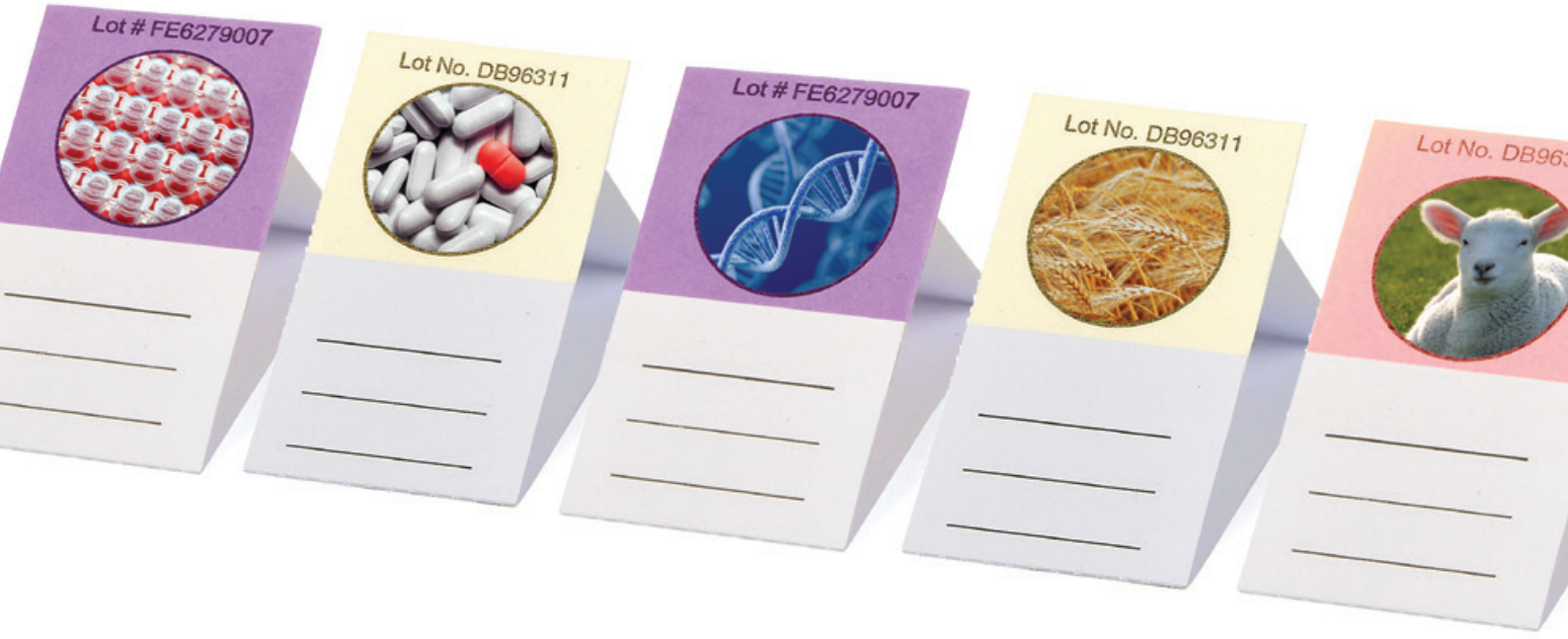
GE Healthcare
Life Sciences

Proven biosample collection for your application

Ambient temperature stabilization, transportation, purification and storage.
All-in-one sample collection kits from GE Healthcare Life Sciences



imagination at work

Contents

DNA collection made simple and affordable

Since 2008, the Whatman range of products has been integrated into the GE Healthcare portfolio. Today, these products are used worldwide in a wide range of industries, including laboratories, schools, environmental testing, food and beverage manufacturing, and many more.

Leading the way with FTA cards

The portfolio of Whatman sample collection products began with a patented technology that improved the collection and storage of DNA. This same technology is used today across a portfolio of products used in diverse markets and applications, where the need to collect, transport, store and purify biological samples safely and at ambient temperature is needed.

