



**4N6**  
FLOQSwabs™



GENETICS | CRIME SCENE

# DNA

## COLLECTION AND PRESERVATION FOR HUMAN IDENTIFICATION



Vertrieb durch / distributed by:

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**Mast  
Group**



[copanflock.com](http://copanflock.com)

# A FULLY INTEGRATED COMPANY

COPAN'S MISSION IS TO IMPROVE THE QUALITY OF THE PRE-ANALYTICAL PHASE THROUGH COLLECTION AND PRESERVATION OF THE BIOLOGICAL SAMPLE



## RESEARCH

Copan laboratories and technical team work in close relation with key opinion leaders and reference laboratories in order to continually improve the current products performance and standards as well as stimulate the development of novel solutions according to the actual needs of the market.



## DEVELOPMENT

Copan designs and develops anatomic and ergonomic geometries for the realization of new collection tools necessary to optimize the sample recovery both from the human body and from the crime scene environment.



## TECHNOLOGY

Copan team of engineers optimizes the manufacturing process to ensure efficient, reliable, consistent and standardized manufacturing, through automations and custom designed production solutions.



## DNA-FREE

Copan 4N6FLOQSwabs™ line is certified DNase, RNase-Free and Human DNA-Free, as well as free of any PCR inhibitors. Stringent internal quality controls on the manufacturing process, raw materials and final product release. Profiling of all the staff involved in the production.



## QUALITY

Copan is fully dedicated to ensure the compliance with the highest quality standards; Copan is in total control of all the process: product design, manufacture and tests are all done-in-house. GMP manufacturing standards and ISO 9001 certification are guarantee of Copan quality policy.



Copan, the acronym for “COLlection and Preservation for ANALysis”, is a worldwide leading manufacturer of collection and preservation systems for microbiology and forensic applications.

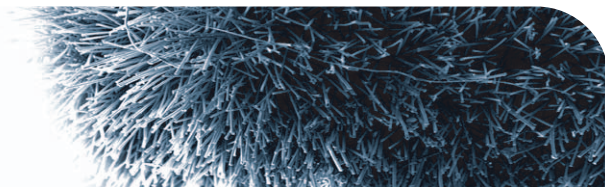
Its innovations in pre-analytics include patented FLOQ-Swabs™, which have been proven to advance the quality and sensitivity of traditional and contemporary analytical assays through improved fluid-dynamics.

Commitment to innovation in sample processing led to the development of a dedicated product line for Forensic and Human Identity Applications.

**Copan is a fully integrated company.**

All functions - product R&D, design, prototyping, manufacturing, assembling, validation and quality control - are all done in-house.

Copan's competence with its internal laboratories: bacteriology, virology and molecular biology and a team of scientists fully dedicated to run extensive quality controls, e.g. DNA-free certification, to verify Copan products' compatibility with various analytical methods and directly involved in the development of innovative solutions, provides the guarantee to have an expert and competent partner. Copan QA and R&D laboratories participate yearly to the GEDNAP Proficiency Tests for DNA typing.



## HOW IT WORKS

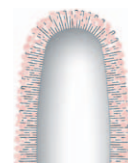
Patented FLOQSwabs™ comprise of a solid molded plastic applicator shaft with a tip that can vary in size and shape, coated with short Nylon® fibers that are arranged in perpendicular fashion. FLOQSwabs™ have no internal absorbent core to disperse and entrap the specimen - as traditional fiber swabs - but the entire sample stays close to the surface for fast and complete elution.

**Copan FLOQSwabs™ represent a breakthrough to guarantee that even minute amounts of DNA can be collected and are available for testing.**

### > BETTER SAMPLE COLLECTION



By simple contact with the swab tip, liquid samples are rapidly absorbed between the the perpendicular fibers thanks to the **active absorption capacity and hydraulic capillary properties of the device**. Cellular Material is collected easily and efficiently because the brush-like texture of 4N6FLOQSwabs™ is more effective at dislodging and removing cells.



Cells are easily collected between the fibers

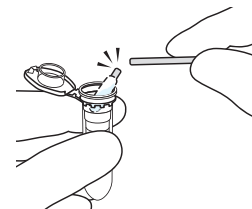
### > THE BREAKPOINT



A convenient and safe breakpoint is pre-moulded on the swab shaft and allows an **easy and smooth breaking of the swab**. The breakpoint is designed to be compatible with standard cuvettes. Different and customized breaking points can also be designed on request.



