September 2023

Product Sheet

QIAcard® FTA®

Description

The QIAcard FTA variants are intended for molecular biology applications. This product is not intended for the diagnosis, prevention, or treatment of a disease.

FTA cards are designed for room temperature collection, shipment, archiving, and purification of nucleic acids from a wide variety of biological samples for PCR analysis. These include (but are not limited to) blood, buccal cells, tissue, cultured cells, microorganisms, and plant tissue. FTA cards are impregnated with a chemical formula that lyses cell membranes and denatures proteins upon contact. The QIAcard FTA variants are available in several formats, such as Classic, Mini, Micro, Gene, and PlantSaver.

Indicating FTA cards turn from pink to white upon sample application and are recommended for colorless samples. To use FTA cards, simply apply sample (liquid or pressed tissue), air-dry at room temperature, and then remove a small punch (the size of which needs to be determined by application). The punch is either washed and used in PCR-based analysis, or can be used without washing in a direct amplification (see below for protocols).

Directions for Use

The FTA products allow biological sample preservation whilst sampling and shipping via regular mail, at ambient conditions (298.15 K [25°C, 77°F]) and an absolute pressure of 100kPa (14.504 psi, 0.986 atm). FTA products protect the DNA of biological samples from

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degradation by DNA degrading microorganisms. Samples can then be stored and preserved at room temperature (15–25°C).

It is a violation of Federal Law to use this product inconsistently with its labelling. For sample protection, always wear gloves when handling FTA cards. This is for research use only, not for use in diagnostic procedures. See the accompanying information or the outer container for additional use information. FTA cards allow shipping and handling of DNA at ambient conditions without fear of sample degradation or contamination caused by DNA degrading microorganisms. Samples can be stored at room temperature. Shipping is done via regular mail according to the guidance in the Legal section below.

Important: FTA cards are not intended for elution of nucleic acids. For elution of nucleic acids from cards, please use the FTA Elute cards, e.g., QIAcard FTA Elute Indicating Micro (cat. no. WB120411 or WB120412).

Important: For human gDNA, if the total amount of DNA is below 1 ng (concentration 100pg/µL), the usage of FTA Elute cards is recommended e.g., QIAcard FTA Elute Indicating Micro (cat. no. WB120411 or WB120412).

Shipping and Storage

The FTA cards are shipped at room temperature (15–25°C). Store the unused cards in original packaging in a cool, dry, and clean environment. After applying the samples, allow them to dry, and then store securely at room temperature in a dry environment, away from food or feedstock. When stored correctly, the FTA Cards are good until the expiration date printed on the kit box lid.

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Safety Information

When working with chemicals, always wear a suitable lab coat, disposable gloves, and protective goggles. For more information, please consult the appropriate safety data sheets (SDSs). These are available online in convenient and compact PDF format at **www.qiagen.com/safety**, where you can find, view, and print the SDS for each QIAGEN® kit and kit component.

Quality Control

In accordance with QIAGEN's ISO-certified Quality Management System, each lot of FTA cards is tested against predetermined specifications to ensure consistent product quality.

Procedure

Application of Blood Samples (fresh whole blood, or with the anticoagulants: EDTA, sodium citrate, ACD, or heparin)

1. Label the FTA card with the appropriate sample identification.
2. Drop the blood sample (spot volume: <125 µL for QIAcard FTA Classic, Mini, and Micro; <75 µL for QIAcard FTA Gene; and 12–40 µL for QIAcard FTA Elute Micro) onto the card in a concentric circular motion within the printed circle area. Avoid puddling of the liquid sample as it will overload the chemicals on the card.

   Important: Do not rub or smear the blood onto the card.
3. Dried blood spots will appear darker than freshly spotted ones.

   Note: The recommended drying time for samples is not less than three hours at room temperature. This period has been determined by following the drying time of 125 µL of whole human blood at 18–22°C and 60% relative humidity using a sample weight loss method. Users will need to determine whether different sample types or volumes or

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different local conditions will require longer or shorter drying times. Prior to shipping of samples, it is highly recommended that they be allowed to dry completely.

Important: Do not heat to shorten the drying period.

4. Samples applied to FTA cards are now ready either for immediate downstream processing or archiving at room temperature.