Liquid samples pose several challenges

The transportation, purification, and storage of liquid samples often present significant challenges. For instance:

Transportation

Transportation of liquid samples requires careful consideration of factors such as robust packaging materials, secure containment vessels, sometimes temperature, and environmental control.

Purification

Purification of liquid samples may require multiple purification steps involving any number of reagents.

Storage

Storage of liquid samples can be costly and it often requires a dedicated lab space for large-scale refrigeration. In addition, freeze-thaw cycles may have adverse effects on certain biomolecules.

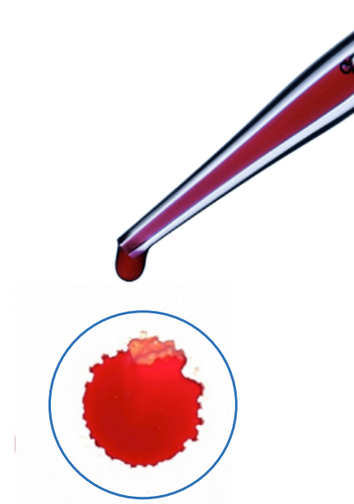
Dried samples offer excellent solutions

Workflow simplification, ambient-temperature storage, and sample stabilization

Whatman sample collection kits allow for long-term stabilization of dried samples at room temperature. You can collect, transport, store and analyze your samples with relative ease. This simplifies handling and reduces cost.

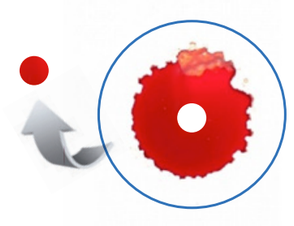
Simply apply the sample
You can collect your samples with familiar tools like lancets and swabs. To apply your sample, simply spot it onto the surface of the collection card and dry briefly.

For easy indication and visualization of a successful sample application, we offer a range of color-indicating collection cards that undergo a prominent color change on successful application of clear samples.



Transport it anywhere
The advantages of dry samples are that they can be shipped quickly at room temperature at affordable costs. Normally, you can even use regular postal services for shipping dry samples. We offer pouches and desiccants for ease of transportation of your dry samples.

Punch and purify
In order to purify the sample, punch the sample area of the paper with an appropriate tool and remove the cutout piece of paper containing your sample. Use the simple extraction protocol to purify the sample for downstream analysis. We offer a range of punching solutions for a wide range of throughput requirements.



Store smartly
The smart storage technology that underpins our sample collection kits allows you to store your purified samples at room temperature for subsequent reuse without the adverse effects of freeze-thawing cycles.

Seclect your solution

Our sample collection portfolio can be divided into the following four categories:

FTA

DNA-stabilizing sample collection kit for easy shipping, handling, and storage of purified DNA from biological samples.

Applications

- DNA databasing
- Human identification
- Research human disease monitoring
- Veterinary disease monitoring
- Agricultural disease monitoring
- Transgenic identification
- Transfusion medicine
- Plasmid screening
- Food and agriculture testing
- Drug discovery
- Genomics
- STR analysis
- Animal identification
- Whole genome amplification
- Molecular biology

FTA-Elute

DNA-stabilizing sample collection kit for easy shipping, handling, storage, and simplified elution of purified DNA from biological samples.

Applications

- HPV research
- STD research
- Multiplex PCR
- Sequencing after PCR amplification
- SNP analysis
- STR analysis
- Whole genome amplification
- Quantitative PCR
- Bio banking
- Pharmacogenomics
- Genotyping
- Genetic identification
- Transgenic detection

903

Highly consistent cellulose technology for reliable and reproducible collection of biological samples. CE and FDA approved designs available for professional collection of blood samples for diagnostic purposes.