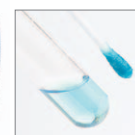
\* 20mm breaking point is available on all 4N6FLOQSwabs™



### > MAXIMUM SAMPLE ELUTION AND TRANSFER



Open fiber structure means no sample entrapment as it occurs with traditional fiber swabs, thus leading to instant and spontaneous release of the original sample into liquid media or onto solid absorbant substrates.



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



FLOQSwabs™ have no inside: the sample is instantly and entirely released.

### > IMPROVED ASSAYS SENSITIVITY, CONSISTENCY, ROBUSTNESS

Samples collected using 4N6FLOQSwabs™ have been shown to improve the sensitivity of various analytical tests.

### > SCIENTIFIC STUDIES

Published scientific studies show that Copan FLOQSwabs™ significantly improve the quantity and quality of samples collected and released into various assay systems.

[www.copaninnovation.com/studies](http://www.copaninnovation.com/studies)

## PATENTS

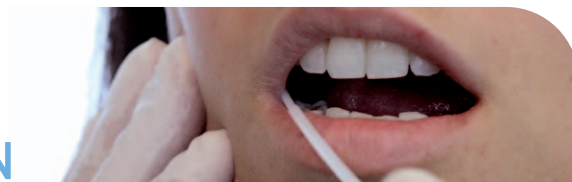


European Patent #1608268  
US Patent #US8114027B2

Canadian Patent #2515205  
Japanese Patent # 2007-523663

Australian Patent #2004226798  
New Zealand Patent #541560  
Chinese Patent # 101103931





## FORENSIC FLOQSWABS FOR HUMAN IDENTIFICATION

4N6FLOQSwabs™ is a complete line of Copan patented FLOQSwabs™ specifically designed and dedicated to DNA collection for Human Identification.

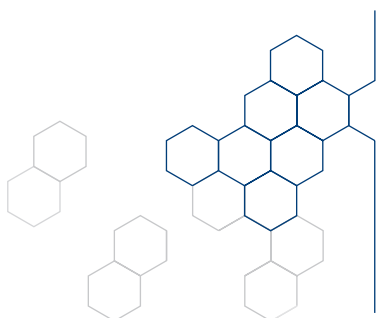
## PLUS FEATURES

- Stringent controls and automated manufacturing process
- Use of only selected and inhibitory-free components
- Dedicated EtO treatment
- Profiling of Copan workers involved in production and quality control

**FREE OF AMPLIFIABLE  
HUMAN DNA**

**DNASE AND RNASE-FREE**

**FREE OF INHIBITORS TO  
MOLECULAR AMPLIFICATION  
AND STR ANALYSIS**



## TARGETED SAMPLES

- BUCCAL CELLS
- EPITHELIAL CELLS
- SALIVA
- SKIN
- SEMEN
- BLOOD STAINS
- OTHERS

## APPLICATIONS

- STR ANALYSIS – HUMAN IDENTIFICATION
- GENETICS (NOT DIAGNOSTICS)
- FORENSICS
- PATERNITY TESTS
- RESEARCH GENOTYPING
- DOA (DRUG OF ABUSE)
- OTHERS

A separate product line for diagnostics applications is available.

### > RAPID ABSORPTION

Sprayed-on Nylon® fibers arranged in a uniform perpendicular fashion results in tremendous hydraulics to rapidly absorb the sample and optimize the collection of epithelial cells.

### > MORE THAN 90% SAMPLE RELEASE

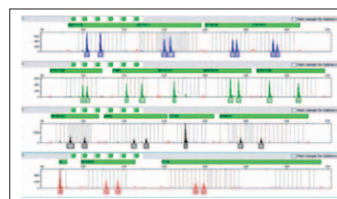
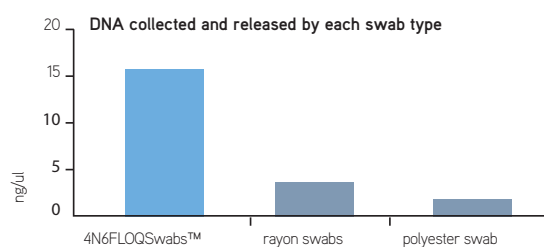
The sample is instantaneously and automatically released when 4N6FLOQSwabs™ are mixed with assays reagents, placed in buffer solutions or onto solid absorbant substrates, e.g. Copan NUCLEIC-CARD™. Copan flocked swabs demonstrated a **sample release capacity of more than 90% of the collected sample.**

### > COMPATIBILITY WITH DIFFERENT DNA EXTRACTION METHODS AND DIRECT AMPLIFICATION

4N6FLOQSwabs™ have been validated for compatibility with numerous DNA extraction methods. Samples collected with 4N6FLOQSwabs™ **have also been tested for direct amplification**, eliminating the need for extraction steps.

