XpressDNA DBS Kit *(Protocol for dried blood spot (DBS) or FTA cards)*

Protocol for isolation of high quality total genomic DNA from dried blood spots (DBS) on FTA card or Guthrie cards or Whatman® 903 filter/TFN or 226 from Ahlstrom Munksjö paper.

Process Flow

Kit Contents

Components	Storage Conditions	Shipping Conditions
Blood Lysis Buffer 1	RT	RT
Solution A	RT	RT
Blood Lysis Buffer 2	RT	RT
Proteinase K	2 - 8 °C	RT
Proteinase K Buffer	2 - 8 °C	RT
Blood MagNa Mix	RT	RT
Blood Wash Buffer 1	RT	RT
Blood Wash Buffer 2	RT	RT
Blood Elution Buffer	RT	RT
MagNa Stand (optional)	RT	RT

* RT denotes 15 - 25°C.

Materials not provided with the kit

1. 100% Ethanol to Wash Buffers as indicated on the bottle.
2. Water bath/heat block at 56°C and 37°C
3. Reconstitute Proteinase K with Proteinase K Buffer and store at 2 - 8°C.

Important

Pay attention to standard lab practices and safety information before beginning the procedure. For more information, refer the appropriate Material Safety Data Sheet (MSDS) available from the product supplier or download from our website http://www.maggenome.com/

Technical Support

For any product related queries please write to us on info@maggenome.com, sales@maggenome.com, support@maggenome.com.

Blood Lysate Preparation	1. Use the paper punching machine to punch out the **dried blood spots (DBS)** from the Whatman card or filter paper. 2. Take at least **6 - 8 dried blood spots** and chop them into small pieces using a sterile surgical blade. Transfer into a 1.5 ml or 2 ml tube. 3. To the DBS, add **1 ml of Blood Lysis Buffer 1** and pipette mix thoroughly. 4. Add **50 µl of Solution A** and invert mix the tube 4 - 5 times (Do not pipette mix). 5. Incubate the samples for 5 minutes at RT. 6. Centrifuge at 10000 rpm for 5 minutes at RT. 7. Carefully discard the supernatant and add **500 µl of Blood Lysis Buffer 1** again**.** 8. Resuspend the pellet by pipette mixing. 9. Centrifuge the samples at 10000 rpm for 5 minutes at RT and discard the supernatant. 10. Add **250 µl of Blood Lysis buffer 2** to the pellet and resuspend by pipette mixing. 11. Add **20 µl of Proteinase K** and resuspend by pipetting. 12. Incubate at 56°C for 30 minutes. 13. Centrifuge at 10000 rpm for 5 minutes at RT. 14. Transfer the lysate to a fresh tube.

DNA Binding	*(Note: Vortex the Blood MagNa Mix thoroughly before the next step)* 15. Add **175 µl of Blood MagNa Mix** to the supernatant and invert the tube 10 - 12 times to mix properly. Do not vortex. 16. Incubate the samples at RT for 5 minutes. 17. Place the tube on a MagNa Stand until the solution becomes clear. 18. Carefully discard the supernatant without removing the tube from the MagNa Stand. Ensure the magnetic nanoparticles are not disturbed.

DNA Washing	19. To the magnetic nanoparticles, add **250 µl of Blood Wash Buffer 1**, remove the tube from the MagNa Stand and resuspend by thorough pipette mixing to ensure complete dispersion of the particles. *(Note: Use 200 µl pipette for better resuspension of the pellet.)* 20. Place the tube back on the MagNa Stand for 30 - 60 seconds till the solution becomes clear. 21. Discard the supernatant without removing the tube from the MagNa stand. Ensure the magnetic nanoparticles are not disturbed. 22. Add **250 µl of Blood Wash Buffer 2** & gently invert mix the tube 5 - 6 times without removing from the MagNa Stand *(surface wash only).* 23. Discard the supernatant without removing the tube from the MagNa Stand. 24. Repeat steps **22 - 23.** 25. Air dry the magnetic nanoparticles without removing the tube from MagNa Stand for 10 - 15 minutes without over drying them.

DNA Elution	26. After drying, remove the tube from the MagNa Stand. 27. Add **25 µl of Blood Elution buffer** and resuspend the magnetic nanoparticles by pipette mixing thoroughly. 28. Incubate at **56°C for 5 minutes** with intermittent tapping**.** 29. Place the tube back on the MagNa Stand for 5 minutes or until the solution becomes clear. 30. Carefully transfer the supernatant containing DNA to a sterile 1.5 ml tube, without removing the tube from the MagNa Stand. Ensure the magnetic nanoparticles are not disturbed. 31. Discard the magnetic nanoparticles in the appropriate hazard container.

Troubleshooting Guide

Observation	Possible causes	Suggested Solution
Low DNA yield or Poor Quality	Incomplete Lysis	Proteinase K was not used at the suggested amount and for the specified time.
		Ensure proper re-suspension of the pellet while adding the Lysis buffer.
		Make sure that the incubation temperature and time for lysis is followed as per the protocol.
		In some cases when DNA content is very high, the lysate may appear slimy. Ensure thorough pipette mixing during lysis and before adding MagNa Mix in such circumstances.
	Incorrect reagent volumes were used	Use the exact volumes of reagents mentioned in the protocol.
	MagNa Mix was improperly handled	Resuspend the MagNa Mix by vortexing prior to use.
	Magnetic particle loss during binding or washing steps	Carefully remove the supernatant from the tube without removing the tube from the magnetic stand and without disturbing the MagNa particles.
	Improper elution	Completely resuspend the MagNa particles in elution buffer before incubation at 56°C for elution. Tap the tube few times during the 10 min incubation.
	Ethanol is not added to wash buffers	Add 100% ethanol to wash buffers before use as indicated on the bottles.
Poor performance of extracted DNA in downstream applications	Ethanol carryover	Air dry the MagNa particles after the washing steps to remove ethanol completely, but do not over dry the pellet.
	Salt carryover	Ensure that the correct amount of ethanol is added to the Wash Buffers and the two wash steps are performed with Wash Buffer 2.