Applications

- Protein-based dry blood spot analysis
- Vitamin D analysis
- HIV screening
- Neonatal screening
- Hepatitis B and C analysis

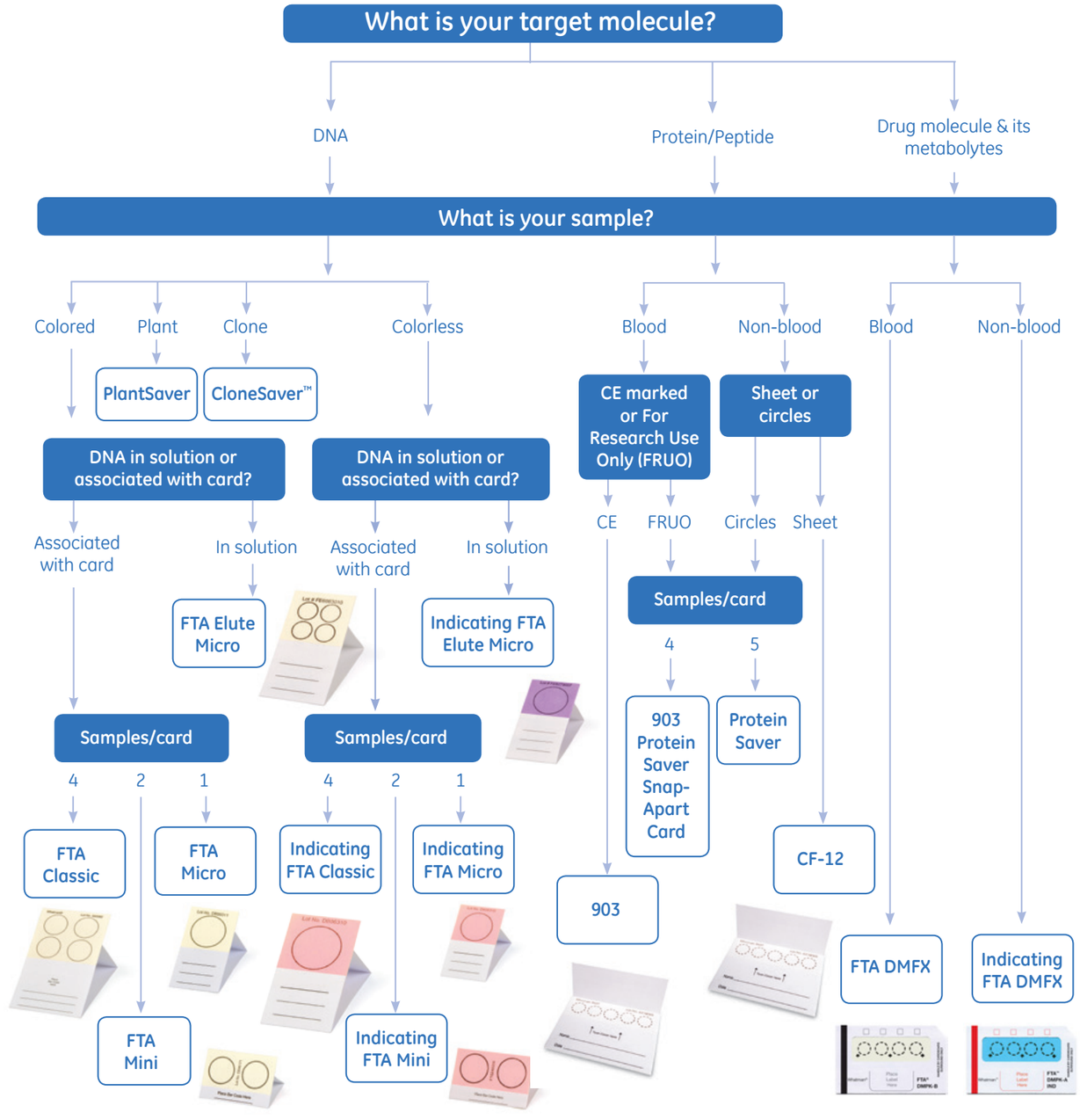
DMPK

A dried blood spot micro volume sampling technique, which is precise and accurate for a variety of compounds from different structural classes with acceptable inter- and intra-assay variability.