### > DATA MATRIX CODE UNIVOQUE IDENTIFICATION

Every 4N6FLOQSwabs™ tube is identified with a Data Matrix code that assigns a unique numeric data in order to guarantee safe and easy sample traceability and tracking.



## FORENSIC FLOQSWABS WITH ANTIMICROBIAL ACTION

The ability of a sample collection device to prevent or neutralize microbial contamination while preserving nucleic acids integrity is essential: contaminations can affect the genetic analysis and compromise the reliability of the results.

Copan has developed a unique and revolutionary product line **4N6FLOQSwabs™ crime scene**, specifically designed for sample procurement of evidence such as: sweat, semen, blood stains, skin and any environmental trace found at the crime scene.

## PLUS FEATURES

**4N6FLOQSwabs™ crime scene** rapidly absorbs traces even where the amount of sample is limited. The superior release of the 4N6 line compared to traditional fiber swabs becomes critical when the sample is limited (LCN). By recovering over 90% of the evidence using Copan unique 4N6FLOQSwabs™, assay sensitivity increases and DNA recovery is maximized.

- **DNA FREE**

Certified DNase, RNase-free and free of amplifiable human DNA. Free of inhibitors to molecular amplification and STR analysis.

- **PROFILING WORKERS ONLY ARE INVOLVED IN 4N6FLOQSWABS™ CRIME SCENE PRODUCTION**



## ANATOMIC AND ERGONOMIC DESIGN



REGULAR, ANATOMICALLY AND ERGONOMICALLY SHAPED COLLECTION DEVICES ALLOW TO COLLECT SAMPLES FROM CHALLENGING SURFACES AND IN SITUATIONS WITH LCN (LOW COPY NUMBER) DNA.



**4N6FLOQSwabs™ crime scene** are available with anatomic and ergonomic geometries in order to ensure the maximum amount of sample can be collected also from the most challenging surfaces. A complete range of special geometries is available for collection from: subungual (under nails), bottle or cap borders, dip corners, flat surfaces or regular size swabs for multi-use.

### ➤ ABILITY TO NEUTRALIZE MICROBIAL CONTAMINATION

**4N6FLOQSwabs™ crime scene** are specially treated with agents that exert an antimicrobial effect on a wide spectrum of microbes deriving from the environmental contamination of the sample.

### ➤ NO MORE NEED TO DRY OUT THE SAMPLE

Thanks to **4N6FLOQSwabs™ crime scene** strong antimicrobial action, the sample can be transferred into a transport tube or vial, without any need to dry out the sample. DNA collected will be maintained stable also in humid conditions.

### ➤ OPTIMIZATION OF DNA PRESERVATION IN CRITICAL ENVIRONMENTAL CONDITIONS

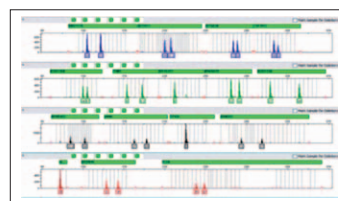
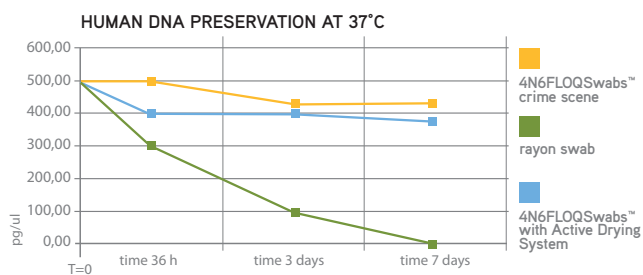
**4N6FLOQSwabs™ crime scene** preserve DNA integrity also after 7 days storage at 37°C in heavily contaminated environment.

