SNPline
the genotyping solution that scales with your needs

*For Research Use Only. Not for use in diagnostic procedures.
Adaptable to any throughput requirement
The SNPline system, produced by the laboratory instrument team at LGC Biosearch Technologies™, provides the ultimate solution in scalable genotyping in any laboratory setting.

Individual instruments in the SNPline workflow integrate with our proprietary Kraken™ software package to deliver complete experimental workflow management and data analysis.

Start out with a SNPline Lite configuration and add instruments and 1536 well-plates to grow into the SNPline XL configuration as your daily throughput needs increase. Individual instruments also can be purchased separately.

From 20 to more than half a million individual data points per day, the unique SNPline approach enables generation and interpretation of data sets of any size to genotype SNPs, insertions or deletions.

SNPline modular workstation
The complete genotyping solution from DNA preparation to data analysis

- Automation reduces manual pipetting steps
- Flexibility allows wide variety of SNP to sample ratio combinations
- Simplified calling of results and bespoke reporting

Why our customers implement the SNPline solution
SNPline modules
Kraken experimental design and data management software
KASP assays are available in two formats
SNPline and KASP genotyping reagents
Genotyping project examples
Genomics - products and services

From 20 to more than 500,000 genotypes each day, SNPline™ offers you the flexibility to obtain high quality genotyping data at any scale.
Grow with your business needs
SNPLine is available in multiple configurations and can be used in combination with your existing laboratory equipment, enabling analysis of any number of samples for one or thousands of different SNPs.

• Complete software control to run any number of samples and any number of assays with full automation of dispensing and tracking of plates, samples and assays
• Flexibility to repeat only the downstream assays requiring further analysis with no restriction on configuration as with fixed array and chip based solutions
• Suitability for use with a variety of chemistry options including KASP™, TaqMan® or Invader®
• Solutions for DNA preparation and PCR in any plate density, including 1536-well plates.

Expert product and technical support
Our experienced laboratory based, scientific support team and field applications teams are on hand to provide full product and technical assistance where and when you need it. We can provide support for assays targeting difficult SNPs or indels and have extensive experience working with genomes from difficult organisms.

Cost effectiveness
Lower reagent costs and the ability to run assays in only those wells where data needs to be interpreted, provide significant savings compared to array based systems where the need to repeat a particular assay can necessitate a repeat of the entire data set. We use SNPLine in our service laboratory. The development and deployment of cost efficient, reliable systems has been integral to our success.

• Low-cost genotyping
• Requires minimal DNA and has no requirement for expensive sample clean-up or pre-amplification preparation
• Meridian dispenses reagents only into those plate wells to be analysed
• Experimental set-up and data analysis costs are significantly reduced with Kraken software for data management and analysis
• Existing integration with a third-party cloud-based fluorescence data calling service.

Why our customers implement the SNPLine solution

SNPLine modules

The modular SNPLine system can be adapted to suit the needs of any new or existing genotyping setup. Two potential configurations and instruments that can be purchased individually are shown below.
SNPLine and KASP genotyping reagents - cost effective genotyping

Our KASP genotyping reagents for the detection of SNPs and InDels provide a homogeneous, fluorescence based genotyping assay, utilising a unique form of competitive, allele-specific PCR that delivers extremely high levels of assay robustness and accuracy. The KASP chemistry utilises universal FRET cassettes and highly specific Taq DNA polymerase with two competitive, allele-specific, KASP forward primers and one common reverse primer to generate high quality genotyping results.

The cost effective and proven KASP chemistry provides:
- Compatibility with 96-, 384- and 1536-well plate formats from 1 μL to 20 μL reaction volumes
- 99.8% accuracy, independently assessed (reports are available on request)
- Very high SNP to assay conversion rate (>90%) - genotype difficult SNPs without sequencing
- Reduced starting material volumes with as little as 3 ng DNA of starting material utilised in the assay (dependent on genome size)
- Significantly reduced assay setup cost - no dual labelled probes required
- A passive reference dye (ROX) which operates as an internal control standard
- Compatibility with a wide range of fluorescence analysers
- Single-step, closed-vessel reaction to eliminate cross contamination
- Universal KASP reaction mix for use with any KASP assay.

Genotyping project examples

R&D project
For validation of 96 assays over 96 samples, the SNPLine uses 16 x 1536 plates and can be run in less than three hours. 96 SNPs x 96 samples

SNP validation
Validation of SNPs for mapping, subsequent to NGS, can be enabled using 1000 x 1536 density plates with virtually no manual pipetting requirement. 2,000 SNPs x 768 samples

Population study
Analysis of discriminative SNPs from larger Fx populations can be achieved using 500 x 1536 plates. 250 SNPs x 3,072 samples

QC and DNA biobanking
Analysis of large sample numbers is easily achieved using the 1536 plate density to allow generation of over 25,000 data points per hour. 12 SNPs x 50,000 samples

KASP assays are available in two formats to optimise flexibility and cost efficiency

KASP By Design
The KASP By Design (KBD) assay is our most cost effective solution for primer design and assay development. The KBD service utilises our assay development software to provide the best in silico predicted assay. A KBD assay is shipped in a 2D barcoded tube and comprises the three designed oligos premixed at the appropriate concentration. When combined with our KASP-TF Master Mix your SNP genotyping will be ready to run. As with all our products and services, our technical support team is available to assist you with data interpretation and troubleshooting if required.

KASP On Demand
The KASP On Demand (KOD) service includes full validation and assay optimisation by our in-house genotyping experts prior to shipment of the assay. Using customer sequence data, we optimise and fully validate the assay prior to shipping the oligonucleotides. Assay components are shipped pre-mixed in 2D barcoded tubes complete with full experimental protocols. As with the KBD service, combination of the assay with our KASP-TF Master Mix provides the complete solution, ready to use.

Note: the KBD service does not include assay validation prior to shipment.

<table>
<thead>
<tr>
<th>Sequence provided using Biosearch Technologies' web based submission template</th>
<th>Design and preparation of oligos by Biosearch Technologies</th>
<th>Oligos combined into 2D barcoded tubes</th>
<th>Standard assay quantity per kit</th>
<th>Assay optimisation by Biosearch Technologies</th>
<th>Research Technologies' assay validation against random DNA samples</th>
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</thead>
<tbody>
<tr>
<td>KBD</td>
<td>Yes</td>
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<td>Yes</td>
<td>2,500 assays (different sizes available on request)</td>
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<tr>
<td>KOD</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>2,500 assays (different sizes available on request)</td>
<td>Yes, using internal or customer provided DNA samples</td>
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Sample management
Assay design
Pipetting and sealing
Data interpretation

Our proprietary Kraken software is a dedicated information and laboratory workflow manager for all genotyping work, carried out on the SNPLine, from sample storage to data analysis. The Kraken feature set was developed by scientists for small and large projects.

We also offer KlusterCaller software for calling data in the absence of Kraken data management, and SNPviewer as a tool to allow users to visualise data reported from our genotyping services laboratory.

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