Collection and Application of Buccal Cell Samples

1. Place the FTA card (QIAcard FTA indicating is recommended) on a clean, dry, flat surface. Label the FTA card with appropriate sample identification.
2. Remove a suitable swab, such as Foam Swabs, Sterile (cat. no. WB100032) from the protective packaging according to instructions.
3. Hold the plastic handle of the swab, place the foam tip in the mouth, and run the foam tip along the fold of the cheek and under the tongue, soaking up as much saliva as possible. Then rub one side of the foam tip on the inside of the cheek for 15 s. Repeat using the opposite side of the foam tip for the other cheek. Run the foam tip along the fold of the cheek and under the tongue, soaking up as much saliva as possible. Remove the swab from the mouth.
4. Lift the paper cover of the QIAcard FTA Indicating to expose the pink sample area. Press the flat surface of the Foam Swab tip within the sample circle area. Without lifting the foam tip from the card, squeeze the tip using a side-to-side rocking motion (90° in each direction) 3 times to completely saturate the sample area. Turn the foam over and repeat with the other side of the foam tip within the same circle. The sample area will turn white indicating the location of sample.
5. If not using QIAcard FTA Indicating formats, circle the area of the sample location with a ballpoint pen or pencil.
6. Discard the swab according to the laboratory procedure. Do not place the foam swab into the mouth after it has touched the FTA card.

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7. If buccal cells are to be applied to more than one FTA circle area, use a new swab, and repeat steps 1–6.
8. After drying, samples applied to FTA cards are now ready either for immediate downstream processing or archiving at room temperature.

   Note: The recommended drying time for samples is not less than three hours at room temperature. This period has been determined by following the drying time of 125 µL of whole human blood at 18–22°C and 60% relative humidity using a sample weight loss method. Users will need to determine whether different sample types or volumes or different local conditions will require longer or shorter drying times. Prior to shipping of samples, it is highly recommended that they be allowed to dry completely.

   Important: Do not heat to shorten the drying period.

Application of Tissue/Cell Culture Samples

1. Tissue culture cells should be applied to FTA cards at a concentration of >100 cells/ µL for DNA analysis and >1000 cells/µL for RNA analysis in media, trypsin, or PBS buffer (spot volume: <65 µL for QIAcard FTA Classic, Mini, and Micro, and 12–40 µL for QIAcard FTA Elute Micro).
2. After drying, samples applied to FTA cards are now ready either for immediate downstream processing or archiving at room temperature.

   Note: The recommended drying time for samples is not less than three hours at room temperature. This period has been determined by following the drying time of 125 µL of whole human blood at 18–22°C and 60% relative humidity using a sample weight loss method. Users will need to determine whether different sample types or volumes or different local conditions will require longer or shorter drying times. Prior to shipping of samples, it is highly recommended that they be allowed to dry completely.

   Important: Do not heat to shorten the drying period.

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Application of Plant Samples

Direct Leaf Press

1. Place the leaf material directly onto the QIAcard FTA PlantSaver (cat. no. WB120065). If using another QIAcard FTA, alternatively lay a piece of Parafilm® over the leaf.
2. Use the laminated flap of the QIAcard FTA PlantSaver to apply moderate pounding/pressure to the leaf area with a blunt object, such as tack hammer or pestle.
3. When the extract is drawn through to the back of the QIAcard FTA PlantSaver, the collection process is complete.
4. After drying, samples applied to the QIAcard FTA PlantSaver are now ready either for immediate downstream processing or archiving at room temperature.

   Note: The recommended drying time for samples is not less than three hours at room temperature. This period has been determined by following the drying time of 125 µL of whole human blood at 18–22°C and 60% relative humidity using a sample weight loss method. Users will need to determine whether different sample types or volumes or different local conditions will require longer or shorter drying times. Prior to shipping of samples, it is highly recommended that they be allowed to dry completely.

   Important: Do not heat to shorten the drying period.

Plant Tissue Homogenate

1. Use about 10–20 mg of plant tissue for the homogenate.
2. Add PBS buffer to plant tissue using an estimated ratio of 5 parts PBS buffer to 1 part plant tissue. Grind with a pestle until it is apparent that some plant tissue is homogenized. The homogenate does not have to be smooth in consistency.
3. Using a pipette, apply about 25–100 µL of plant homogenate to each circle on a QIAcard FTA PlantSaver.
4. After drying, samples applied to QIAcard FTA PlantSaver are now ready either for immediate downstream processing or archiving at room temperature.