### ➤ COMPATIBILITY WITH DIFFERENT DNA EXTRACTION METHODS

**4N6FLOQSwabs™ crime scene** have been validated with numerous DNA extraction methods and complete profiles were obtained by sequencing the DNA extracted.

### ➤ DATA MATRIX BARCODE

Every **4N6FLOQSwabs™** tube is identified with a Data Matrix code that assigns a unique numeric data to guarantee safe and easy sample traceability and tracking.



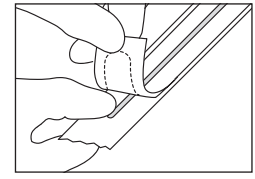
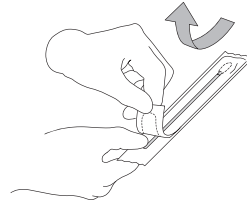
# FORMATS



## GENETICS

### > IN PEEL POUCH

4N6FLOQSwabs™ with moulded breakpoint is available in a convenient peelpouch format. The swab must NOT be reinserted into the peelpouch after sample collection.



### > IN DRY TUBE

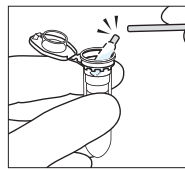
After collection, the regular size 4N6 FLOQSwabs™ can be inserted back into the transport tube and sent to the testing laboratory. The plastic tube guarantees the swab integrity and avoids risks of sample contamination during transport. Every tube is identified with a Data Matrix code bearing a uniquely assigned numeric data for safe and easy sample traceability and tracking.



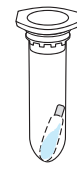
Regular size FLOQSwabs™ are available in dry tubes, as single or dual swab format.

### > WITH CUUVETTE

A regular size 4N6FLOQSwab™ is packed and sterilized in a peelpouch with a 2ml cuvette.



Swab Break Point at 20mm, compatible with 2ml cuvette. After collection, insert swab into the cuvette and snap the swab shaft at the moulded breakpoint position.



Discard the applicator shaft and close the cuvette cap.

### > WITH ACTIVE DRYING SYSTEM

Copan 4N6FLOQSwabs™ are available also in a special plain tube with an integrated active drying system: molecular sieve particles contained in the tube stopper actively absorb water molecules and dry out the collected sample.

Aluminum Foil Barrier Packaging to ensure molecular sieve drying action is activated upon peel pouch opening only.



Active Drying System: Ensures the sample drying in the tube and therefore prevents microbial growth.



## CRIME SCENE



### > IN PEEL POUCH

4N6FLOQSwabs™ with moulded breakpoint is available in a convenient peelpouch format. The swab must NOT be reinserted into the peelpouch after sample collection.

### > IN DRY TUBE

After collection, the 4N6 FLOQSwabs™ can be inserted back into the transport tube and sent to the testing laboratory. The plastic tube guarantees the swab integrity and avoids risks of sample contamination during transport. Every tube is identified with a Data Matrix code bearing a uniquely assigned numeric data for safe and easy sample traceability and tracking.



Regular (single or dual) minitip and scalpel shape swabs are available in dry tube.



Subungual shape, Round Shape, Mini tip and Regular swabs are available in dry tube.

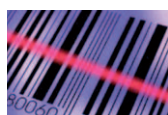
PLEASE REFER THE ORDERING INFORMATION SECTION FOR THE FULL PRODUCT LISTING.  
A SEPARATE LINE FOR DIAGNOSTICS APPLICATIONS IS AVAILABLE.

## CUSTOMIZED SOLUTION KITS



Besides the general product listing, Copan offers a variety of customization and engineering services in order to manage:

- Identification and traceability
- Chain-of-custody
- Packaging specific requirements, such as: 4N6FLOQSwabs™, gloves, mask, envelope, tamper proof evidence tape, barcode labels, sterile water vials, instructions for use, etc.



DETAILED  
COLLECTION GUIDES  
FOR DNA SAMPLE  
COLLECTION  
AVAILABLE UPON  
REQUEST

COPAN | EDU



NAOBasket™



## NUCLEIC ACID OPTIMIZER

The Nucleic Acid Optimizer is a special **plastic semi-permeable basket** that allows **fast and complete recovery of nucleic acids** from swab samples, card punches or other specimens into the sample tube.

NAOBasket™ is designed with a collapsible grid bottom that allows **passage of all eluted DNA sample from the collection device (i.e. swab)** during the **high speed centrifugation step**, while guaranteeing the **perfect tightness of the system during vortexing**.

