Biomark X9 System

for High-Throughput Genomics




Multiplex data with
singleplex simplicity.

AGRICULTURAL GENOMICS

WILDLIFE CONSERVATION

FISHERIES | HATCHERIES

SUSTAINABLE AGRICULTURE

ANIMAL HEALTH

PHARMACOGENOMICS

SAMPLE ID

BIOBANKING

BIOMARKER DISCOVERY

SAMPLE INTEGRITY

PATHOGEN DETECTION/ID

ONCOLOGY

TARGET IDENTIFICATION

TOXICOLOGY STUDIES

ENVIRONMENTAL MONITORING

IMMUNE RESPONSE

AND MORE


X9
STANDARD
BIOTOOLS

Deep insights with nanoscale genomics.

The only genomic system for real-time PCR and next-generation sequencing library preparation to support discovery through screening.

The Biomark™ X9 System for High-Throughput Genomics is a versatile microfluidics-based benchtop platform that delivers thousands of nanoliter-scale reactions in a single run – ensuring cost-effective, comprehensive and scalable sample profiling with minimal operator contribution.

The integration of multiple capabilities into a single platform streamlines workflows and offers unprecedented ease of use across a broad array of applications. In conjunction with an innovative consumables design that ensures both flexibility and scalability, the Biomark X9 System offers a futuristic approach to high-volume genomic data generation that radically improves laboratory operations.

96 PLATES

VS.

1 CHIP

MICROfluidics

MEGA data

MEGA savings

Simple workflows for superior efficiency.

Biomark™ X9

INCREASED PRODUCTIVITY

Integrated reaction setup for streamlined workflows generates up to 46,080 datapoints per eight-hour shift and up to 384 barcoded libraries per day.

DEEP INSIGHTS

Easily add or remove assays, and simultaneously detect up to 96 targets with singleplex simplicity.

Design libraries for dual coverage to enhance performance.

OPTIMIZED RESOURCES

Sustainably generate up to 9,216 datapoints with 96x less reagents and consumables compared with traditional methods.

EFFICIENT OPERATION

Compact instrument with walk-away automation produces PCR data in as little as two hours and NGS-ready libraries in approximately eight hours.

Flexibility across applications.

AGBIO

PATHOGEN DETECTION

BIOMARKER DISCOVERY

SAMPLE IDENTIFICATION

INFECTIOUS DISEASE

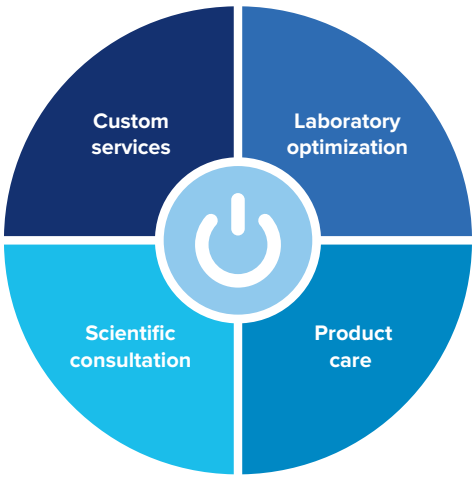
PHARMACOGENOMICS

This consolidated system can run two applications – NGS library prep and real-time PCR with automated reaction setup – minimizing operator contribution and time to results to support discovery through screening.

We're here for you.

Standard BioTools PRO Services

Standard BioTools™ PRO Services are a comprehensive portfolio of solutions to help you maximize your investment, scale up productivity and empower your laboratory with greater access to professional resources.



CUSTOM SERVICES

Achieve unique goals with tailored services.

Standard BioTools offers unique and highly specialized services tailored to meet specific research and translational needs.

LABORATORY OPTIMIZATION

Enhance operational efficiency and productivity.

Our experts help you prepare for technology adoption, streamline workflow and support improvement initiatives.

SCIENTIFIC CONSULTATION

Accelerate research and testing with expert applications support.

