

Lentil genotyping library

The lentil genotyping library, from LGC, Biosearch Technologies™, offers convenient access to functionally validated [KASP™ genotyping assays](#). A KASP SNP marker panel of 146 validated assays for lentil (*Lens culinaris*) is available. These assays were developed by the Pulse crop genomics research group at the University of Saskatchewan, in collaboration with the DNA Technologies Laboratory at the National Research Council, Canada.

Lentil is a food crop of increasing importance globally and valuable in crop rotations to fix nitrogen into the soil and for breaking disease cycles in cereal and oilseed crops.

Lentil KASP SNP markers

Limited genomic resources for this globally important food crop have restricted the application of marker-assisted selection strategies in breeding. Prof. Kirstin E. Bett from the Pulse Research Group has now permitted open access to these KASP SNP markers in the hopes that it will stimulate change in lentil breeding strategies and lead to increased genetic gain in the future.

“ *I would like users to share their genotypes with us for inclusion in our publicly searchable database - the more lines we have characterized the more powerful the dataset becomes.* ”

Kirstin E. Bett

Professor, Pulse crop genomics, University of Saskatchewan, Canada

Advantages of the lentil assays:

- Panel includes 146 functionally validated SNP assays
- Pick and choose the assays relevant to your research from our [lentil assay lists](#)
- Assays can be either:
 - a) run in your own laboratory
 - b) run through our genotyping service laboratories
- Proven KASP technology delivers superior genotyping performance

Pre-validated 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 data on the lentil panel is available to view and download from [KnowPulse: Pulse Crop Breeding and Genetics database](#).



Figure 1. Typical SNP genotyping results using a pre-validated Lentil KASP Assay on 1536-well plate with SNPline instrumentation. The data was normalised with ROX and plotted using KlusterCaller™ software.

Additional genotyping panels

Biosearch Technologies has been providing genotyping solutions for over 15 years to a global customer base. Libraries of pre-validated KASP genotyping assays have been developed for a wide range of species, in collaboration with scientific partners who have substantial experience of working with their respective organisms.

Also available are rice, tomato, maize and wheat [genotyping libraries](#).

Ordering information

Cat no.	Size	Description
KBS-2500-001	(2500 × 10 µL reactions)	Lentil KASP Assay Mix
KBS-1016-001	500 × 10 µL reactions (2.5 mL)	KASP V4.0 2X Master Mix 96/384, Std ROX*
KBS-1016-002	5000 × 10 µL reactions (25 mL)	KASP V4.0 2X Master Mix 96/384, Std ROX*
KBS-1016-003	50000 × 10 µL reactions (250 mL)	KASP V4.0 2X Master Mix 96/384, Std ROX*

*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.

References

Ancient orphan crop joins modern era: gene-based SNP discovery and mapping in lentil. Sharpe, A. G., Ramsay, L., Sanderson, L. A., Fedoruk, M. J., Clarke, W. E., Li, R., ... & Bett, K. E. (2013). BMC Genomics, 14(1), 192. Sharpe et al. describe a transcriptome resource for lentils developed from NGS and the CDC Redberry reference genome, mapping of several hundred SNPs, and development and application of 152 KASP SNP markers.

Quantitative trait loci analysis of seed quality characteristics in lentil using single nucleotide polymorphism markers. Fedoruk, M. J., Vandenberg, A. & Bett, K. E. (2013). The Plant Genome, 6(3). A genetic linkage map consisting of 563 single nucleotide polymorphisms, 10 simple sequence repeats, and four seed colour loci were developed for QTL analysis. The markers identified in this study can be used to help enrich breeding populations for desired seed quality characteristics, increasing efficiency in lentil breeding programs.

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