

DNA IQ™ System

Use with Cotton Buccal Swabs

This document provides a detailed protocol for DNA purification from cotton buccal swabs using the DNA IQ™ System.

I. Product Information

Product	Size	Cat.#
DNA IQ™ System	100 samples	DC6701
	400 samples	DC6700
DNA IQ™ Spin Baskets	1,000/bag	V1221
MagneSphere® Technology Magnetic Separation Stand	2 positions	Z5332
	12 positions	Z5342

II. Protocol

A. Preparation of Reagents

Materials to Be Supplied by the User

- 95–100% ethanol
- isopropyl alcohol
- 1M DTT

Preparation of 1X Wash Buffer

Note: The 2X Wash Buffer is supplied with the DNA IQ™ System (Cat.# DC6700 and DC6701).

1. For Cat.# DC6701 (100 samples) add 15ml of 95–100% ethanol and 15ml of isopropyl alcohol to the 2X Wash Buffer.

For Cat.# DC6700 (400 samples) add 35ml of 95–100% ethanol and 35ml of isopropyl alcohol to the 2X Wash Buffer.

2. Replace cap, and mix by inverting several times.
3. Mark label to record the addition of alcohols. Label bottle as 1X Wash Buffer. Solution can be stored at room temperature. Make sure the bottle is closed tightly to prevent evaporation.

Preparation of Lysis Buffer

1. Determine the total amount of Lysis Buffer to be used. DNA isolation from buccal cotton swabs requires 350µl of Lysis Buffer per sample.
2. Add 1µl of 1M DTT for every 100µl of Lysis Buffer.
3. Mix by inverting several times.
4. Mark and date label to record the addition of DTT. This solution can be stored at room temperature for up to one month if sealed.

B. DNA Purification From Cotton Buccal Swabs

1. Detach the shaft from the swab material.
2. Place the cotton swab in a 1.5ml microcentrifuge tube. Add 250µl of Lysis Buffer, and incubate at room temperature for 5 minutes.
3. Close the lid, and place the tube in a heat block at 70°C for 30 minutes.
4. Remove the tube from the heat block, and transfer the cotton swab and Lysis Buffer to a DNA IQ™ Spin Basket placed in a standard 1.5ml microcentrifuge tube.
5. Centrifuge the tube at room temperature for 2 minutes at maximum speed in a microcentrifuge. Remove the DNA IQ™ Spin Basket.
Note: This centrifugation is necessary to obtain maximum recovery.
6. Vortex the DNA IQ™ Resin bottle for 10 seconds at high speed or until thoroughly mixed. Add 7µl of DNA IQ™ Resin to the DNA solution. Keep the resin resuspended while dispensing to obtain uniform results.

Note: The amount of resin recommended can capture a maximum of approximately 100–500ng of DNA from buccal swabs.



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7. Vortex sample/Lysis Buffer/resin mixture for 3 seconds at high speed. Incubate at room temperature for 5 minutes. Vortex for 3 seconds every 1 minute during this 5-minute incubation.
8. Vortex for 2 seconds at high speed. Place tube in the magnetic stand. Separation will occur instantly.
Note: If the resin does not form a distinct pellet on the side of the tube, vortex the tube and quickly place it back in the stand.
9. Carefully remove and discard all of the solution without disturbing the resin pellet at the side of the tube.
10. Add 100µl of prepared Lysis Buffer. Remove tube from the magnetic stand, and vortex for 2 seconds at high speed.
11. Return tube to the magnetic stand. Carefully remove and discard all Lysis Buffer.
12. Add 100µl of prepared 1X Wash Buffer. Remove tube from the magnetic stand, and vortex for 2 seconds at high speed.
13. Return tube to the magnetic stand. Dispose of all Wash Buffer.
14. Repeat Steps 12 and 13 two more times for a total of three washes. Make sure all of the solution has been removed after the last wash.
15. With the tube in the magnetic stand and the lid open, air-dry the resin for 5 minutes. Do not dry for more than 20 minutes, as this may inhibit elution of DNA.
16. Add 100µl of Elution Buffer.
Note: The volume of Elution Buffer can be adjusted to provide an appropriate range of DNA concentrations.
17. Close the lid, and vortex tube for 2 seconds at high speed. Incubate at 65°C for 5 minutes.
18. Remove the tube from the heat source, and vortex for 2 seconds at high speed. Immediately place the tube on the magnetic stand.
19. Carefully transfer the DNA solution to a container of choice. The DNA concentration will be approximately 1–5ng/µl, ready for use in an amplification reaction.
Note: The DNA solution can be stored at 4°C for short-term storage or at –20°C or –70°C for long-term storage.