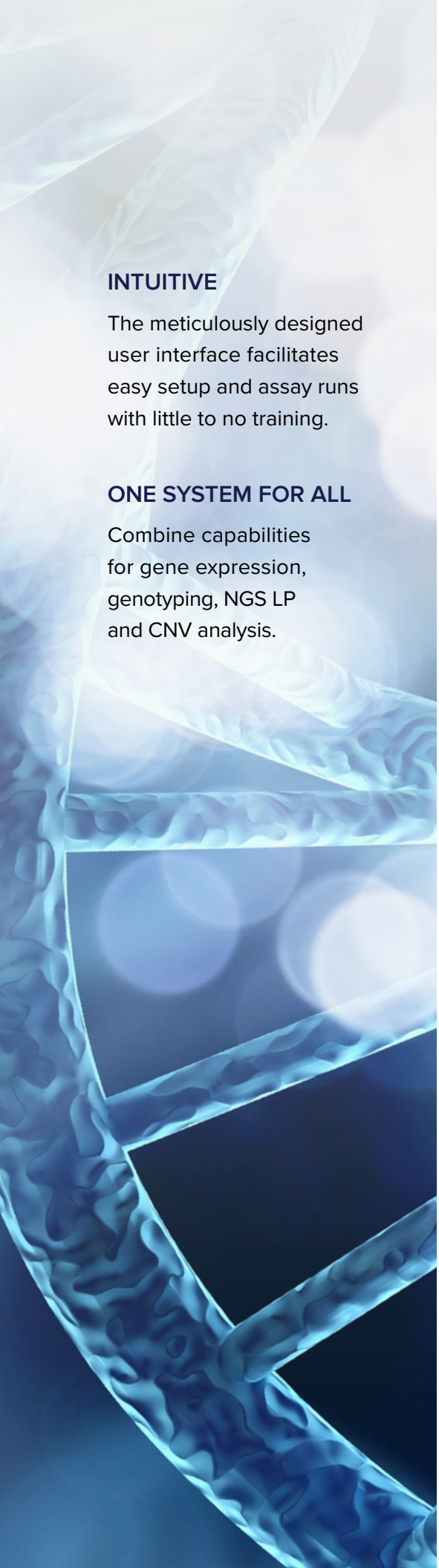
Our consultative services and training programs equip laboratories with the tools and knowledge needed to elevate scientific data into actionable insights.

PRODUCT CARE

Maximize system investment and performance.

Our global network of trained experts provides timely support, training programs, compliance services, proactive maintenance and repair services to optimize productivity and performance of your systems.

Providing **expertise** to power your research.



INTUITIVE

The meticulously designed user interface facilitates easy setup and assay runs with little to no training.

ONE SYSTEM FOR ALL

Combine capabilities for gene expression, genotyping, NGS LP and CNV analysis.

Nanoscale genomics for multiple workflows.

The ability to produce answers quickly, efficiently and reliably can position a laboratory as a center of excellence by raising the quality of both basic and clinical research. By enabling comprehensive and versatile genomic analysis, the Biomark X9 System with microfluidics technology empowers the generation of timely and actionable answers that can transform genomic studies.

VERSATILE

The technology is compatible with the most common chemistries on the market and supports development and creation of custom assays, providing a wide range of testing and investigation options and the ability to scale the number of targets based on need.

Products include: Advanta™ Sample ID Genotyping Panel
Advanta Pharmacogenomics Assay
Advanta Solid Tumor NGS Library Prep Assay

Services include: D3™ design services for custom assays

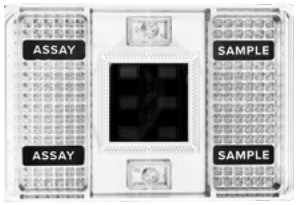
GENE EXPRESSION | GENOTYPING | COPY NUMBER VARIATION

> Generate up to **46,080 datapoints** per eight-hour shift and up to **384 barcoded libraries** per day to achieve deep insights while conserving precious samples and reagents.