Applications

- Pharmacokinetic analysis
- Toxicokineticanalysis
- HPLC-MS/MS

Applications



Whatman FTA

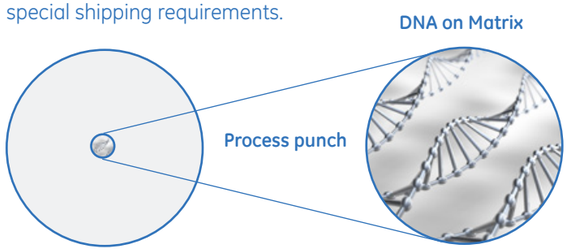
Room temperature stabilization, transport, and storage of DNA

DNA stays on cards

FTA sample collection cards use Whatman FTA technology to simplify the handling and processing of nucleic acids. FTA chemistry results in cell lysis, protein denaturation, and the protection of nucleic acids from nucleases, oxidative, and UV damage.

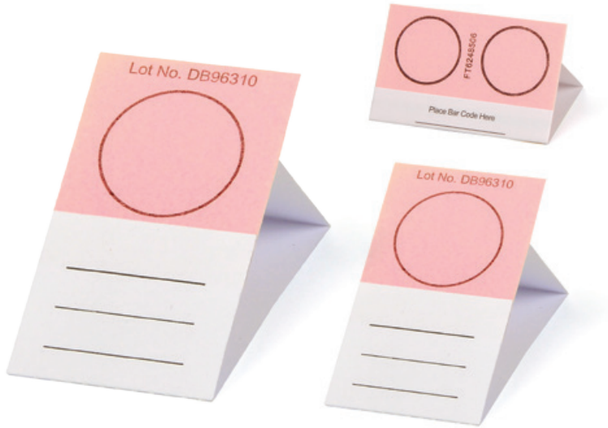
Capture nucleic acids in one easy step

Application of your sample lyses the cell membranes and organelles. The released nucleic acids are then trapped in the fibers of the matrix where they remain immobilized, preserved for transport, immediate processing, or long-term storage at room temperature. Since captured nucleic acids remain preserved, FTA cards are especially useful for sample collection in remote locations. For example, it is possible to collect samples in the field without having to worry about immediate refrigeration because the samples can be shipped back to the lab without resort to expensive special shipping requirements.



Advantages and benefits

- You can use FTA cards with most sample types
- Dried and stabilized samples can be shipped cost effectively at ambient temperature without the need for cold storage
- Purified nucleic acid is ready for downstream applications in less than 30 minutes
- Nucleic acids can be stored at room temperature for years. Data from genomic DNA stored on FTA cards at room temperature shows DNA stability of over 20 years for blood samples



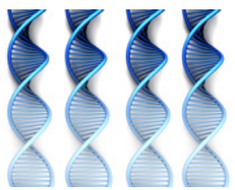
A typical FTA workflow

Sample collection and stabilization

Cell lysis: DNA-stabilized on cards.

Transportation

Dry sample transported at room temperature. Biohazards neutralized by cell lysis.



Purification

Wash protocol leaves purified DNA sample bound to the sample collection card. You can use manual or automatic punching systems developed by GE Healthcare to process the card.

You can use standard lab procedures such as PCR or STR to analyze your sample.

Storage

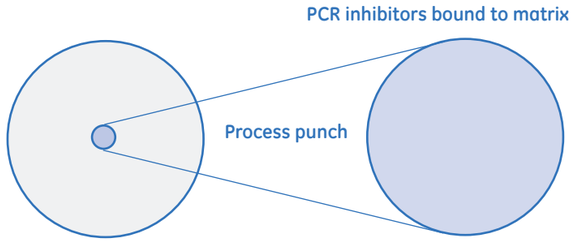
You can store your sample cards at room temperature because the DNA remains stable for over 20 years.

Whatman FTA Elute

For rapid elution of purified DNA, stabilization, transport, and storage

DNA eluted from cards

The benefits of FTA Elute are similar to that of FTA sample collection kits. Sample application results in the lysis of cell membranes and organelles. The released nucleic acids are then trapped in the fibers of the matrix where they remain immobilized and preserved for transport, immediate processing, or long-term storage at room temperature. Unlike FTA, the chemistry of FTA Elute allows the proteins to remain tightly bound to the card matrix. You can use a quick and easy elution step involving water and heat to obtain a solution of purified, single-stranded DNA for downstream applications such as PCR analysis.



