

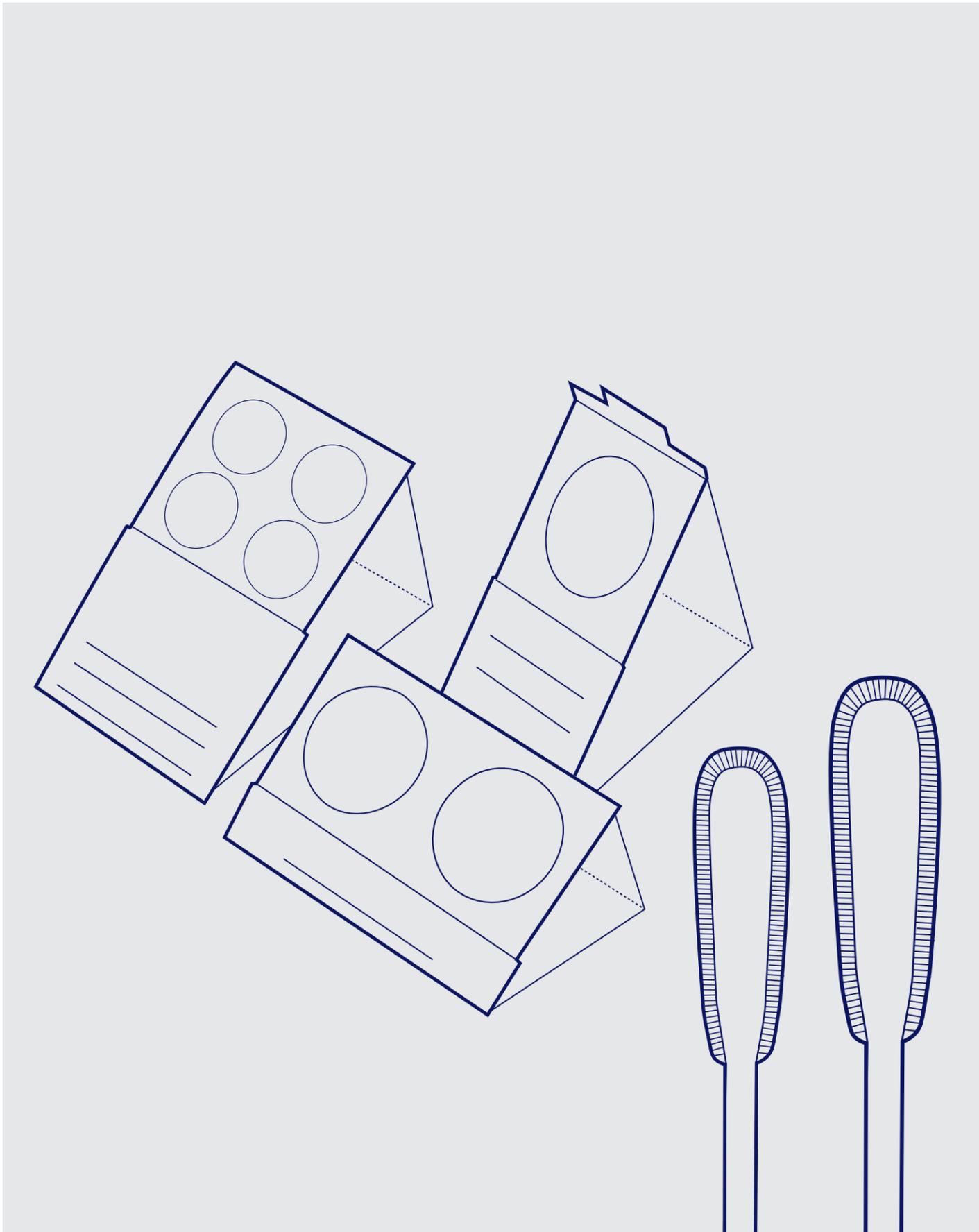
The image features a dark blue background with a faint, glowing DNA double helix structure. In the foreground, two white, fuzzy-tipped swabs are positioned diagonally. A piece of white paper with four circular punch holes is also visible, partially overlapping the swabs. The overall aesthetic is scientific and modern.

applied
biosystems®
by *life* technologies™

DNA collection solutions for human identification

Efficient DNA collection, storage, and downstream analysis

life
technologies™



The first step is critical

NUCLEIC-CARD™ and 4N6FLOQSwabs™ forensic DNA collection systems

Before any DNA sample can be genotyped for human identification purposes, it must first be collected from an individual or crime scene. Therefore, it is critically important that samples are collected in an optimal manner with devices designed to:

