dPCR machines to 100 targets with mdPCR™; vastly increasing assay efficiency and flexibility.

Reach 0.01% in Sensitivity

Open doors to unmet medical needs with the uncompromising sensitivity of digital PCR technology.

Fully Automated from "Sample-to-Result"

Integrate QLoci™ seamlessly into your existing workflow.

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QLoci™ Lite Mode

Open platform for 1 to 4 Biomarker Testing

The QLoci™ md1000 Analyzer in Lite mode uses the same chemistry and process as conventional digital PCR systems. QLoci™ mdSolutions software on the instrument will guide you through the dPCR analysis process with qPCR compatible reagents in a microfluidic cartridge of 60,000 partitions.

QLoci™ Lite Cartridge

- Microfluidic channel design
- >95% Effective Partition Count
- 60,000 Partitions

Flexible System Configurations

- Use qPCR compatible reagents on the QLoci™ md1000 Analyzer, design your own probes and primers.
- Compatible with TaqMan® & SYBR Green® chemistries.
- 60,000 partitions per cartridge with consistent, sensitive results.
- 4 fluorescent channels for simple multiplexing.

Powerful Use Cases in Research

- Single cell gene expression, copy number variation studies.
- Absolute quantitation for viral load studies.
- Absolute quantitation for oncological biomarkers.
- Quantitation and validation for NGS libraries.
- Co-development of QLoci™ Assay Panels with LifeOS Genomics for highly multiplexed applications.

Master Mix	qPCR compatible master mix
Primers / Probes	1. TaqMan® chemistry probes or, 2. SYBR® Green chemistry primers
Cartridge	QLoci™ Lite Cartridge Package
Buffers & Consumables	Buffers, tips, sample tubes, and reagent plates
Sample	Extracted DNA / RNA

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Built for Distributed Lab Testing

Forward-thinking genetic testing labs around the world have echoed the demand for a decentralized and distributed liquid biopsy platform since its potential for use in diagnostics had been identified. The integrated mdPCR™ workflow achieves this while using the same familiar PCR processes seen today in high performing labs running qPCR.

See Immediate, Tangible Benefits

Minimize Sample Degradation

The logistics related to testing DNA samples remains one of the greatest obstacles to implementing liquid biopsy, with the estimated half-life of circulating tumor DNA (ctDNA) after surgery at 114 minutes.[1] The md1000 Analyzer allows on site liquid biopsy assays.

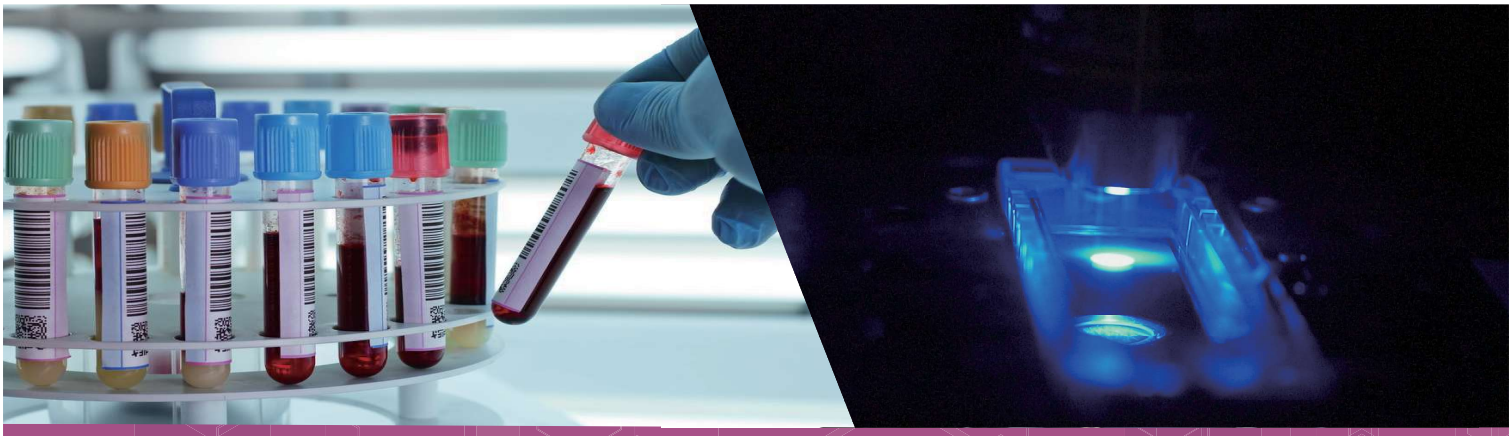
1. Diehl F, Schmidt K, Choti MA, *et al.* Circulating mutant DNA to assess tumor dynamics. *Nat Med* 2008;14:985-90