Proven microfluidics technology.

Integrated fluidic circuits (IFCs) form the backbone of the Biomark X9 System, supporting different configurations of samples and assays for multiple applications. Each IFC is precision-manufactured to exacting standards of performance and reliability. Standard BioTools IFCs empower genomic research by automating molecular biology in nanoliter volumes. These reduced reaction volumes mean using less of your precious samples and assay reagents to lower cost and achieve high-quality consistent results.

IFCs SUPPORTED ON THE BIOMARK X9 SYSTEM



Flex Six™ IFC

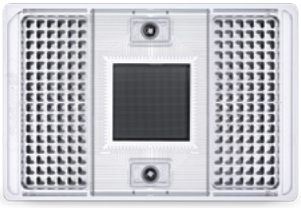
- Genotyping
- Gene expression

One IFC contains six partitions that can be processed together or separately. Each partition enables up to 144 reactions using up to 12 samples and 12 assays.

48.48 IFC

- Genotyping
- Gene expression
- Library preparation

One IFC enables up to 2,304 PCR reactions or 4,800 amplicons (LP) per sample for up to 48 samples.

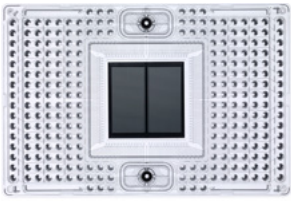


96.96 IFC

- Genotyping*
- Gene expression

One IFC enables up to 9,216 reactions using up to 96 samples and 96 assays.

* Indicates preamplification is enabled on specific configurations of the IFC.

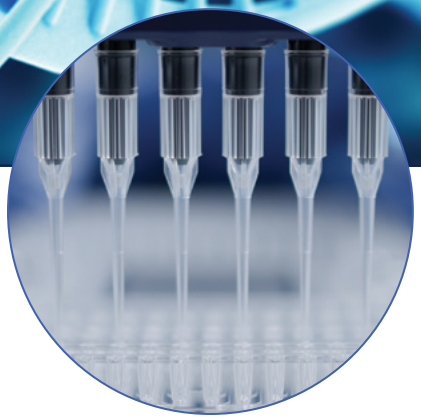


192.24† and 24.192 IFCs

- Genotyping
- Gene expression
- Library preparation

One IFC enables up to 4,608 PCR reactions or 2,400 amplicons (LP) per sample for up to 192 samples.

† Library preparation is only supported on this IFC format.



Microfluidics.
Mega insights.

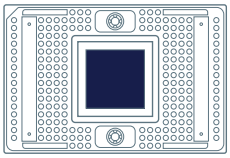
The combination of microfluidics technology and the efficiency of the Biomark X9 System provides simpler, more streamlined real-time PCR and NGS library prep workflows. By automating multiple steps within the system and on the IFC, you are able to reduce your processing to four easy steps.

WORKFLOW

Optimize lab efficiencies with gene expression, copy number variation and genotyping workflows that can generate results in as little as two hours.

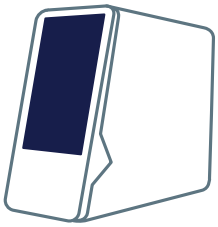
1

Prepare master mixes, samples and detection assays.



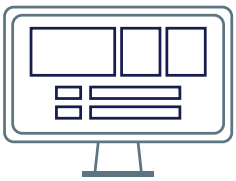
2

Pipette samples and assay mixes into IFC.



3

Load, cycle and image IFC on the Biomark X9 System.