- **Enable** efficient, high-quality PCR amplification for genotyping
- **Facilitate** automation, preservation, and storage
- **Maintain** chain of custody and sample integrity

To meet this need, Life Technologies is proud to offer innovative, high-quality collection solutions through a partnership with Copan Flock Technologies, a leading manufacturer of sample collection and DNA preservation tools. The NUCLEIC-CARD™ and 4N6FLOQSwabs™ collection systems, in combination with the completely integrated human identification analysis workflow from Life Technologies, enable forensic and paternity laboratories to maximize efficiency and achieve the highest quality results.

NUCLEIC-CARD™ DNA collection system

An easy-to-use device for collection, preservation, and long-term storage of nucleic acids, the NUCLEIC-CARD™ matrix is chemically-treated to enable cell lysis and protein denaturation. Nucleic acids are immobilized and preserved for long-term storage at room temperature¹.



Key features

- Enables direct PCR amplification from a card punch, eliminating time-consuming extraction steps
- Facilitates high-quality STR profiles with Applied Biosystems® direct PCR amplification kits²
- Certified free of DNase, RNase, and amplifiable human DNA; Ethylene Oxide treated
- Helps prevent growth of microorganisms to enable long-term room temperature storage
- Customizable sample collection kits⁴
- Available in a variety of configurations:
 - 1, 2, or 4 sample collection areas per card
 - Plain white for blood and colored/indicating for buccal samples
 - Framed card options to maximize sample integrity with commercially-available punching systems
 - Integrated swab/card collection device to improve buccal cell collection

High-quality STR profiles

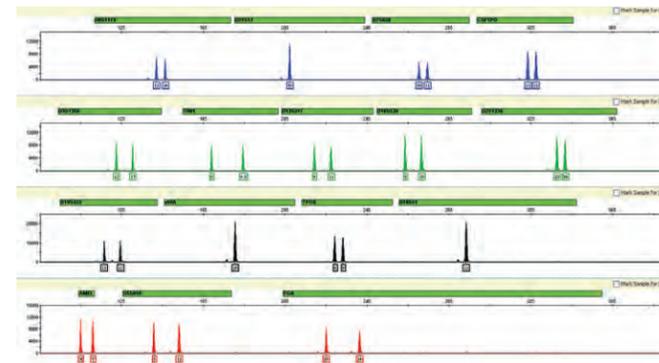


Figure 1. An example of a profile generated from a blood sample deposited on a NUCLEIC-CARD™ device using the Identifiler® Direct kit.

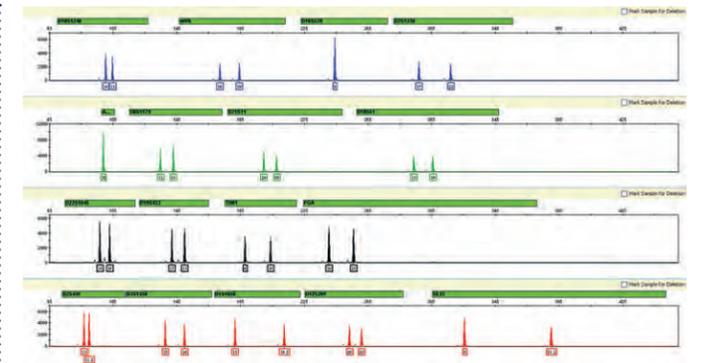


Figure 2. An example of a profile generated from a buccal sample deposited on a NUCLEIC-CARD™ device using the NGM SELECT™ Express kit.