Features and benefits:

- FTA Elute cards can be used with most sample types
- Dried and stabilized samples can be shipped cost effectively without cold storage
- The convenience of storing nucleic acids at room temperature
- Simple elution step using water and heat
- Proteins and other PCR inhibitors are bound to the FTA Elute matrix and DNA is recovered in solution free of PCR inhibitors
- Sample volume requirements are minimal: 12 to 40 µl per collection area. Eliminates the need for venous blood samples and handling/processing of large blood volumes, which in turn eliminates the need for venipuncture equipment and medical attendant support at the site of collection

A typical FTA Elute workflow

No DNA purification kit needed

Sample collection and stabilization

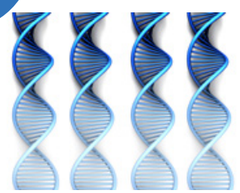
Cell lysis: DNA stabilized on cards.

Nucleic acids entrapped in the fibers of the matrix.

Proteins tightly bound the card matrix.

Transportation

Ease of transportation - Dry sample transported at room temperature. Biohazards neutralized by cell lysis.



Purification

A simple extraction protocol is applied to elute purified DNA from the sample punch. Proteins and other interfering compounds remain bound to the sample collection card.

Manual or automatic punching systems developed by GE Healthcare can be used to process the card.

Standard laboratory procedures such as PCR or STR are used to analyze the sample.

Storage

Once punched sample cards can be stored at room temperature.

903 specimen collection paper

903 specimen collection paper is a high-quality cellulose fiber paper used by healthcare professionals to collect blood samples because it provides an efficient method for collection and transport.

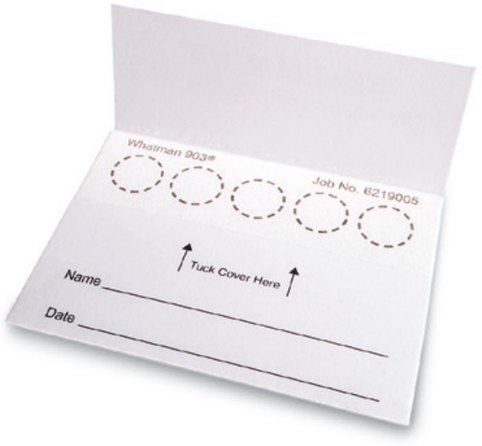
The cards, which are widely used in neonatal screening programs and other diagnostics applications, can be customized to your unique specifications in a procedure pack containing all the necessary components for efficient sample collection.

903 for neonatal screening:

- Product performance complies with CLSI LA4-A5 standard
- US FDA Class II Medical Devices
- CE marked in Europe as in vitro diagnostic medical devices, as required by the IVD Directive 98/79/EC
- Manufactured under controls compliant with the FDA Quality System Regulations and ISO 13485:2003

903 for other applications:

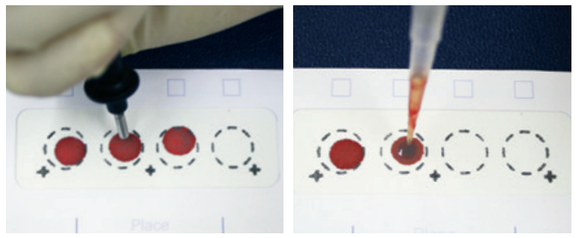
- Can be used to collect blood samples for other applications
- US FDA class II medical devices
- CE marked for use by healthcare professionals



Whatman FTA DMPK cards

FTA DMPK-A and FTA DMPK-B cards lyse cells and denature proteins on contact. The FTA DMPK-C card does not contain chemicals that could interfere with downstream analysis so it is suitable for protein-based biomolecules. All three cards produce precise and accurate data for a variety of compounds from different structural classes. The technology is now routinely employed in PK/TK studies. After spotting your samples, you can ship and store the cards at ambient temperature. The samples remain stable for a long time—this applies to analytes and metabolites that are sensitive to plasma enzymes.