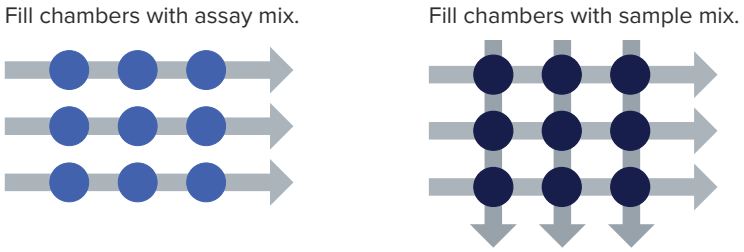
4

Analyze data.

Simplify your workflow.
Simplify your life.

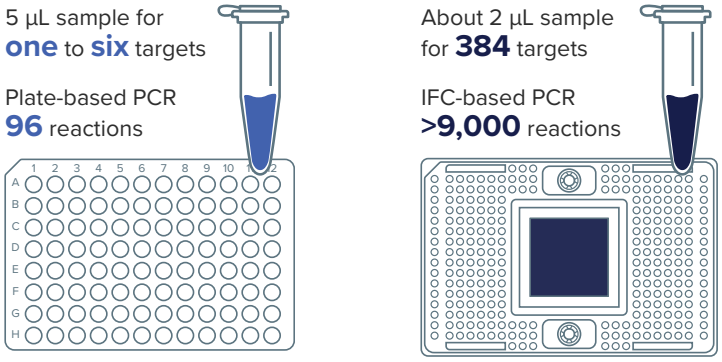
DESIGN

Easy-to-configure panels mean fewer design iterations and more time saved. Our D3 Assay Design Group can also assist you in creating custom assay panels.



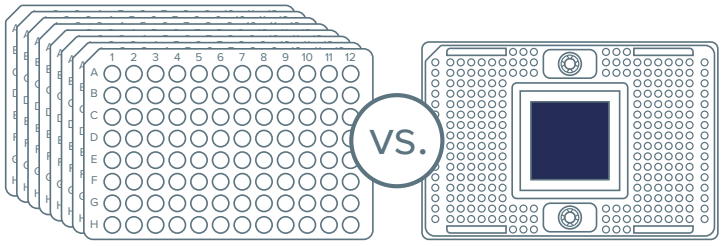
CONSERVE

Use of less sample for more reactions helps you conserve your precious materials.



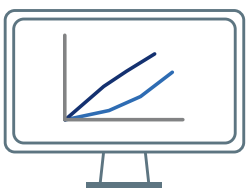
CUSTOMIZE

Thousands of nanoliter-scale inlets help your sample go hundreds of times further than with a 96-well plate. Scale throughput without changing technologies, and add, remove or replace assays on demand.



ANALYZE

Analyze your results with intuitive software.



Biomark™ X9

More data.
Deeper insights.
Less effort.

EXPRESS SCRIPTS

The Biomark X9 System supports Express scripts with which customers can reduce their genotyping and gene expression run times by two hours (>50% less) with minimal hands-on time. This is all accomplished without changing the IFC design, requiring additional consumables and labor or impacting performance.

Reduce run time by 50% without impacting experiment design.

Performance you can trust.

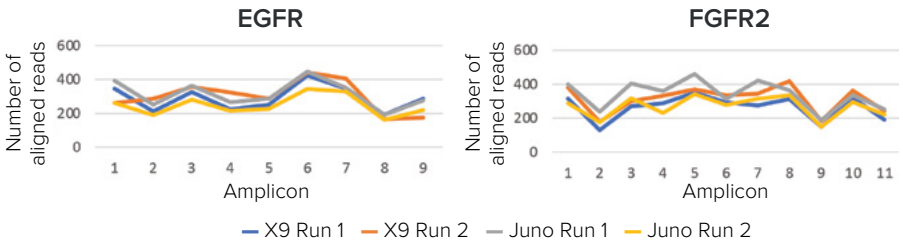
NGS library preparation data

PERFORMANCE COMPARISON: BIOMARK X9 SYSTEM AND JUNO PLATFORM

Two NGS LP 48.48 IFCs were run on the Biomark X9 System and one of its predecessors, the Juno™ system. Each IFC contained 48 samples of 125 ng of human genomic DNA. Each sample was run against 35 assay pools containing primer pairs to generate a total of 5,238 amplicons targeting 128 cancer genes.