NUCLEIC-CARD™ device direct amplification workflow

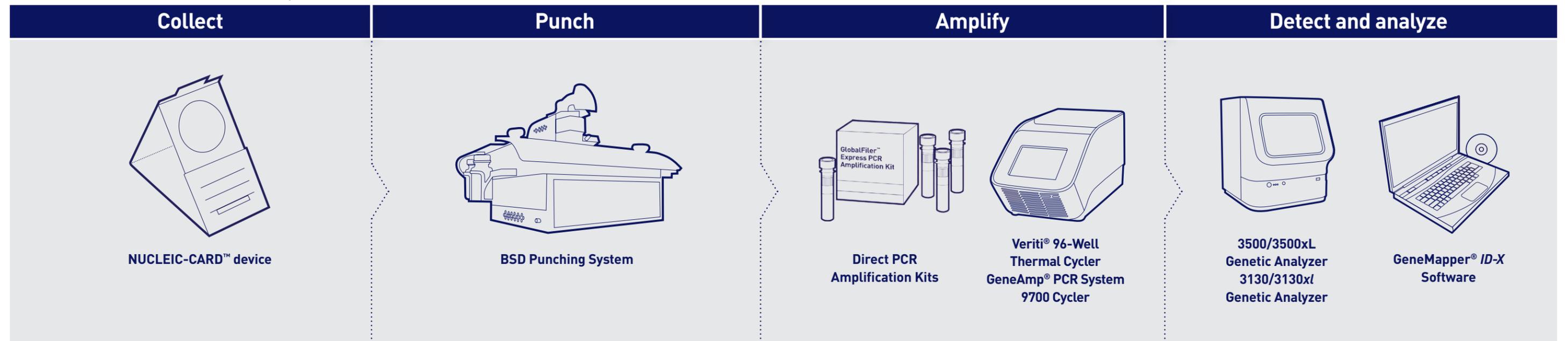


Figure 3. Complete, integrated workflow from Life Technologies for single source samples using the NUCLEIC-CARD™ device, enabling laboratories to go from sample to result in as little as 2 hours³.

4N6FLOQSwabs™ DNA collection system

4N6FLOQSwabs™ devices utilize patented flock technology to maximize DNA collection and elution efficiency. The perpendicular Nylon® fibers act like a soft brush which facilitates improved collection of cellular material. Unlike traditional fiber wad swabs, 4N6FLOQSwabs™ devices have no internal absorbent core to disperse and entrap the specimen—the sample stays close to the surface for faster and more efficient elution.

Pre-scored
breaking point



Key features

- Designed for rapid absorption and superior sample release, thus enabling increased assay sensitivity and performance for both reference and casework samples
- Pre-scored breaking point allows for easy breaking of the swab into tubes for processing
- Certified free of DNase, RNase, and amplifiable human DNA. Uses only selected inhibitory-free components
- Available in a variety of ergonomic designs, configurations, and customizable sample collection kits

Traditional



Traditional fiber swabs:
the sample stays entrapped
in the fiber wad

4N6FLOQSwabs™



4N6FLOQSwabs™ have no inside:
the sample is instantly and
more efficiently released

4N6FLOQSwabs™ devices for reference samples

- Validated for direct PCR amplification – Single source samples collected with 4N6FLOQSwabs™ devices can be easily processed using the Prep-n-Go™ Buffer, eliminating the need for extraction steps
- Available in different formats to enhance sample preservation – 4N6FLOQSwabs™ devices are offered in different configurations to meet the varied needs of forensic and paternity laboratories

4N6FLOQSwabs™ collection devices—reference sample workflow

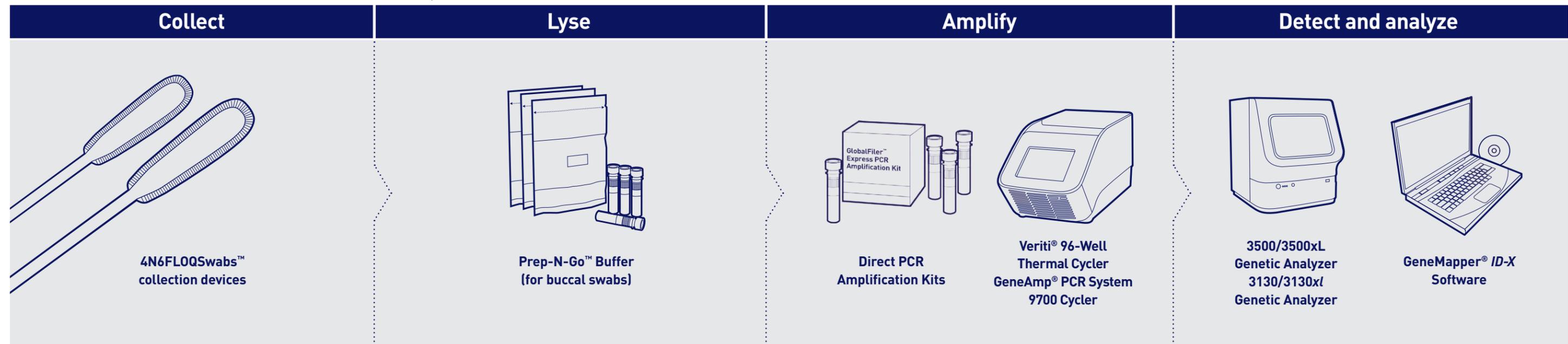


Figure 4. Complete, integrated workflow from Life Technologies for single source samples using the 4N6FLOQSwabs™ device, enabling laboratories to go from sample to result in as little as 2 hours³.