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Note: The recommended drying time for samples is not less than three hours at room temperature. This period has been determined by following the drying time of 125 µL of whole human blood at 18–22°C and 60% relative humidity using a sample weight loss method. Users will need to determine whether different sample types or volumes or different local conditions will require longer or shorter drying times. Prior to shipping of samples, it is highly recommended that they be allowed to dry completely.

Important: Do not heat to shorten the drying period.

Application of Bacterial Samples (for bacterial genomic DNA and Plasmids)

1. Apply up to 7 µL of culture, suspended colony, glycerol stock, or purified plasmid/BAC to a spot of a QIAcard FTA CloneSaver or up to 65 µL for QIAcard FTA Indicating formats.
2. Pink coloration will turn white where the sample is applied. Allow to dry and store in a dry environment, desiccated if using glycerol or if long-term storage is desired.

   Note: The recommended drying time for samples is not less than 3 hours at room temperature. This period has been determined by following the drying time of 125 µL of whole human blood at 18–22°C and 60% relative humidity using sample weight loss method. Users will need to determine whether different sample types or volumes or different local conditions will require longer or shorter drying times. Prior to shipping of samples, it is highly recommended that they be allowed to dry completely. Do not heat to shorten the drying period.
3. Punch out a 2 mm punch from the QIAcard FTA CloneSaver or other QIAcard FTA Indicating formats and place the punches into a single tube or vessel with 250 µL capacity.
4. Briefly rinse the punch with 200 µL of TE-1 Buffer (10 mM Tris-HCl, 0.1 mM EDTA, pH 8.0) by aspirating up and down four times and discarding rinse.
5. Repeat step 4 once for a total of 2 rinses. Be sure to remove any standing rinse around the punch.

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Note: At this point, the plasmid/BAC DNA is clean of any cell debris that may have been present and the punch is clean of any residual FTA chemical. The clone of interest is ready to be analyzed or used to re-transform a new culture.

Archiving of Samples on FTA Cards

Biological samples applied to FTA cards should be archived at room temperature in a Multi-Barrier Pouch (cat. no. WB100036, WB100037, WB100024) with an Indicating Desiccant Pack (WB100003) or stored in a humidity-controlled, cool, dry environment.

Samples for RNA analysis should be stored at –30°C to –15°C or –80°C to –65°C for long-term storage.

Preparation of Sample DNA for Downstream PCR Analysis

1. Take a sample punch from the desired sample spot using a punching device.

   For blood samples and bacterial genomic DNA samples, a 1.2 mm punch is recommended. For all other sample types, use a 2.0 mm punch. Place sample punch in a PCR amplification tube.
2. Add 200 µL of QIAcard FTA Wash Buffer (cat. no. WB120204 or WB120112) to PCR tube.
3. Incubate for 5 min at room temperature. The tube may be given moderate manual mixing if desired.
4. Remove and discard all spent QIAcard FTA Wash Buffer using a pipette.
5. Repeat steps 2–4 twice, for a total of three washes with QIAcard FTA Wash Buffer.*
6. Add 200 µL of TE-1 Buffer (10 mM Tris-HCl, 0.1 mM EDTA, pH 8.0) to PCR tube.
7. Incubate for 5 min at room temperature.

* If purifying sample disc from a plant source or bacterial culture, only two washes with the FTA Purification Reagent are necessary.

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8. Remove and discard all spent TE-1 Buffer with a pipette.
9. Repeat steps 6–8 once for a total of two washes with TE-1 Buffer.
10. Allow the punch to dry at room temperature for about three hours, or heat assist the drying of the punch at 56°C for 10 min. The FTA punch is now ready for PCR.

Downstream PCR Applications

The washed and dried punch is now ready for PCR analysis. Assuming a 25 µL reaction, we recommend a 1.2 mm punch for blood and a 2.0 mm punch for buccal and bacterial samples. The punch is included in the PCR reaction. No alterations in the PCR reaction mix or cycling conditions are required.

Use of Direct Amplification STR Profiling Kits with FTA

The use of FTA cards as a storage medium for reference samples taken from both victims and offenders is well established and integral to many forensic workflows. This enables the user to increase throughput by reducing the time required to go from sample to STR result by removing the DNA purification step. Direct amplification assays, e.g., QIAGEN's Investigator 24plex GO! or Investigator IDplex GO!, have been validated for use with punches taken directly from FTA cards. For protocols using FTA cards with these kits, see the respective QIAGEN kit handbook or user manual. QIAGEN kit handbooks and user manuals are available at **www.qiagen.com** or can be requested from QIAGEN Technical Services or your local distributors.