### PLUS FEATURES

- 60% increased recovery of DNA from the specimen
- Ability to release all DNA from the swab after high speed centrifugation
- Perfect tightness of the system during vortexing: demonstrated ability to retain different types of liquid after several vortexing times and storage conditions.
- Significantly reduced manipulation of the sample: less labor intensive processing and risks of contamination.
- Compatibility and performance with commercial nucleic extraction platforms



NAOBasket™ in conjunction with 4N6FLOQSwabs™ is a fast and highly efficient system for recovering LCN of DNA from samples for crime scene investigation.

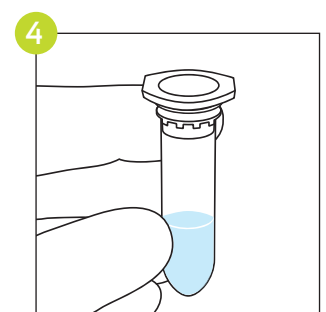
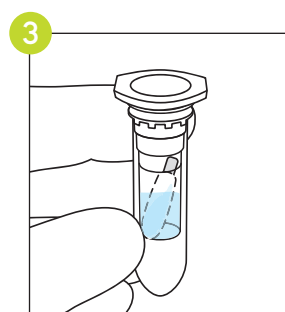
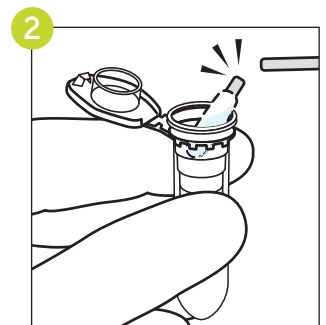
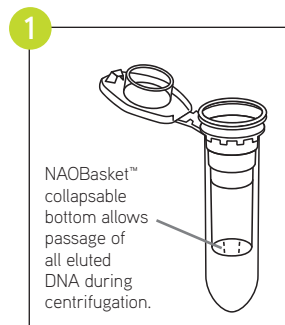
		DNA recovered (pg/ul)	Average (pg/ul)
test n.1	with NAO	469,68	403,5
	with NAO	337,31	
	without NAO	257,92	268,51
	without NAO	279,09	
test n.2	with NAO	283,27	271,94
	with NAO	260,6	
	without NAO	175,32	165,19
	without NAO	155,05	
test n.3	with NAO	934,16	864,27
	with NAO	794,38	
	without NAO	578,63	480,56
	without NAO	382,48	

### + 60% DNA RECOVERY

Laboratory tests show that a 60% increased recovery of nucleic acids can be achieved by processing the sample with NAOBasket™ in comparison with standard procedures.

## HOW IT WORKS

- 1 NAOBasket™ is placed inside the microtube.
- 2 After collection, break the 4N6FLOQSwab™ at breakpoint into the NAOBasket™.
- 3 Fill the basket with lysis buffer. Close the cap of the cuvette, vortex and incubate as per kit instructions. Once the incubation step is completed, centrifuge at high speed for at least 1 minute at 10.000 x g.  
**Note:** Centrifugation must be used. Vortexing does not allow the specimen elution from the basket.
- 4 Remove the swab and NAOBasket™ from the microtube and proceed with the extraction.





# ORDERING INFORMATION












PRODUCT DESCRIPTION Break Point Distance where present: 20mm	SAMPLE	PRODUCT CODE	PACKAGING
4N6FLOQSwabs™ Regular size tip, in peelpouch 	Buccal cells Saliva Semen Blood Stains Skin Others	4520CS01	In peelpouch PKG: 10x100 pcs
4N6FLOQSwabs™ Regular size tip, in 174,5 mm long dry tube 		4508C	In dry tube PKG: 10x100 pcs
4N6FLOQSwabs™ Regular size tip, in 109 mm long tube with Active Drying System 		4504C	In dry tube w/ Active Drying System PKG: 6x50 pcs
4N6FLOQSwabs™ Regular size tip, plus 2 ml cuvette in peelpouch 		4520CA	In peelpouch PKG: 6x100 pcs
4N6FLOQSwabs™ Regular size tip, plus 2 ml cuvette with evaporation duct in peelpouch 		4520CF	In peelpouch PKG: 6x100 pcs
4N6FLOQSwabs™ Dual Swab Regular size tip, in 171 mm long dry tube in peelpouch 		4511C	In dry tube in peelpouch PKG: 5x100 pcs
4N6FLOQSwabs™ Buccal Shape tip, in 109 mm long tube with Active Drying System 	Buccal cells collection Other	4500C	In dry tube w/ Active Drying System PKG: 6x50 pcs

