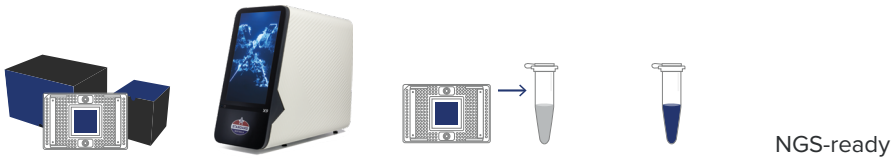
Agrigenomics Multiplex Amplicon-Based GBS

Simplified workflow with on-chip barcoding

Molecular breeding is transforming the landscape of agricultural development, offering a more cost-effective and time-efficient pathway to enhance plant and animal species. The evolution of genomic technologies has been a game-changer, propelling these breeding programs to new heights with unprecedented high-throughput genotyping capabilities. The Standard BioTools™ Biomark™ X9 System for High-Throughput Genomics, with its amplicon-based genotyping-by-sequencing (GBS) solutions, represents a breakthrough in this field, facilitating the economical delivery of large-scale plant and animal genotypes.



1 Reagent prep
0.5–1 hour

2 Automated IFC prep and processing
Load, amplify and barcode on the Biomark X9 System.
4–5.5 hours or overnight

3 Harvest and pool barcoded amplicons
10 minutes

4 Cleanup, adapter PCR and QR
Single-tube reaction
4.5 hours

NGS-ready libraries
48–192 samples

Automated target-specific amplification and simultaneous addition of sample barcodes provide the ability to pool multiple samples before purifying them, making workflows neat and efficient.

Highlights

Plant and animal molecular breeding

Simplify downstream processing with automated integration of up to 1,536 unique barcodes.

Get more libraries with less prep by generating 96–384 barcoded, NGS-ready libraries per day and 384–1,536 per week.

Multiple targeted assay pools support overlapping amplicon designs for **100% target coverage.**

Cost-effective and time-efficient workflow
enhancing plant and animal genomics.

Choose the configuration that best suits **your needs**.

Targeted Sequencing Library Preparation	NGS LP 8.8.6 IFC	NGS LP 48.48 IFC	NGS LP 192.24 IFC
Number of samples per run	Up to 48*	Up to 48	Up to 192
Number of assay targets per sample	Up to 1,600 per partition**	Up to 4,800	Up to 2,400
Amplicon length	150–500 base pairs	150–500 base pairs	150–500 base pairs
Turnaround time from DNA to NGS-ready libraries (one IFC run)	Eight hours total (includes four hours walk-away automation)	Eight hours total (includes four hours walk-away automation)	9.5 hours total (includes 5.5 hours walk-away automation)
Sample throughput in 24 hours	Up to 96 sample libraries	Up to 96 sample libraries	Up to 384 sample libraries
Number of samples multiplexed per NGS run	Up to 1,536 using Standard BioTools barcodes	Up to 1,536 using Standard BioTools barcodes	Up to 1,536 using Standard BioTools barcodes
Distinguishing attribute	Highest sensitivity	Most amplicons	Highest throughput
Partitions per IFC	Six	N/A	N/A

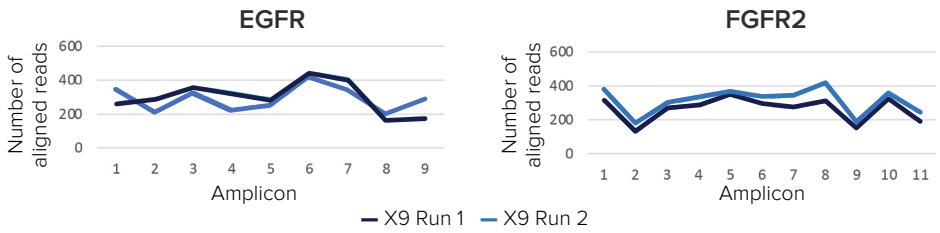
* Up to eight samples per each of six partitions that support parallel processing using different assays

** Enables six unique amplicon panels per run

Performance

Two NGS LP 48.48 integrated fluidic circuits (IFCs) were run on the Biomark X9 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. Results for key metrics demonstrate equivalent performance between libraries generated on the system.

Biomark X9 System	
% On-target reads	93.4%
Coverage uniformity	92.4%



Standard BioTools offers both catalog and custom products.

Simplify panel development for custom applications with **D3™ Assay Design**. Assay designs are optimized for use with Standard BioTools IFCs and reagent kits that support different throughput requirements and price points.

Product Name	Part Number	IFC Type and Quantity
Targeted DNA Seq Library Assays (Custom)	ASY-MPX ASY-POOL ASY-POOL-EA	Various
Targeted DNA Seq Library Barcode Plates	101-0744	NGS LP 192.24 – 40 IFCs NGS LP 48.48 – 160 IFCs

Product Name	Part Number	IFC Type and Quantity
Targeted DNA Seq Library Adapter Set	101-2412	20 IFCs (either format)
Advanta™ NGS Library Prep Reagent Kit	101-7663 101-7666 101-7667 101-7669	NGS LP 48.48 and 8.8.6 for 2 IFCs NGS LP 48.48 for 10 IFCs NGS LP 192.24 for 2 IFCs NGS LP 192.24 for 10 IFCs
NGS LP Accessories Kit	101-2348 101-2333 101-9226	NGS LP 48.48 – 10 IFCs NGS LP 192.24 – 10 IFCs NGS LP 8.8.6 – 2 IFCs

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

FLDM-01321 Rev 02 062025
Agrigenomics multiplex amplicon-based GBS flyer