4N6FLOQSwabs™ devices for crime scenes

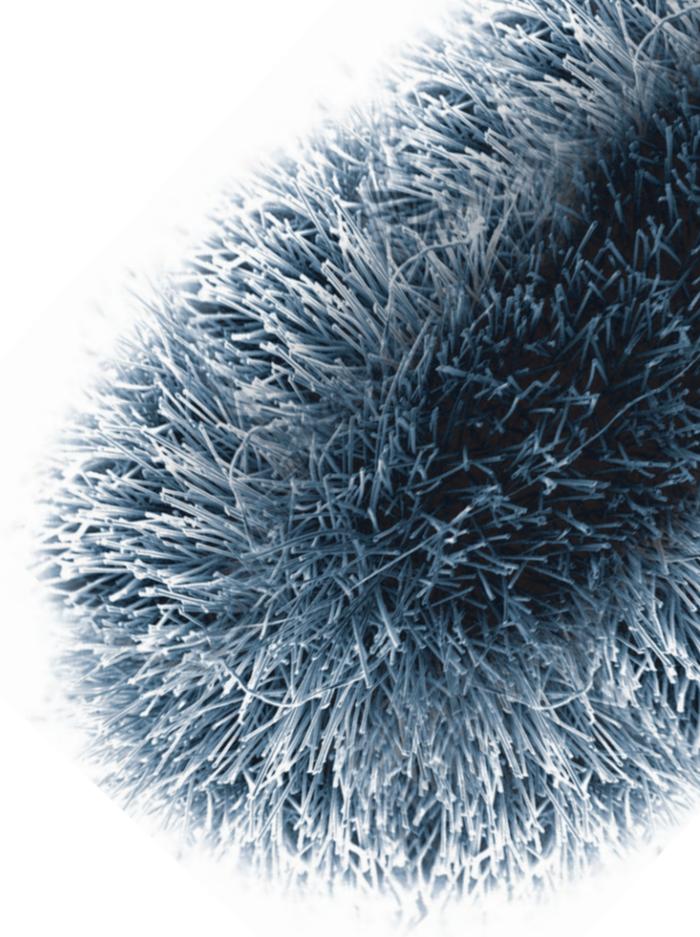
At crime scenes, it is essential that the sample collection device prevents microbial contamination, while preserving nucleic acid integrity. The unique 4N6FLOQSwabs™ for crime scenes product line is specifically designed for sample collection of sweat, semen, blood stains, skin, and environmental trace evidence found at the crime scene.

- **Optimized for challenging samples** – Rapid absorption capability and superior sample release is especially valuable with limited or trace amounts of DNA
- **Prevents microbial contamination** – Swabs are specially treated with antimicrobial agents
- **Sample drying not needed** – Due to the strong antimicrobial action, the sample can be transferred into a tube or vial without drying, and can withstand more humid conditions



Anatomic and ergonomic design

Regular, anatomically and ergonomically shaped collection devices allow samples to be collected from challenging surfaces and in situations with limited or trace amounts of DNA.