	X9	Juno
% On-target reads	93.4%	93.5%
Coverage uniformity	92.4%	92.0%

A comparison of the percent of on-target reads and amplicon coverage uniformity demonstrates equivalent performance between the Biomark X9 System and the Juno system.

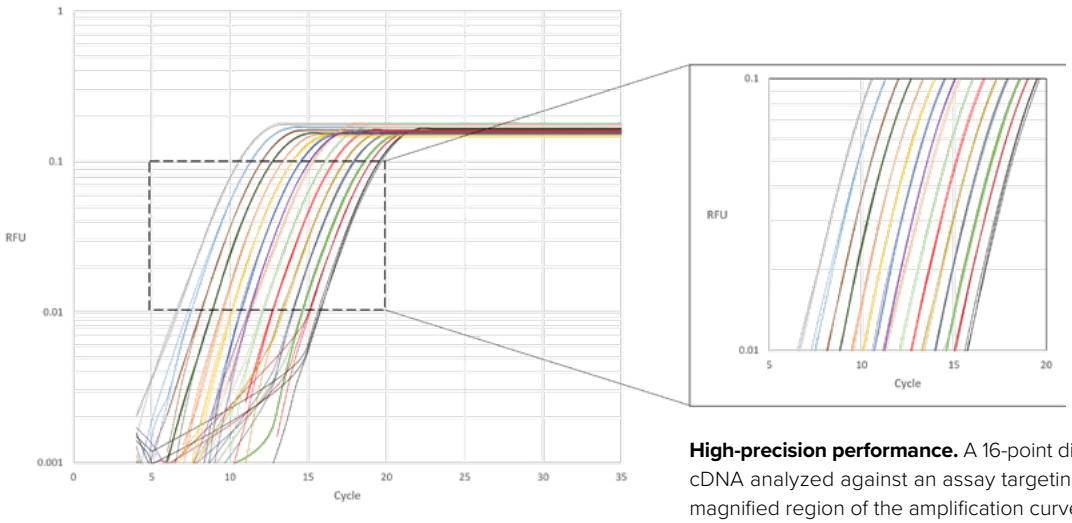


The number of mapped reads for representative amplicons from EGFR and FGFR2 were compared for individual samples from each run. The correlation of the number of mapped reads per amplicon across both systems demonstrates equivalent performance between libraries generated on the Biomark X9 System and Juno.

Real-time PCR data

PRECISION

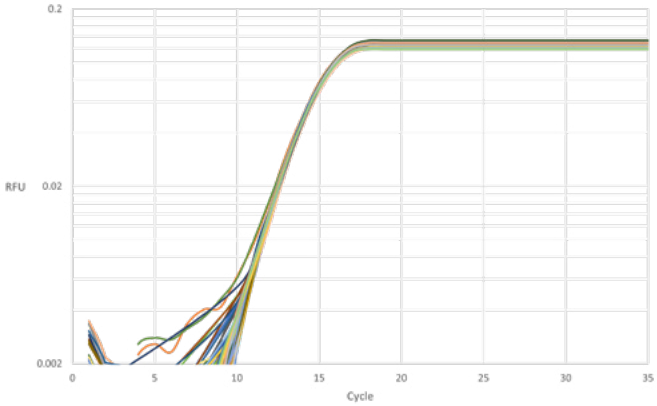
Accurate discrimination of fold changes is an important parameter for qPCR performance. To demonstrate this characteristic with the Biomark X9 System, a 1.5-fold dilution series of synthetic cDNA was prepared, and three replicates of each dilution point run against 24 assays on a 192.24 Dynamic Array™ IFC. Amplification curves for the assay targeting GAPDH demonstrate accurate and precise quantitation of target abundance.