The procedure is simple: spot, extract, and analyze.



Spot: Apply blood to card and let it dry. Ship and store as needed at ambient temperature

Extract: Punch out sample disc and elute with solvent

Analyze: Investigate sample solution by HPLC-MS/MS.

Features and benefits:

- Lower blood volumes—DBS micro volume sampling requires just 10 to 20 µl per sample thus allowing blood to be drawn from infant animals for analysis
- Toxicology data can be derived from animals in an actual toxicology study instead of satellite colonies and this reduces the number of experimental animals required
- Less reliance on composite data and more serial sampling from individual animals produces highly consistent data
- The 3-step DBS procedure is simpler and safer than conventional centrifugation, isolation, and cleanup processes

DMPK indicating cards offer the same benefits as our standard DMPK cards, but for clear samples such as plasma, urine, and cerebrospinal fluid.

Off-the-shelf collection kits

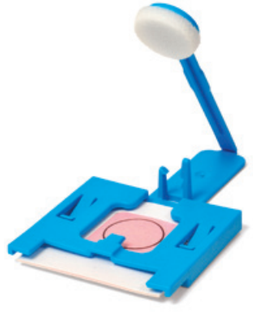
Whatman FTA sample collection off-the-shelf kits are designed with FTA technology for consistent sample collection in the field. EasiCollect™ buccal, FTA buccal, and FTA blood collection kits include all the components you need for field-based sample collection. As an added convenience, these kits are available from inventory for quick shipment to your lab. Off-the-shelf kits are an excellent way to validate a sample collection protocol before moving to a fully customized collection kit.

Features and benefits:

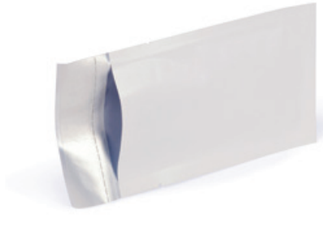
- FTA technology: With over 65 literature citations, FTA cards remain popular products in forensic applications worldwide
- Consistent: Standardized kit components allow for consistent sample collection routines in both the field and lab
- Cost effective: Each pack includes 50 sample collection kits with no minimum order requirement

Components included in Whatman FTA sample collection kits

Component	EasiCollect buccal	FTA buccal collection kit	FTA blood collection kit
EasiCollect device, with flap and standard barcodes	•		
FTA Micro Card, white with printed barcode			•
Indicating FTA Micro Card, with printed barcode		•	
Foam applicator		•	
Alcohol wipe			•
Lancet, sterile			•
Adhesive bandage			•
Two peelable barcodes, which match printed barcode	•	•	•
Gloves	•	•	•
Multibarrier pouch	•	•	•
Tamper-evident tape, for use on pouch or shipping container	•	•	•
Desiccant	•	•	•
Outer bag, clear, with label that includes code number and expiration date	•	•	•
Mailing envelope, 22 x 11 cm	•	•	•