4N6FLOQSwabs™ devices—evidence sample workflow

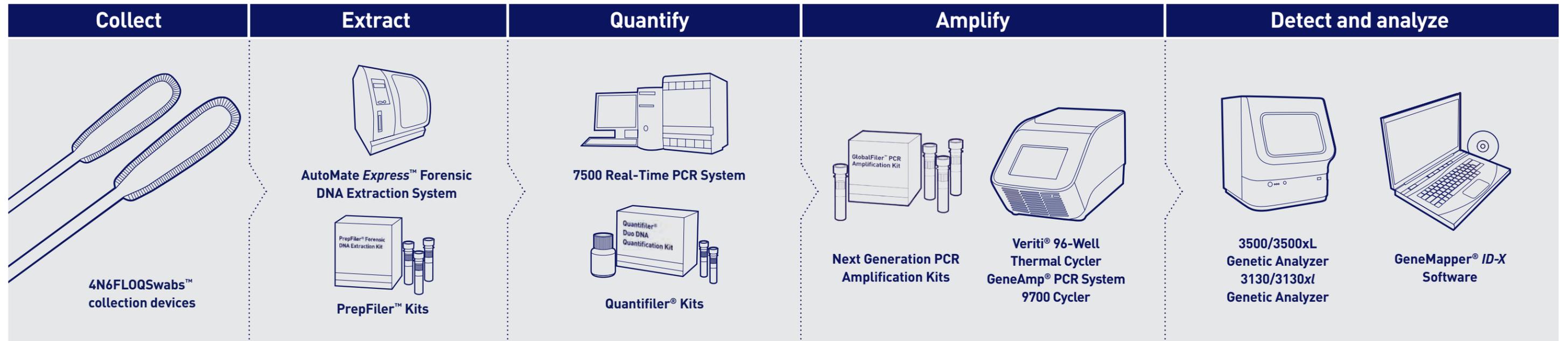


Figure 5. The complete integrated workflow for efficient evidence sample processing from Life Technologies.

Ordering information

NUCLEIC-CARD™ devices	Cat. No.	Quantity
NUCLEIC-CARD™ 1 Spot 	4474001	Case of 50
NUCLEIC-CARD™ 1 Spot 	4473973	Case of 100
NUCLEIC-CARD™ COLOR 1 Spot 	4473974	Case of 50
NUCLEIC-CARD™ collection device 	4473980	Case of 100
NUCLEIC-CARD™ 2 Spots 	4473975	Case of 100
NUCLEIC-CARD™ COLOR 2 Spots 	4473976	Case of 50
NUCLEIC-CARD™ 4 Spots 	4473977	Case of 100
NUCLEIC-CARD™ COLOR 4 Spots 	4473978	Case of 50

4N6FLOQSwabs™ devices	Cat. No.	Quantity
4N6FLOQSwabs™ Lollipop Swab in peelpouch 	4473997	Case of 50
4N6FLOQSwabs™ Regular size tip in peelpouch 	4473979	Case of 100
4N6FLOQSwabs™ Regular size tip in plain tube 	4479433	Case of 100
4N6FLOQSwabs™ Regular size tip in plastic tube with Active Drying System 	4479439	Case of 50

