Quick guide to the sbeadex Lightning Nucleic Acid Purification Starter Kit

The sbeadex Lightning Nucleic Acid Purification Starter Kit should be used to determine the most appropriate lysis buffer and binding buffer for your specific sample type. This kit is suitable for 20 standard purifications (starting with 200 µL lysate), 10 purifications with Binding Buffer LP (from Core Kit A) and 10 purifications with Binding Buffer LU (from Core Kit B). For initial sample screening, it is recommended to scale down the purification reactions to start with 100 µL lysate to enable double the number of possible purifications to be performed. This will allow replicate samples to be tested with several of the possible lysis buffers, and with both possible binding buffers.

The sbeadex Lightning Nucleic Acid Purification Starter Kit contains all the components detailed in table 1. The standard sbeadex Lightning protocol and a full user manual can be accessed on our website.

Component	Volume (mL)	Storage conditions
Binding buffer LP (from Core Kit A)	2 mL	Room temperature
Binding buffer LU (from Core Kit B)	2 mL	Room temperature
sbeadex particle suspension	0.4 mL	Room temperature
Elution buffer AMP	2 mL	Room temperature
Lysis buffer PN	4 mL	Room temperature
Lysis buffer PVP	4 mL	Room temperature
Lysis buffer UR	4 mL	Room temperature
Lysis buffer BL	4 mL	Room temperature
Lysis buffer H	4 mL	Room temperature
Lysis buffer LI	4 mL	Room temperature
Protease K solution	200 µL	Room temperature
Debris capture beads	160 µL	Room temperature

Table 1. Components included in the sbeadex Lightning Nucleic Acid Purification Starter Kit.

Step 1. Determine the appropriate lysis buffer for your sample type

Six different lysis buffers are included in the sbeadex Lightning Nucleic Acid Purification Starter Kit. We recommend that you determine empirically which buffer is best suited for your specific sample type. Table 2 provides guidance on suitability for sample types and further recommendations for specific sample types can be accessed on our website.

Lysis buffer PN	CTAB-based buffer – common plant lysis buffer
Lysis buffer PVP	CTAB-based buffer – for plant samples rich in polyphenols or samples rich in colour pigments (e.g. hair)
Lysis buffer BL	SDS-based lysis buffer
Lysis buffer H	Harsher SDS-based lysis buffer
Lysis buffer UR	CTAB-based lysis buffer - strong protein denaturation properties in conjunction with protease
Lysis buffer LI	SDS-based buffer - good performance on sample types such as seed, tissue, and young leaves.

Table 2. The different lysis buffers available from Biosearch Technologies for use with sbeadex Lightning chemistry, including guidance on suitability for sample types. Please note that sbeadex Lightning is also compatible with alternative lysis buffers; these can be trialled alongside the sbeadex Lightning core kits and our technical support team can provide support if required.

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Step 2. Test performance with the alternative binding buffers

sbeadex Lightning chemistry has two binding buffers; Binding buffer LP and Binding buffer LU. Once you have determined the most suitable lysis buffer for your sample type (step 1), test the performance with both binding buffers to determine the most effective option for your sample type.

Step 3. Optimise the protocol with optional reagents

1. Debris capture beads: typically used for plant material with significant quantities of debris. 40 µL debris capture beads per 1 mL lysis buffer should be added.
2. Protease K solution: digestion with Protease K solution is strongly recommended for plant samples. 2 µL Protease K solution (20 mg/mL) should be used per 1 mL lysis buffer. Livestock tissue benefits from an overnight lysis step with 10 µL Protease K solution (20 mg/mL) per 100 µL lysis reaction.
3. RNase: if RNase digestion is needed, around 1 µL RNase (20 mg/mL) per 1 mL lysate can be used. We recommend adding RNase during lysis or the water wash step.

Note: If Protease K digestion is being performed, we recommend sequential digestion, first with RNase and then with Protease K solution. Alternatively, RNase digestion can be performed during the water wash step.

Step 4. Purchase the appropriate sbeadex Lightning reagents for your tailored solution

Once you have determined the appropriate lysis buffer and binding buffer for your specific sample type, you can proceed to ordering your tailored sbeadex solution on our website.

Core kit A or B. Contains binding buffer*, sbeadex particle suspension and elution buffer AMP. *Core Kit A = Binding buffer LP *Core Kit B = Binding buffer LU
Lysis buffer (PN, PVP, UR, BL, H, LI)
Any optional reagents (Debris capture beads, Protease K solution, RNase A)

If you require any further support please contact our technical support team at techsupport@lgcgroup.com or submit a request for support directly into our case system.

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