EasiCollect device with flap and standard barcodes



Multibarrier pouch

Foam applicator

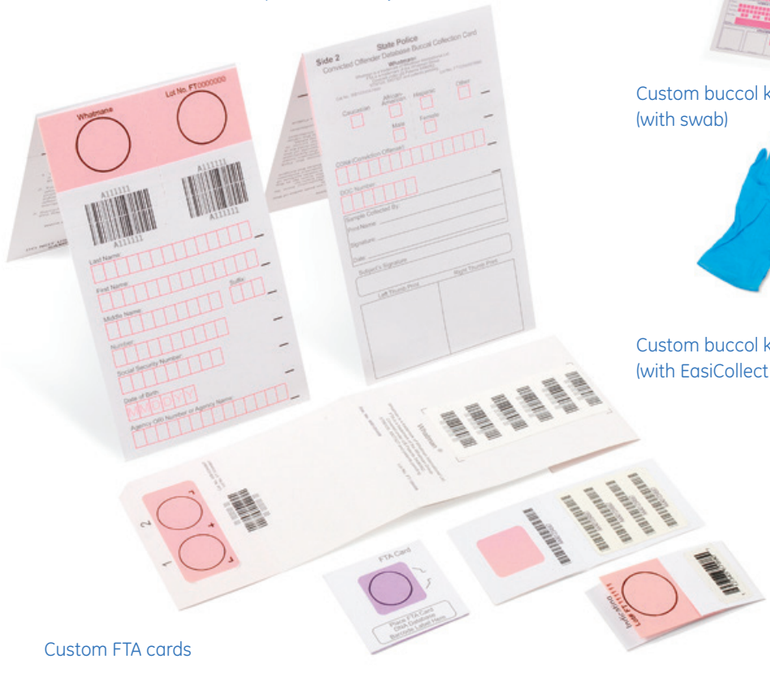
Sterile lancet for blood collection

Customized collection cards and kits

Expertise and service
We provide a team of experts to assist you in choosing an appropriate customized, sample-collection package. We believe our high-quality service combined with our award winning sample collection facilities, long standing expertise, and secure global supply network provide a customization service with very high standards.

Quality and innovation
Our custom kits and sample collection cards are manufactured to ISO9001:2008 standards in a clean-room environment to minimize contamination. With continued innovation and ongoing commitment to research and development, we remain committed to offering you a diverse and innovative product range to meet future demands of sample collection.

Flexibility
Field-based sample collection often requires the use of multiple products, such as data collection forms, gloves, sterile wipes, masks, sample collection cards, as well as barcodes to ensure sample traceability.



Custom FTA cards

Custom features for sample collection cards may include:

- Areas to include demographics and/or other identification information
- Barcodes for tracking
- Special inks for optical character recognition (OCR)

Kit accessories may include:

- Custom shipping envelopes with preprinted labels
- Desiccant for shipping and archiving samples
- Foam collection swabs
- Gloves
- Masks
- Benchkote™ paper
- Lancets
- Plasters

Custom buccol kit (with swab)

Custom buccol kit (with EasiCollect device)

Custom blood kit

Punching

Manual and semi-automated punching of FTA cards

We offer several manual and semi-automated punching tools for most lab workflows.

Manual punching of FTA cards

Two different manual punch tools are available for use with FTA cards—Micro-Punch and Uni-Core™ Punch. The Uni-Core and Micro-Punch products are designed with a sharp, stainless steel cutting edge. The Uni-Core is a disposable punch that provides up to 500 punches. The Micro-Punch has a replaceable polished steel tip that is case hardened and sterilizable. Each tip provides up to 2000 punches.

Both punches are available in 1.2, 2.0, and 3.0 mm diameters. There is no sample carryover with either type of punch tool when you follow the recommended procedures. The cutting mat allows for clean sample cuts and extends the life of the cutting tip.

Micro-Punch 1.2 mm, with cutting mat

Uni-Core Punch 1.2 mm

Uni-Core Punch 2.0 mm

Uni-Core Punch 3.0 mm

Semi-automated punching of FTA cards

e-Core™ tool is a compact and versatile electric coring instrument designed for unrestricted sampling of FTA and FTA Elute cards. e-Core uses 1.2, 2.0 and 3.0 mm replaceable Micro-Punch tips. The razor sharp cutting edge on the Micro-Punch Tip cleanly and precisely cores discs from FTA, which eliminate cross-contamination between sampling.

The ergonomic "joy stick" grip and simple operation of e-Core provides comfort and efficiency. You have complete control over the disc recovery process, coring speed, and disc delivery.

The e-Core ejection system allows you to control both the speed and delivery of the ejected disc. In addition, the ejection system does not generate static, resulting in accurate disc delivery.

High–throughput punching and liquid handling

GE Healthcare and Hamilton have collaborated to produce an instrument (easyPunch™) that combines automated card punching with liquid handling. Our Whatman FTA cassettes/ cards have been validated on easyPunch to streamline database processes.

Additional advantages of easyPunch include: (i) The ability to trace your sample, sample magazine, and plate via barcode tracking; (ii) Both the control of static and removal of dust from the punch head reduces the risk of contamination; and (iii) Automated imaging of cards containing colorless samples or blood samples to ensure high pass rates.

