Wheat genotyping library powered by KASP

The LGC wheat genotyping library offers convenient access to more than 8000 functionally validated KASP™ SNP genotyping assays. These assays are available to researchers and plant breeders to enable the development of precision breeding in wheat (*Triticum spp.*) hybrids. The library was developed in conjunction with the University of Bristol (UK).

A ‘core set’ of 960 KASP genotyping SNP assays has been identified that provide an even distribution of SNP markers across the A, B and D genomes of wheat. The added advantage of the selected KASP assays is that 83% of markers are either co-dominant or partially co-dominant. Over 400 assays have been linked to known functional proteins in the NCBI database.

Browse the available wheat SNP assays and request a quote with the online Assay Search Tool: http://lgcapps.com/assays/wheat

Wheat KASP SNP markers

Initial data mining included 91,368 expressed sequence tags (ESTs) from public databases and unique sequences developed by next-generation sequencing (NGS). These were identified in the cultivar Mercia, an agriculturally important European wheat variety, and assay validation was carried out on an Avalon x Cadenza mapping population.

Advantages of the pre-validated wheat assays:

- Library includes over 8000 functionally validated SNP assays
- Core set of 960 assays evenly distributed throughout the A, B and D genomes
- Pick and choose the assays relevant to your research using our online Assay Search Tool
- Assays can be either:
  a) run in your own laboratory
  b) run through our genotyping service laboratories
- Proven KASP technology delivers superior genotyping performance

The Wheat SNP Database

<table>
<thead>
<tr>
<th>SNP Type</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Varietal SNPs</td>
<td>99945</td>
</tr>
<tr>
<td>Validated SNPs</td>
<td>7228</td>
</tr>
<tr>
<td>Mapped SNPs (Avalon x Cadenza)</td>
<td>3629</td>
</tr>
<tr>
<td>Mapped SNPs (Savannah x Rialto)</td>
<td>1886</td>
</tr>
<tr>
<td>Mapped SNPs (Synthetic x Opata)</td>
<td>201</td>
</tr>
<tr>
<td>Wheat varieties studied</td>
<td>169</td>
</tr>
</tbody>
</table>

Note: As part of the University of Bristol wheat program, 169 wheat varieties have been genotyped using these markers and haplotype data is available through CerealsDB.

These KASP genotyping assays are easy to run, robust, accurate and highly cost-effective. The reagents for KASP genotyping can be delivered to you so that you can run the assays in your own laboratory; KASP can be read on most qPCR instruments and FRET-capable plate readers.

Alternatively, we can run the entire project for you in our genotyping service laboratories, including DNA extraction from your samples if required.
Additional genotyping panels available from LGC

LGC have been providing genotyping solutions for over 10 years to a global customer base. We have developed libraries of pre-validated KASP genotyping assays for a wide range of species. These libraries have been developed in collaboration with scientific partners who have substantial experience of working with their respective organisms.

For more information on the additional zeabrafish, tomato, maize and lentil genotyping libraries we offer, please visit our website:
www.lgcgroup.com/kasp-snp-libraries

How to order

With our online wheat SNP Assay Search Tool, you can search for specific assays, download your selection, and request a quote: http://lgcapps.com/assays/wheat

To request genotyping service pricing and to order, please contact your local sales representative, our customer support team, or complete our online enquiry form: www.lgcgroup.com/genomics-contact

For technical questions, please contact our support group at:
All locations except USA: email tech.support@lgcgroup.com or call +44 (0)1992 476 486
USA only: email us-support@lgcgroup.com or call +1 978 338 5317

www.lgcgroup.com/genomics • genomics@lgcgroup.com

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References


Fig.1: Typical SNP genotyping results using a pre-validated KASP wheat assay on 1536-well plate with SNPline instrumentation. The data was normalised with ROX and plotted using KlusterCaller software.

<table>
<thead>
<tr>
<th>Cat. No.</th>
<th>Product</th>
</tr>
</thead>
<tbody>
<tr>
<td>KBS-1023-021</td>
<td>Wheat KASP Assay Mix (750 x 10 μL reactions)</td>
</tr>
<tr>
<td>KBS-1023-022</td>
<td>Wheat KASP Assay Mix (2500 x 10 μL reactions)</td>
</tr>
<tr>
<td>KBS-1023-023</td>
<td>Wheat KASP Assay Mix (6000 x 10 μL reactions)</td>
</tr>
<tr>
<td>KBS-1016-001</td>
<td>KASP V4.0 2X Master mix 96/384, Std ROX*, 500 x 10 μL reactions (2.5 mL)</td>
</tr>
<tr>
<td>KBS-1016-002</td>
<td>KASP V4.0 2X Master mix 96/384, Std ROX*, 5000 x 10 μL reactions (25 mL)</td>
</tr>
<tr>
<td>KBS-1016-003</td>
<td>KASP V4.0 2X Master mix 96/384, Std ROX*, 50000 x 10 μL reactions (250 mL)</td>
</tr>
</tbody>
</table>

*Alternative Master mixes with high ROX and low ROX are also available. Please ensure that you are using the optimal version of KASP Master mix for your instrument (visit www.lgcgroup.com/mastermix-check).