Flex-Seq

Fast, focused, flexible.

The ultra-specific, ultra-efficient, high-throughput targeted genotyping solution for:

- Genomic selection
- Genome edit verification
- Marker-assisted selection and backcrossing
- Parentage testing
- Assessing population genetics and structure
- Traceability

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GENOMIC ANALYSIS BY LGC

About Flex-Seq

[Flex-Seq™](#) is an high-throughput targeted genotyping platform for commercial, next-generation sequencing applications. Focusing on scalability paired with data accuracy, reproducibility, and completeness allows Flex-Seq to deliver industry-scale solutions for industry-scale genotyping.

Capable of targeting upwards of 30,000 DNA markers, Flex-Seq solutions are suitable for plant and animal breeding objectives including genomic selection, imputation, marker-assisted selection and parentage analysis.
Flex-Seq genotype data matches genotyping array (SNP chip) technology, ensuring consistency between legacy datasets. Genotyping data from other technologies can also be incorporated into Flex-Seq panels and novel, customer-specific genotyping markers can be developed for any species.

Flex-Seq is also applicable to large-scale population genetics research.

Full-service Flex-Seq genotyping solutions are delivered at Biosearch Technologies starting from tissue or DNA to genotyping results, with custom data formatting options available for routine applications.
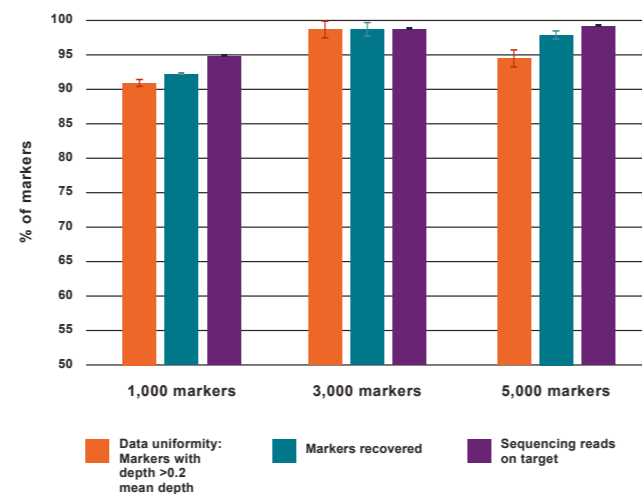
Sample input requirements	Flex-Seq assays	Turnaround time
25 mg tissue 100 ng DNA	>30,000 markers	4-6 weeks*

* excl. 4-6 weeks panel design
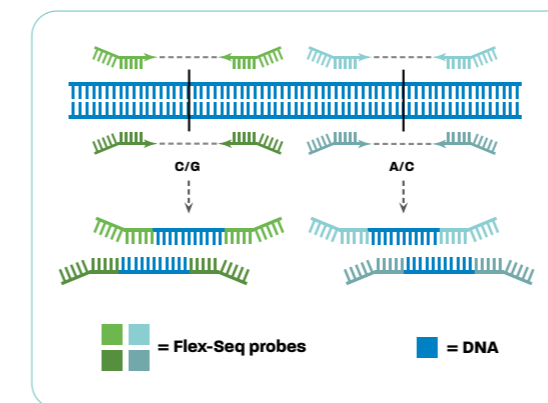
Flex-Seq performance

Summary metrics of genotyping results from three Flex-Seq marker panels. Data Uniformity displays the percentage of markers with >0.2x mean sequence depth (91%-98%). Markers Recovered shows the percentage of markers (92%-98%) with sufficient sequencing depth for accurate genotyping (i.e. 10X per haploid genome). Sequencing Reads on Target reflects the reaction specificity, with 95-99% of all aligned sequencing data mapping to the intended targets.

The combination of high marker recovery, data uniformity and reaction specificity ensures efficiency and overall completeness of genotyping results for any marker panel.
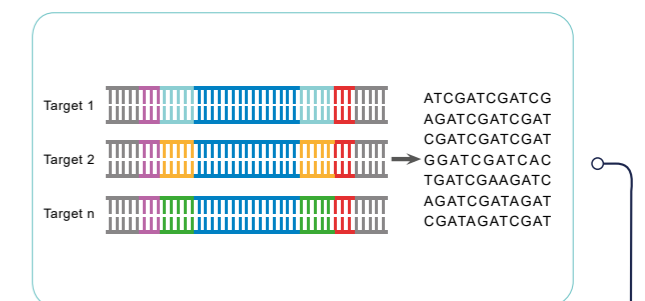

Legend:
- Data uniformity: Markers with depth >0.2 mean depth
- Markers recovered
- Sequencing reads on target

Flex-Seq genotyping panels follow 3 easy steps:

1 Design panel specifications
- Species/organism
- Number of targeted markers: flexible, fully supported design parameters for specific regions or general strategies

2 Flex-Seq panel validation
- Sample type validation
- Marker optimisation and fine-tuning

3 Begin routine genotyping
- Genomic selection
- Parentage assignment
- Fingerprinting and more

Flex-Seq technology

1 Design and hybridise probes to sample DNA

C/G   A/C

= Flex-Seq probes   = DNA

2 Incorporate next generation sequencing adapters and sample indexes

Index 1   Index 2

3 Sequence Flex-Seq libraries

Target 1 — ATCGATCGATCG AGATCGATCGAT CGATCGATCGAT
Target 2 — GGATCGATCAC TGATCGAAGATC
Target n — AGATCGATAGAT CGATAGATCGAT

4 Process data for marker identification and additional analysis

Sample 1	1 0 2 2 0
Sample 2	2 2 1 1 0
Sample 3	0 2 1 2 2
Sample n	1 2 0 1 2

Parentage testing   Diagnostics   Genomic selection
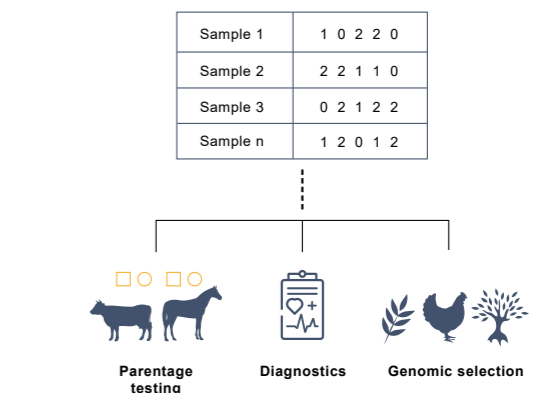
Fast	Focused	Flexible
Up to 2-week turnaround time – tissue/DNA to SNPs	Up to 98% marker recovery	Update Flex-Seq marker panels for evolving needs
	Up to 99% on-target sequencing	Multiple sample types accepted
	99% agreement between technical reps	Leaf tissue, TSUs, DNA and more
	98% agreement with array technology	

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