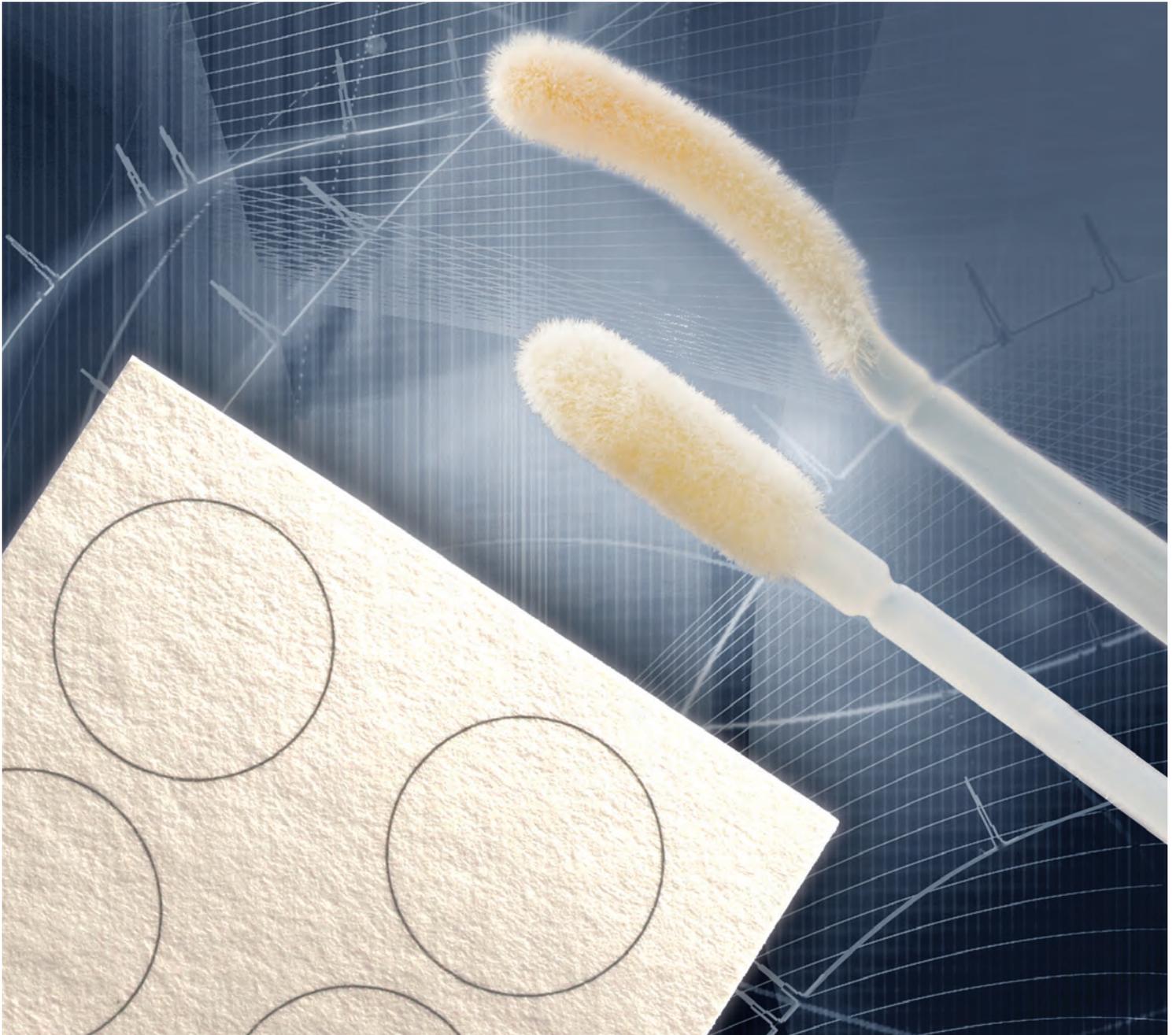
References

1. Shown with real-time and accelerated stability studies.
2. Oldroyd, N., et al. (2012) Direct PCR amplification of blood samples on Copan NUCLEIC-CARD™ systems using the AmpF/STR® Identifiler® Direct PCR Amplification Kit. *Forensic News* Spring 2012. Available from <http://www.appliedbiosystems.com/forensicnews>

4N6FLOQSwabs™ devices	Cat. No.	Quantity
4N6FLOQSwabs™ Regular size tip plus 2ml EPPENDORF® cuvette in peelpouch 	4479431	Case of 100
4N6FLOQSwabs™ Regular size tip plus 2ml EPPENDORF® cuvette with evaporation duct in peelpouch 	4479440	Case of 100
4N6FLOQSwabs™ Dual Swab Regular size tip in plain tube 	4479432	Case of 100
4N6FLOQSwabs™ Buccal shape tip in plastic tube with Active Drying System 	4479436	Case of 50
CRIME SCENE - 4N6FLOQSwabs™ Regular head tip, in peelpouch with Antimicrobial Action 	4479429	Case of 100
CRIME SCENE - 4N6FLOQSwabs™ Regular head tip, in plain tube with Antimicrobial Action 	4479427	Case of 100
CRIME SCENE - 4N6FLOQSwabs™ Scalpel shape tip, in plain tube with Antimicrobial Action 	4479438	Case of 100
CRIME SCENE - 4N6FLOQSwabs™ Regular Mini head tip, in plain tube with Antimicrobial Action 	4479430	Case of 100
CRIME SCENE - 4N6FLOQSwabs™ Regular head tip, in plastic short tube with Antimicrobial Action 	4479435	Case of 50
CRIME SCENE - 4N6FLOQSwabs™ Dual Swab Regular size tip in plain tube with Antimicrobial Action 	4479434	Case of 100
CRIME SCENE - 4N6FLOQSwabs™ Subungual Shape, in plain tube with Antimicrobial Action 	4479437	Case of 50
CRIME SCENE - 4N6FLOQSwabs™ Round Shape, in plain tube with Antimicrobial Action 	4479428	Case of 50
CRIME SCENE - 4N6FLOQSwabs™ Mini tip, in plain tube with Antimicrobial Action 	4479441	Case of 50

References cont'd

3. Typical workflow for 24 samples using the latest Applied Biosystems® direct PCR amplification kits, genetic analyzers and expert system analysis software.
4. Please contact your local Human Identification sales representative for different configurations, custom NUCLEIC-CARD™ systems or collection kits.



For more information about DNA collection solutions for human identification, go to lifetechnologies.com/hid