Reduce Capital Costs

With the QLoci™ md1000 Analyzer, there is no lengthy post data processing. From sample-to-result, the system works on the basis of absolute quantitation, bypassing the need for data centers or data processing.

Reduce Hands-on-Time

The powerful automated liquid handling capabilities of the QLoci™ md1000 Analyzer reduces hands-on time to less than 10 minutes per batch run, leaving you valuable time to work on other important jobs.



Insight into Multiplexity

QLoci™ Prima Cartridge

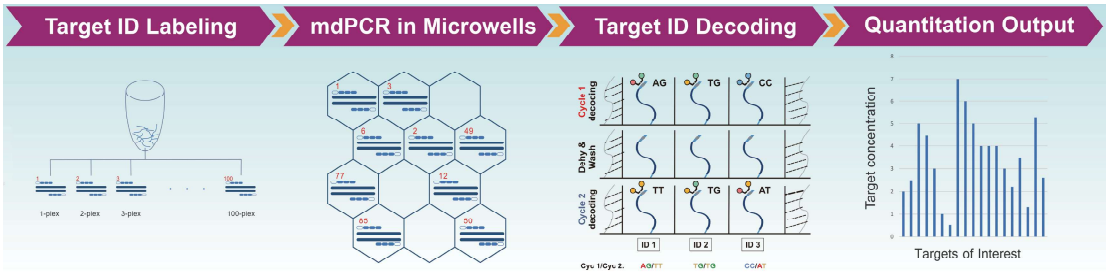
The QLoci™ Prima Cartridge is built for maximum uniformity and fluidic control.

- Microfluidic channel design
- >95% Effective Partition Count
- 110,000 Partitions

mdPCR™ is a technology for achieving a medically relevant multiplexity via a digital PCR-based process. The method features a molecular ID tagging and decoding system with 110,000 individual PCR reactions to identify and quantitate multiple biomarkers in a single assay.

Each molecular ID tag has a unique code derived from nucleic acid bases that is determined by labelled probes during a decoding process after digital PCR amplification. This decoding process offers a total of 100 unique codes with a QLoci™ Prima Cartridge.

mdPCR™ : Technology for Multiplex digital PCR Based Quantitation



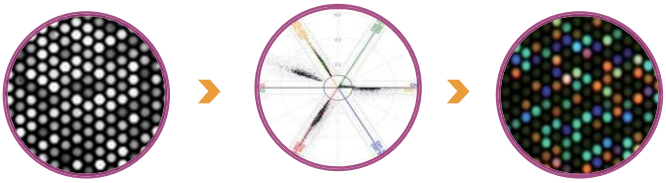
Targets of interest are uniquely labeled during sample processing.

Random distribution within a microfluidic chip cartridge and PCR amplification on surface.

Each target is identified by their labels through decoding probes.

Targets of interest are quantified through statistical analysis.

Digital PCR generates positive/negative signals in each partition following Poisson distribution .



Data Processing

After data processing, colored code-map reveals different ID codes of each partition.

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QLoci™ Prima Mode

Open platform for 1 to 100 Biomarker Testing

The **QLoci™ md1000 Analyzer** in **Prima mode** offers a powerful workflow for multiplexed genetic testing inside a microfluidic Prima Cartridge of 110,000 partitions. To run a Prima test, targets of interest are first labeled by respective ID tags via ID tag embedded probes /primers. Then, the fully automated QLoci™ md1000 will take care of the rest, from sample mixing, dPCR amplification, decoding, and data processing ; to arriving at an absolute quantitation for each target of interest.

