

AgriType™ Targeted Genotyping by Sequencing Solution

Cost-effective targeted genotyping by sequencing solution compatible with crude Lysate for molecular breeding

Highlights

- **Scalable High-Throughput Genotyping System**
Target up to 20,000+ relevant markers in the same assay
- **Fast Turnaround Time**
Get custom assays delivered in 4 to 6 weeks
- **Cost-Effective Solution for All Platforms**
Process thousands of samples at a time on either Illumina®, MGISEQ/BGISEQ, or Ion Torrent™ NGS platforms
- **Streamlined, Automation-Friendly Workflow**
Generate sequencing-ready libraries in just 3 hours using a simple, three-step protocol that can be easily automated
- **High-Quality, Reproducible Results**
Prepare high-quality NGS libraries with high marker call rates and efficient use of sequencing reads

The AgriType™ Targeted Genotyping by Sequencing Solution is designed and developed to address large-scale genotyping projects in agrigenomics. The AgriType™ solution is powered by an advanced primer design algorithm, an efficient ultra-high multiplex PCR-based target enrichment chemistry, and a proprietary background cleaning technology. AgriType™ provides a cost-effective solution to construct NGS libraries to quickly and efficiently screen hundreds to tens of thousands of markers of interest to accelerate genotyping studies in fields such as aquaculture, livestock farming, and seed breeding.

AgriType Streamlined Targeted Sequencing Workflow

The AgriType™ genotyping solution offers a simple and streamlined workflow that can be easily automated. The multiplex PCR-based protocol can be completed in just 3 hours, with 75 minutes of hands-on time, via a three-step workflow with minimal tube-to-tube transfers. Workflow consists of a thermal cycling or incubation condition, followed by “with bead” purification using magnetic beads.



AgriType™ Target Enrichment and Library Preparation

3 hours of total assay time, 75 minutes of hands-on time

Crude Lysate Compatibility

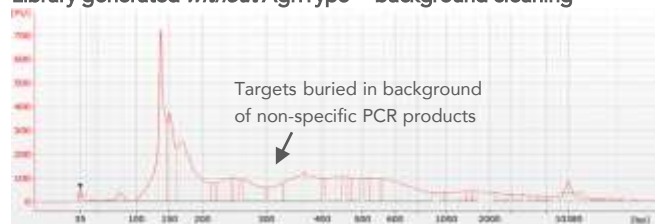
Isolation of DNA from agriculture-related samples, such as crop seeds, usually involve time-consuming and expensive procedures that rely on either organic extraction, column-based purification or alcohol precipitation to generate material compatible with PCR-based downstream applications. As high-throughput often requires running thousands of samples, DNA purification can be time and cost prohibitive.

In addition to the NGS Library Preparation solution, we are proud to offer the simple, yet effective, AgriType™ DNA Sample Preparation system, which comprises 2 buffers. This procedure can be applied to ground plant or animal material with one heating step and one centrifugation step to generate a crude lysate that is PCR-ready in only 30 minutes.

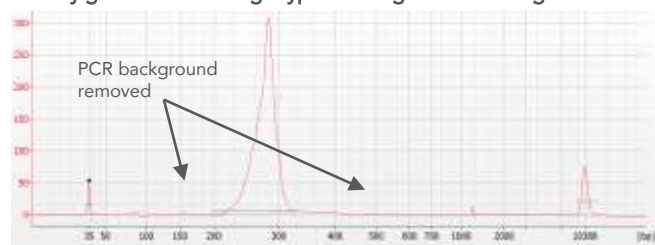
High Quality Libraries Powered by Background Cleaning

The AgriType™ genotyping solution is powered by Paragon Genomics' proprietary background cleaning technology, which removes non-specific PCR products, resulting in best-in-class target enrichment performance and efficient use of sequencing reads. Platform-specific index primers are used to generate AgriType™ target-enriched libraries that are compatible with either Illumina, MGISEQ/BGISEQ, or Ion Torrent NGS platforms.

Library generated *without* AgriType™ background cleaning



Library generated *with* AgriType™ background cleaning



AgriType™ Targeted Genotyping by Sequencing Solution

Scalable Panel Content that Can Evolve to Meet New Challenges

AgriType™ custom NGS panels can be designed to multiplex up to 20,000+ amplicons per assay to screen tens of thousands of markers simultaneously. New targets can be easily added without sacrificing performance, allowing your molecular breeding assays to evolve and stay current. Our superior primer design ensures that targets, including those in difficult regions, are successfully amplified to generate maximum coverage, minimizing assay failure due to dropouts of the desired targets.

High Concordance with Whole Genome Sequencing Data

A 2,000+-amplicon AgriType™ custom NGS panel for plant breeding was developed for a large crop science company. To test the robustness of AgriType™ solution, 8 samples that were previously genotyped using whole genome sequencing (WGS) were used to construct AgriType™ target-enriched NGS libraries and the data compared. Of the 2,000+ markers tested, 99.8% showed high concordance with WGS results, and perfect concordance was obtained at the sample level.

Threshold	% Markers	% Samples
>95% Concordant	99.8%	100%
>80% Concordant	99.7%	100%
<80% Concordant	0.3%	0%

High-Quality AgriType NGS Panels for All Panel Sizes

AgriType panels show consistently superior sequencing specifications regardless of panels size, to meet all your research needs.

Amplicons per reaction	Uniformity (0.2x Mean Coverage)	%Mapping Rate	% On-Target Rate
15	100%	98.8 %	98.9%
109	100%	96.2%	99.2%
200	99.5%	97.2%	96.8%
600	99.5%	99.0%	97.5%
1500	98.8%	99.7%	96.4%

Versatile Targeted Genotyping Solution for Key Molecular Breeding Applications

The AgriType™ Targeted Genotyping by Sequencing Solution is well suited for the following plant and animal breeding applications:

- Marker assisted selection (MAS)
- Genomic selection (GS)
- Trait mapping
- Quantitative trait locus (QTL) screening
- Marker assisted back crossing (MABC)

Fast Turnaround Time and Excellent Technical Support

Use AgriType™ genotyping solution to accelerate your large-scale molecular breeding programs. Our PhD-level expert scientists are here to provide speedy and comprehensive support throughout the design, ordering, and technology adoption process, including excellent after-sales technical support.

Depending on order size and complexity, AgriType™ custom NGS panels are designed, manufactured, and delivered in just a few weeks. The process is simple. First, obtain a quote based on your volume and marker count. Second, define your targets. Third, review and approve the design. Once the design is approved and an order is placed, we will deliver your custom AgriType™ solution in 4 to 6 weeks.

Pricing

For pricing information regarding your high-throughput genotyping projects, please enquire for a free consultation with our specialists at sales@paragongenomics.com or at (415) 855-0957

Learn More

To learn more about the AgriType™ Targeted Genotyping by Sequencing Solution, visit www.paragongenomics.com