Ordering information

903

Description	Quantity	Code no
903 Protein saver snap-apart card	1	10534320

Whatman indicating FTA DMPK cards, blue, for colorless samples

Description	Quantity	Code no
FTA DMPK-A IND cards	100 per pack	WB120222
FTA DMPK-B IND cards	100 per pack	WB120223
FTA DMPK-C IND cards	100 per pack	WB120224
FTA DMPK IND starter pack	45 per pack[1]	WB120225

[1] Includes 15 each of -A, -B and -C Cards, a 3 mm Uni-Core Punch, and a small cutting mat

Whatman FTA DMPK cards, white, for blood or other samples

Description	Quantity	Code no
FTA DMPK-A cards	100 per pack	WB129241
FTA DMPK-B cards	100 per pack	WB129242
FTA DMPK-C cards	100 per pack	WB129243
FTA DMPK starter pack	45 per pack[1]	WB129248

[1] Includes 15 each of -A, -B and -C Cards, a 3 mm Uni-Core Punch, and a small cutting mat

Whatman FTA sample collection kits

Description	Quantity	Code no
EasiCollect buccal collection kit	50	WB120237
FTA blood collection kit	50	WB120238
FTA buccal collection kit	50	WB120239

Manual punching of FTA cards

Description	Quantity	Code no
Micro-Punch 1.2 mm, with cutting mat	1	WB100005
Replacement Tip 1.2 mm	1	WB100006
Micro-Punch 1.2 mm, replacement plunger	1	WB100025
Replacement cutting mat	1	WB100020
Micro-Punch 2.0 mm, with cutting mat	1	WB100007
Replacement Tip 2.0 mm	1	WB100008
Micro-Punch 2.0 mm, replacement plunger	1	WB100026
Micro-Punch 3.0 mm, with cutting mat	1	WB100038
Replacement Tip 3.0 mm	1	WB100042
Micro-Punch 3.0 mm, replacement plunger	1	WB100041
Uni-Core Punch		
Uni-Core Punch 1.2 mm	4	WB100028
Uni-Core Punch 2.0 mm	4	WB100029
Uni-Core Punch 3.0 mm	4	WB100039
Uni-Core Punch 6.0 mm	4	WB100040

Semi-automated punching of FTA cards

Description	Quantity	Code no
e-Core 1.2 mm	1	WB100052
e-Core 2.0 mm	1	WB100048
e-Core 3.0 mm	1	WB100049
Replacement Tip 1.2 mm	1	WB100006
Replacement Tip 2.0 mm	1	WB100008
Replacement Tip 3.0 mm	1	WB100042

FTA Indicating cards, for buccal and saliva samples

Description	Quantity	Code no
EasiCollect	50	WB120462
Indicating FTA Micro card	25	WB120311
	100	WB120211
Indicating FTA Mini card	25	WB120356
	100	WB120056
Indicating FTA Classic card	25	WB120306
	100	WB120206
Indicating FTA Elute Micro card	25	WB120412
	100	WB120411

FTA non-indicating cards, for blood samples

Description	Quantity	Code no
FTA Micro card	25	WB120310
	100	WB120210
FTA Mini card	25	WB120355
	100	WB120055
FTA Classic card	25	WB120305
	100	WB120205
FTA Elute Micro card	25	WB120401
	100	WB120410

Storage and shipping accessories

Description	Quantity	Code no
Plastic Ziploc™ storage bags, 4" × 6"	100 per pack	10548232
Foil barrier Ziploc™ bags, for cards 95 × 130 mm max.	100 per pack	10534321
Desiccant packets, Indicating, 1 g	1000 per pack	WB100003
Glassine envelopes, 3.25" × 4.88"	100 per pack	10548236
Biohazard labels, 0.88" × 0.88"	1000 per pack	10534150

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For contact information for your local office, please visit: www.gelifesciences.com/contact

For more information on these and other GE Healthcare Sample collection products, please visit www.gelifesciences.com/samplecollection

imagination at work

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