image not to scale

PRODUCT DESCRIPTION Break Point Distance where present: 20mm	SAMPLE	PRODUCT CODE	PACKAGING
4N6FLOQSwabs™ Regular size tip, with Antimicrobial Action in peelpouch 	Evidence samples: Sweat Semen Blood Blood Stains Environmental Tissues Others	3509CS01	In peelpouch PKG: 10x100 pcs
4N6FLOQSwabs™ Regular size tip, with Antimicrobial Action in 174,5 mm long dry tube 		3509C	In dry tube PKG: 10x100 pcs
4N6FLOQSwabs™ Scalpel shape tip, with Antimicrobial Action in 174,5 mm long dry tube 		3506C	In dry tube PKG: 10x100 pcs
4N6FLOQSwabs™ Mini head tip, with Antimicrobial Action in 174,5 mm long dry tube 	<b>NOT FOR USE ON LIVING HUMANS</b>	3507C	In dry tube PKG: 10x100 pcs



4N6FLOQSwabs™ Regular head tip, with Antimicrobial Action in 109 mm long dry tube	Evidence samples: Sweat Semen Blood Blood Stains Environmental Tissues Others  <b>NOT FOR USE ON LIVING HUMANS</b>	3510C	In dry tube PKG: 6x50 pcs
4N6FLOQSwabs™ Subungual Shape, with Antimicrobial Action in 109 mm long dry tube		3503C	In dry tube PKG: 6x50 pcs
4N6FLOQSwabs™ Round Shape, with Antimicrobial Action in 109 mm long dry tube		3505C	In dry tube PKG: 6x50 pcs
4N6FLOQSwabs™ Mini head tip, with Antimicrobial Action in 109 mm long dry tube		3501C	In dry tube PKG: 6x50 pcs
4N6FLOQSwabs™ Dual Swab Regular size tip, with Antimicrobial Action in 171 mm long dry tube in peelpouch		3512C	In dry tube in peelpouch PKG: 5x100 pcs

image not to scale



PRODUCT DESCRIPTION Break Point Distance where present: 20mm	SAMPLE	PRODUCT CODE	PACKAGING
NAOBasket™, in bulk bag	N/A	3002C	In Bulk Bag PKG: 5x50 pcs
NAOBasket™ + 2ml STARLAB cuvette, in peelpouch	N/A	3100CS01	In peelpouch PKG: 6x100 pcs
NAOBasket™ + 2ml BRAND/TREFF cuvette, in peelpouch	N/A	3102CS01	In peelpouch PKG: 6x100 pcs
NAOBasket™ + 2ml STARLAB cuvette + 4N6FLOQSwabs™ <b>Crime Scene</b> Regular size tip, in peelpouch	Evidence samples: Sweat, Semen, Blood, Blood Stains, Stains, Environmental, Tissues, Others <b>NOT FOR USE ON LIVING HUMANS</b>	3101CS01	In peelpouch PKG: 6x100 pcs
NAOBasket™ + 2ml STARLAB cuvette + 4N6FLOQSwabs™ <b>Genetics</b> Regular size tip, in peelpouch	Buccal Cells, Saliva, Semen, Blood Stains, Skin, Others	4101CS01	In peelpouch PKG: 6x100 pcs
NAOBasket™ + 2ml BRAND/TREFF cuvette + 4N6FLOQSwabs™ <b>Crime Scene</b> Regular size tip, in peelpouch	Evidence samples: Sweat, Semen, Blood, Blood Stains, Environmental Tissues, Others <b>NOT FOR USE ON LIVING HUMANS</b>	3103CS01	In peelpouch PKG: 6x100 pcs
NAOBasket™ + 2ml BRAND/TREFF cuvette + 4N6FLOQSwabs™ <b>Genetics</b> Regular size tip, in peelpouch	Buccal Cells, Saliva, Semen, Blood Stains, Skin, Others	4103CS01	In peelpouch PKG: 6x100 pcs

image not to scale



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TECHNOLOGIES SRL**

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