High-precision performance. A 16-point dilution series of synthetic cDNA analyzed against an assay targeting GAPDH. Inset shows a magnified region of the amplification curves.

REPRODUCIBILITY

Uniform amplification across replicates is a requirement for accurate quantitation by qPCR. To highlight the uniformity of amplification across an IFC, 96 replicates of a synthetic cDNA sample were run on the Biomark X9 System against 96 assays using the 96.96 Dynamic Array IFC. A Ct standard deviation of 0.06 across 96 sample replicates on the IFC demonstrates excellent uniformity of amplification that will permit accurate quantitation of all samples, regardless of location on the IFC.



Reproducible amplification. Amplification curves of 96 replicates of a synthetic cDNA sample run against an assay targeting GAPDH. Mean Ct is 12.4 with a standard deviation of 0.06 Ct.

Specifications

The Biomark X9 System sets a new standard for automated real-time PCR and NGS library preparation on a single benchtop system to maximize the productivity in your lab with minimal staff effort or training. The intuitive user interface together with IFC technology saves time and money by performing thousands of reactions in nanoliter volumes on a device the size of a conventional 96-well plate. The Biomark X9 System streamlines workflows for applications demanding sensitivity and dynamic range at mid-to-high throughput, including genotyping, gene expression, sample identification and copy number variation.

INSTRUMENT

Part number	X9-X9
Dimensions	Depth: 64.2 cm (25.2 in) Width: 26 cm (10.2 in) Height: 53.5 cm (21.1 in)
Weight	37 kg (83 lb)
Thermal control	Peltier-based, 4–99 °C
Heating ramp rate	Up to 5.5 °C/sec
Cooling ramp rate	Up to 5.5 °C/sec
Detection	CMOS camera; 20M pixel
Fluorescence excitation	485 nm, 530 nm, 580 nm
Fluorescence emission	525 nm, 570 nm, 630 nm
Power requirements	100–240 VAC, 50/60 Hz, 8.0 A Standard BioTools provides a region-specific power cord for the Biomark X9 System.

SOFTWARE

Instrument software	Standard BioTools Biomark X9 System Software*†
Protocol editor	Standard BioTools Protocol Editor
Analysis	Standard BioTools Real-Time PCR Analysis Software
	Standard BioTools SNP Genotyping Analysis Software
	Advanta PGx Assay Preset

* Activation of NGS LP capabilities requires a license key, which does not expire.

† A software update is required to use the Flex Six IFC.