ADK for Multiplexity

QLoci™ Prima ADK: Application Development Kit

ADK allows users to design and develop custom mdPCR™ based assays on QLoci™ md1000 Analyzer, including:

- QLoci™ Prima ADK ID Tag Kit
- Probe Design module in QLoci™ mdView Software

Clinically Relevant Testing Panels

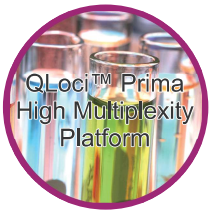
The unique mdPCR™ blend of multiplexity and sensitivity opens up new use-cases for genetic testing.

- Combine different genetic variations of a disease into a single test for maximum coverage.
- Combine multiple linked or related diseases into a single panel for a comprehensive offering.
- Design completely customized panels best suited for your customer's needs.

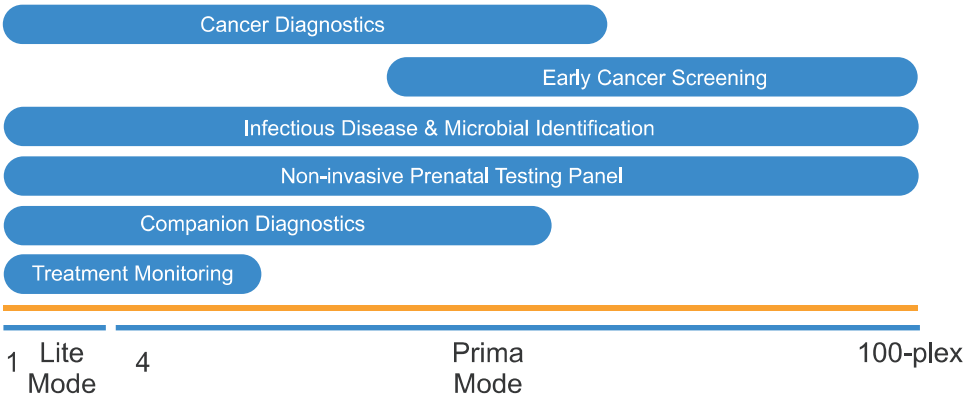
A Streamlined Laboratory

The entire mdPCR™ assay workflow from extracted specimen to result readout takes less than 4 hours, with minimal user input throughout the process. Your qPCR-ready lab can become mdPCR™-ready using a similar setup.

- A liquid biopsy workflow that fits existing qPCR labs.
- Get absolute quantitation results straight from the Analyzer.



Liquid Biopsy Applications Benefit Greatly from Multiplexity



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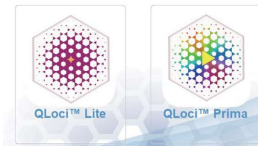
QLoci™ md1000 Analyzer



Simple & Efficient

- Fully automated analysis process with ready-to-use reagents.
- Complete assay workflow in single-use microfluidic cartridges.
- Barcoded consumables to reduce error and risk of contamination.
- Automatic UV sterilization after testing.

Adaptable & Powerful

- Two modes of operation:
  - **QLoci™ Prima Mode:** to achieve 1 to 100 targets panel testing.
  - **QLoci™ Lite Mode:** to quantify 1 - 4 targets in digital PCR assays with your own reagents.
- Processing one to twelve samples in each run.
- Supports 4 fluorescent channels.

Familiar PCR-based Workflow

1. DNA Preparation

Extract and pre-amplify your samples using your preferred method.

2. Sample-to-Result

Automated sample-to-result process including reagent mixing, partitioning, analyzing, and data processing all on the QLoci™ md1000 Analyzer.

Minimal Hands-on Time with the Analyzer *(per run of 12 samples)*

1. Run Setup

2 minutes with saved files, or less than 5 minutes with manual input.

2. Samples/Reagents Loading

< 10 minutes following software instructions. Onboard sensors and barcodes ensure smooth loading.

