LGC Genomics

sbeadex® maxi plant kit and KingFisher 96 instrument

F. Schubert, LGC Genomics, Ostendstrasse 25, TGS Haus 8, 12459 Berlin, Germany

Description

The sbeadex® maxi plant kit (Cat. No. 41602 and 41620) has been developed to extract genomic DNA from a wide variety of plant materials (leaves, seeds, fruits, etc). The magnetic particle based DNA extraction protocol can be easily automated using a KingFisher 96 (Thermo Fisher Scientific) magnetic particle manipulator. Using magnetic rods, which are protected against contamination by a tip comb, the magnetic beads are transferred from one buffer plate to the next during the extraction process. This instrument can process up to 96 samples per run.
In addition, the KingFisher 96 instrument is compatible with liquid handling systems and sample handling devices, thus making a hands-free medium to high throughput system a reality.

sbeadex coated magnetic particles bind DNA using a novel two-step binding mechanism in the presence of detergents and salts. After binding and washing steps, the purified DNA is released in the elution buffer.
The sbeadex maxi plant kit is supplied with ready-to-use buffers. Kits are also available for small scale (sbeadex mini plant kit) extraction. The processing time on the KingFisher 96 is approximately 30 minutes.

The method described here is a universal plant protocol which can be used for a wide range of plant types without adaptation. Whenever necessary, customisation of the protocol is possible using the software provided with the instrument.

Notes

- A copy of the instrument protocol is available on request (email: extraction@lgcgenomics.com)
- The instrument protocol is compatible with the KingFisher software version 2.6.22
- For tips and advice on how to adapt the instrument protocol for the BindIt™ software of the KingFisher Flex instrument, please email extraction@lgcgenomics.com
- See the sbeadex maxi plant kit protocol for further information about the kit, limitations of product use, safety information etc.

Equipment and reagents

Product description	Cat. No.	Labware required per run
sbeadex® maxi plant kit (96 tests)	41602	-
sbeadex® maxi plant kit (960 tests)	41620	-
KingFisher 96 magnetic particle processor	5400500*	-
KingFisher 96 DW magnet	24073430*	-
KingFisher 96 tip comb for DW magnet	97002534*	1
KingFisher 96 KF plate 200 µL	97002540*	1
DW 96 plate, V-bottom, polypropylene	95040450*	4
Ultrapure water (not part of the kit)	User supplied	-

Table 1: Equipment and reagents required for DNA extraction using sbeadex® maxi plant kits on KingFisher 96.
* supplied by Thermo Fisher Scientific

Importing instrument protocol

To save the instrument protocol to your computer:

1. Open KingFisher software
2. Select **Cancel** in the Startup window
3. Select **Protocol → Import/Export data**
4. Click **Read file** on the left side of the 'Import/Export protocols' window. An 'Open' window appears
5. Select the protocol you want to import ('**sbx_maxiplant_KF96.kf2**') and click **Open**
6. The protocol appears in the 'Protocols in file' list
7. Select protocol '**sbx_maxiplant_KF96.kf2**' in the 'Protocols in file' list and click **Import**
8. A message will appear that the update of the database was successful
9. Now you can start the protocol directly from the software or transfer it to the KingFisher 96 instrument
10. Select **Instrument → Send protocol to Instrument**
11. Select the protocol ('**sbx_maxiplant_KF96.kf2**') from the list 'Protocols for selected instrument' and click **Send protocol**
12. After the transfer of the protocol to the KingFisher 96 instrument a message will appear indicating the successful transfer.

Instrument procedure sbeadex® maxi plant kit

1. Fill the following deep well/ KingFisher plates with sbeadex® maxi plant kit reagents as specified in table 2:
   - Plate 'Binding_Pos1' (Binding buffer PN and sbeadex® particle suspension PN only. Ensure the magnetic particles are thoroughly re-suspended before dispensing.)
   - Plate 'Wash1_Pos2'
   - Plate 'Wash2_Pos3'
   - Plate 'Wash3_Pos4'
   - Plate 'Elution_Pos5'
2. The protocol **sbx_maxiplant_KF96** is designed to extract genomic DNA from plant material. Up to 80 - 100 mg of plant material can be used for this protcol
3. Add 250 µL of Lysis buffer PN to the sample material and grind thoroughly, e.g. in a ball mill. For some materials, such as monocotyledonous plant leaves, grinding in dry ice (without the lysis buffer) or freezing in liquid nitrogen first will improve the homogenisation efficiency
4. Incubate samples at 65 °C for at least 10 min. Then centrifuge the mixture for 10 min at maximum speed
5. Remove 200 µL supernatant and transfer it to the prepared plate 'Binding_Pos1' (see Table 2)
6. Select the **sbx_maxiplant_KF96** protocol on the KingFisher 96 instrument
7. Load the prepared plates as prompted by the software and start the instrument
8. After approximately 30 min the protocol will be finished and the plant DNA is ready for downstream analysis.

Plate name in protocol	Plate type	Well content	Volume
Comb_Pos6	KingFisher 96 KF plate	Tip comb	-
Binding_Pos1	DW 96 plate, V-bottom	Lysate	200 µL
		Binding buffer PN	520 µL
		Particle suspension PN	60 µL
Wash1_Pos2	DW 96 plate, V-bottom	Wash buffer PN 1	400 µL
Wash2_Pos3	DW 96 plate, V-bottom	Wash suffer PN 2	400 µL
Wash3_Pos4	DW 96 plate, V-bottom	Ultrapure water	400 µL
Elution_Pos5	KingFisher 96 KF plate	Elution buffer PN	100 µL

Table 2: Plate filling instructions for KingFisher 96 and sbx_maxiplant_KF96 protocol.

LGC Genomics

www.lgcgenomics.com

LGC Genomics
Germany
Ostendstr. 25 • TGS Haus 8
12459 Berlin

Tel: +49 (0)30 5304 2200
Fax: +49 (0)30 5304 2201
Email: info.de@lgcgenomics.com

United Kingdom
Unit 1-2 Trident Industrial Estate • Pindar Road
Hoddesdon • Herts • EN11 0WZ

Tel: +44 (0) 1992 470757
Fax +44 (0) 1438 900670
Email: info.uk@lgcgenomics.com

USA
100 Cummings Center • Suite 420H
Beverly • MA 01915

Tel: +1 (978) 232 9430
Fax: +1 (978) 232 9435
Email: info.us@lgcgenomics.com

066/2.01-2013-03