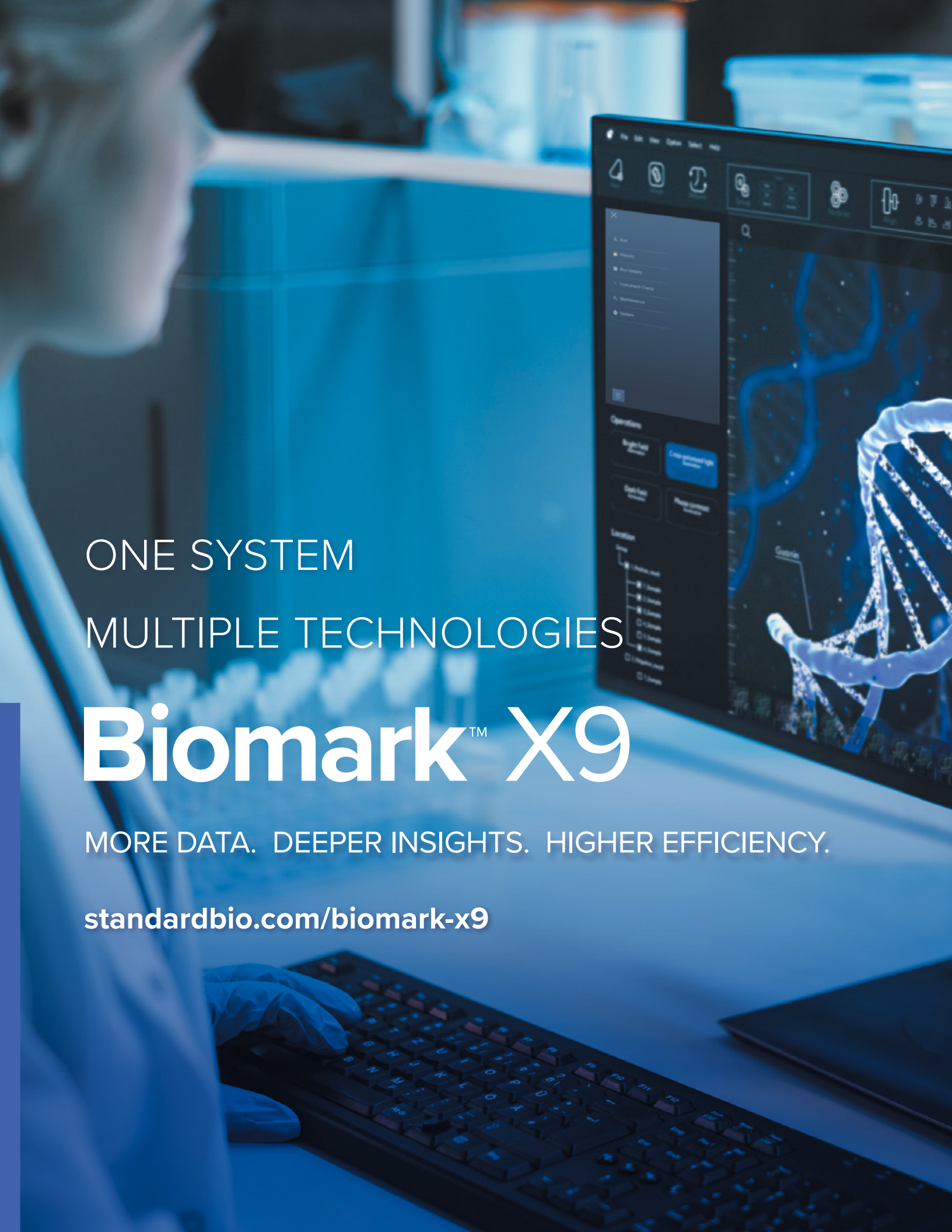
SUPPORTED IFCs

Flex Six Genotyping IFC*
Flex Six Gene Expression IFC
48.48 Dynamic Array IFC-X Real-Time PCR
48.48 Dynamic Array IFC for Genotyping*
96.96 Dynamic Array IFC for Gene Expression
96.96 Dynamic Array IFC for Genotyping
96.96 GT Preamp IFC-X (for genotyping)*
192.24 Dynamic Array IFC for Gene Expression
192.24 Dynamic Array IFC for Genotyping*
24.192 Dynamic Array IFC for Gene Expression
24.192 Dynamic Array IFC for Genotyping*
NGS LP 8.8.6 IFC for NGS library preparation
NGS LP 48.48 IFC for NGS library preparation
NGS LP 192.24 IFC for NGS library preparation

* Supports SNP Type™ and TaqMan chemistry

COMPUTER REQUIREMENTS FOR ANALYSIS SOFTWARE (computer not provided)

Memory	4 GB
Operating system	Microsoft Windows 10 or 11
Storage	200 MB of free space
Connections	USB port or Ethernet


ONE SYSTEM
MULTIPLE TECHNOLOGIES
Biomark™ X9
MORE DATA. DEEPER INSIGHTS. HIGHER EFFICIENCY.
standardbio.com/biomark-x9

Unleashing tools to accelerate breakthroughs in human health™

Learn more at **standardbio.com/biomark-x9**

Contact us at **standardbio.com/contactus**

Unleashing tools to accelerate breakthroughs in human health™

FLDM-01021 Rev 06 122025
Biomark X9 Brochure