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Ordering Information

Product	Contents	Cat. no.
FTA Non-Indicating		
QIAcard FTA Mini (100)	2 sample areas per card	WB120055
QIAcard FTA Classic (100)	4 sample areas per card	WB120205
QIAcard FTA Micro (100)	1 sample area per card	WB120210
QIAcard FTA Classic (25)	4 sample areas per card	WB120305
QIAcard FTA Micro (25)	1 sample area per card	WB120310
QIAcard FTA Mini (25)	2 sample areas per card	WB120355
FTA Indicating		
QIAcard FTA Indicating Mini (100)	2 sample areas per card	WB120056
QIAcard FTA Indicating Classic (100)	4 sample areas per card	WB120206
QIAcard FTA Indicating Micro (100)	1 sample area per card	WB120211
QIAcard FTA Indicating Classic (25)	4 sample areas per card	WB120306
QIAcard FTA Indicating Micro (25)	1 sample area per card	WB120311
QIAcard FTA Indicating Mini (25)	2 sample areas per card	WB120356

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Product	Contents	Cat. no.
Related Products		
QIAcard FTA DMPK-A Card	100 cards (4 sample areas per card)	WB129241
QIAcard FTA DMPK-B Card	100 cards (4 sample areas per card)	WB129242
QIAcard FTA DMPK-C Card	100 cards (4 sample areas per card)	WB129243
Foam Swab, Sterile (100)	100 pieces	WB100032
QIAcard FTA PlantSaver	100 cards (4 sample areas per card)	WB120065
Multi-Barrier Pouches, 3.75″ x 3″	100 pouches (3.75 x 3 inch/9.5 x 7.6 cm)	WB100036
Multi-Barrier Pouches, 4.37″ x 6.5″	100 pouches (4.37 x 6.5 inch/11.1 x 16.5 cm)	WB100037
Multi-Barrier Pouches, Reseal 7″ x 7.37″, Resealable	50 pouches (7 x 7.37 inch/17.8 x 18.7 cm)	WB100024
Indicating Desiccant Pack (1000)	Desiccant packets (1 g) with indicator to ensure that FTA Cards remain dry during transport or storage. A color change from blue to pink indicate absorption of moisture.	WB100003
QIAcard FTA Wash Buffer (500 mL)	500 mL bottle	WB120204
QIAcard FTA Wash Buffer (25 mL)	25 mL bottle	WB120112
UniCore Punch Kit 1.2 mm (4)	4 pieces and 2 cutting mats	WB100028

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Product	Contents	Cat. no.
UniCore Punch Kit 2.0 mm (4)	4 pieces and 2 cutting mats	WB100029
UniCore Punch Kit 3.0 mm (4)	4 pieces and 2 cutting mats	WB100039
UniCore Punch Kit 6.0 mm (4)	4 pieces and 2 cutting mats	WB100040
UniCore Punch 1.0 mm (25)	25 pieces	WB100073
UniCore Punch 1.2 mm (25)	25 pieces	WB100074
UniCore Punch 2.0 mm (25)	25 pieces	WB100076
UniCore Punch 3.0 mm (25)	25 pieces	WB100078
UniCore Punch 6.0 mm (25)	25 pieces	WB100082
Cutting Mat 2.5" × 3.0"	For clean sample cuts from FTA/FTA Elute Cards	WB100088

Document Revision History

Date	Changes
01/2021	Initial release.
09/2023	Updated important notes under “Directions for Use”.

In the US, the FTA cards may be sent via First-Class Mail, Priority Mail, Express Mail, or Package Services mail by following the US mailing packaging requirements (including, where relevant, for Exempt Human or Animal Specimens). Information on the US requirements and section 10.17.9, exempt human or animal specimens, can be found on http://pe.usps.com/text/dmm300/601.htm#wp1194388. In other jurisdictions, please check your local mailing laws and regulations before sending sample-bearing DMPK cards through the mail. QIAGEN accepts no liability for your compliance or failure to comply with local mailing laws and regulations (US or otherwise) and it is your responsibility to ensure compliance with all applicable requirements.

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