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Specifications

PCR Specs.	QLoci™ Prima Mode	QLoci™ Lite Mode
PCR Detection Method	Endpoint	Endpoint
Chemistry	mdPCR™	TaqMan® or SYBR® Green
Automation	Sample-to-Result	Sample-to-Result
Sample Throughput	12 ~ 20 samples per day	36 samples per day
Max. Multiplexity	Up to 100	4
Partition Count	110,000	60,000
Dynamic Range	6 orders of magnitude	5 orders of magnitude
Linearity	5 orders of magnitude	5 orders of magnitude

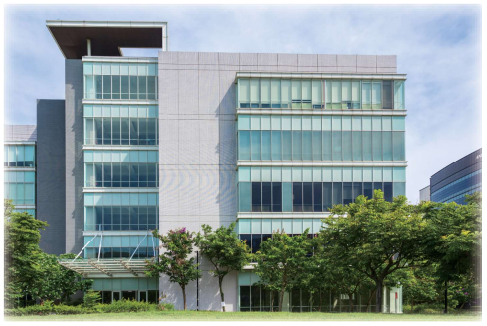
Instrument Specs.	QLoci™ md1000 Analyzer
Dimensions	150(W) x 90(D) x 167(H) cm
Detection Channels	FAM, Cy3, Texas Red, Cy5
User Interface	15" Color Touch Panel
Software	QLoci™ mdSolutions
Light Source	LED
Operating Temperature	15-32ºC
Operating Humidity	30-75% relative humidity
Power Requirements	220V (50/60 Hz)

Ordering Information

Item	Catalog No.
Instrument	
QLoci™ md1000 Analyzer: includes one QLoci™ md1000 Analyzer and its accessories, one default software license for QLoci™ mdSolutions with Lite Mode and Prima Mode pre-installed and enabled on the Analyzer.	1000-001
QLoci™ Prima Mode	
All products under QLoci™ Prima Mode are for research use only. Not for use in diagnostics purposes.	
QLoci™ Prima Kit (144): includes a complete package of reagents, buffers, and cartridges required to perform 144 Prima mode assays on the QLoci™ md1000 Analyzer. Reagents for pre-amplification on a PCR machine are included. Reagents for nucleic acid extraction are not included. Consumables are not included. Contains the following: QLoci™ Pre-Amp Master Mix 4x (x12), QLoci™ Q-Primer Mix (x12), QLoci™ Fg STD-1 (x12), QLoci™ Prima Reagent Plate (x12), QLoci™ LSWW Buffer 1 (x12), QLoci™ TRS Buffer 5 (x12), QLoci™ THM Fluid 6 (x12), QLoci™ IM2 Buffer 7 (x12), QLoci™ DEH Buffer 8 (x12), QLoci™ Prima Cartridge Package (6) (x24)	1004-001
QLoci™ Prima Application Development Kit (ADK) : includes QLoci™ Prima ADK ID Tag Kit – x36, Probe Design module for QLoci™ mdView software, and related training materials and technical support,	1005-001
QLoci™ Lite Mode	
All products under QLoci™ Lite Mode are for research use only. Not for use in diagnostics purposes.	
QLoci™ Lite Kit (144): includes a complete package of buffers and cartridges required to perform 144 Lite mode assays on the QLoci™ md1000 Analyzer. Consumables are not included. Contains the following: QLoci™ Lite Cartridge Package (6) (x24), QLoci™ Lite THM Fluid 6 (x12).	1003-001

Item	Catalog No.
Consumables	
All products under Consumables are for research use only. Not for use in diagnostics purposes.	
1 mL Tips (192): includes 1 mL tips required to perform 600 Prima or Lite mode assays.	1001-001
50 µL Tips (192): includes 50 µL tips required to perform 600 Prima or Lite mode assays.	1001-002
QLoci™ Lite 48-Well Plate: includes plates required to perform 600 Lite mode assays.	1001-003
QLoci™ Lite 48-Well Plate Foil: includes plates required to perform 600 Lite mode assays.	1001-004
8-Strip — PCR Tubes & Caps: includes tubes and caps required to perform 720 Prima or Lite mode assays.	1001-005

- For more ordering information visit us at www.lifeosgenomics.com or email us at sales@lifeosgenomics.com.
- This product brochure was last revised on June 29, 2020 and is subject to change without notification.



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