

Clinical applications

Genetics

Genetics

The blueprint of your past and future

Better diagnostics begins
with a better sample collection.

Copan
innovating together



Collection



Transport



Processing



Artificial Intelligence

Workflow-Integrated System Environment

Background

The information of life

What do the simplest microorganisms and the most complex animals have in common? **Genetic information**. As microbial genes do for bacteria, our genes define our phenotypical traits, sensitivity to drugs, and risk of contracting diseases. **Genetics plays an increasingly pivotal role in diagnosis and therapy and is recently enabling the switch towards a personalized approach to medicine** based on the patient's genetic information.

What's the Copan solution for genetics?

- ***Collection devices***

FLOQSwabs®hDNAfree, FLOQSwabs®

- ***Media***

eNAT®

- ***Self-collection devices***

SMART-eNAT®

Genetics

Next-gen sensitivity

Genetic research highlighted the **role of genes and their variations in disease development and prediction**, response to drugs, and heredity. Predictive testing, SNP genotyping, epigenetics, and metagenomic techniques are already extensively used in laboratories worldwide; moreover, high-throughput genetic methods allow the **diagnosis of human disorders at increasingly affordable costs and has been implemented in many fields** such as pharmacology, oncology, rare diseases, and infectious diseases¹.



Sample collection

Flawless sampling for unbiased diagnostics

Regardless of the sample's origin, genetic researchers need high quality nucleic acid specimens to reduce variability and obtain unbiased genetic results. Thus, any flaw in sample collection and preanalytical processing must be avoided at any cost.



FLOQSwabs®hDNAfree

Non-invasive, Safe, and Painless DNA collection devices for Genetic applications

FLOQSwabs®hDNAfree is our FLOQSwabs® line. **Free of amplifiable human DNA and detectable DNase and RNase**, FLOQSwabs®hDNAfree are well-accepted and cost-effective alternatives to blood samples collected using hypodermic needles². The optional active drying system dries the sample inside the tube, enabling 12 months of DNA stability at room temperature, and their **easiness to use improves the adoption percentage for genetic screenings**, such as HLA typing, food intolerances, and ancestry testing^{3,4}.

Certified free of amplifiable Human DNA and detectable DNase and RNase

Optional active drying system for 12 months of DNA stability at RT



eNAT®

Nucleic acid collection and preservation medium

eNAT® is our medium designed for nucleic acid collection and preservation. Containing guanidine-thiocyanate, **eNAT® lyses cells and virus particles, removing the sample's infectivity and bacterial proliferation, and preserving RNA and DNA integrity⁵⁻¹⁴**. eNAT® allows long-term sample storage for up to four weeks at RT or six months at -20°C by denaturing proteins – including nucleases – in only 30 minutes. It is the media of choice of many diagnostics kits, fully validated and included in their IFU.

Virus and bacteria infectivity inactivation within 30 minutes

Preserves nucleic acids for four weeks at RT or six months at -20 °C



SMART-eNAT®

Smart Delivery System for Nucleic Acid Preservation Medium

SMART-eNAT® combines eNAT® with a unique SMART push & turn activation and delivery system, providing a **safe and efficient nucleic acid collection and transport for prolonged periods**. The SMART post-collection high-performance yet intuitive cap avoids spillage or unwanted contact, facilitating self-sampling at home.

Virus and bacteria infectivity Inactivation within 30 minutes

Designed for patient and sample safety



The perfect match

FLOQSwabs® Inside



Combining any transport media with our patented FLOQSwabs® expands testing possibilities by ensuring an unmatched specimen collection in many anatomical sites. Discover why we call them "the perfect collection device" on the dedicated brochure.

An upcoming impact

Just as radiological imaging has decreased the rates of exploratory surgical procedures, **genomics in medicine is bound to add another layer of confidence to diagnostic approaches.**¹⁵ Although we are still learning how to interpret genetic data and despite barriers to genetics-based medicine are still relevant—for example, the rights and privacy of patients—it is clear that the genetics expansion in medicine will impact our understanding of the disease, approach to diagnosis, treatment strategies, and life planning.¹⁶ **Decades from now, many potential diseases may be cured at the genetic level before they arise.**

Scientific references

All the independent studies we cited in this product focus are listed here.

1. Horton RH, Lucassen AM. Recent developments in genetic/genomic medicine. *Clin Sci (Lond)*. 2019 Mar 5;133(5):697-708.
2. Theda C, Hwang SH, Czajko A, et al. Quantitation of the cellular content of saliva and buccal swab samples. *Sci Rep*. 2018 May 2;8(1):6944.
3. Eipel M, Mayer F, Arent T, et al. Epigenetic age predictions based on buccal swabs are more precise in combination with cell type-specific DNA methylation signatures. *Aging (Albany NY)*. 2016 May;8(5):1034-48.
4. Schöfl G, Lang K, Quenzel P, et al. 2.7 million samples genotyped for HLA by next generation sequencing: lessons learned. *BMC Genomics*. 2017 Feb 14;18(1):161.
5. Roy C, Robert D, Bénégat L, et al. Performance Evaluation of the Novodiag Bacterial GE+ Multiplex PCR Assay. *J Clin Microbiol*. 2020 Sep 22;58(10):e01033-20.
6. Thomas PPM, Yadav J, Kant R, et al. Sexually Transmitted Infections and Behavioral Determinants of Sexual and Reproductive Health in the Allahabad District (India) Based on Data from the ChlamIndia Study. *Microorganisms*. 2019 Nov 12;7(11):557.
7. Falaschi Z, Danna PSC, Arioli R, et al. Chest CT accuracy in diagnosing COVID-19 during the peak of the Italian epidemic: A retrospective correlation with RT-PCR testing and analysis of discordant cases. *Eur J Radiol*. 2020 Sep;130:109192.
8. Welch SR, Davies KA, Buczkowski H, et al. Analysis of Inactivation of SARS-CoV-2 by Specimen Transport Media, Nucleic Acid Extraction Reagents, Detergents, and Fixatives. *J Clin Microbiol*. 2020 Oct 21;58(11):e01713-20.
9. Narchi H, George JV, Al-Hamad SM, et al. Nasopharyngeal Isolates from a Cohort of Medical Students with or without Pharyngitis. *Sultan Qaboos Univ Med J*. 2020;20(3):e287-e294.
10. Nagel A, Dimitrakopoulou E, Teig N, et al. Characterization of a universal screening approach for congenital CMV infection based on a highly-sensitive, quantitative, multiplex real-time PCR assay. *PLoS One*. 2020 Jan 9;15(1):e0227143.
11. Lee YM, Kim DY, Park KH, et al. Monitoring environmental contamination caused by SARS-CoV-2 in a healthcare facility by using adenosine triphosphate testing. *Am J Infect Control*. 2020;48(10):1280-1281.
12. van Pamelén J, van Olst L, Budding AE; BIA Study Group, de Vries HE, Visser LH. Alterations of Gut Microbiota and the Brain-Immune-Intestine Axis in Patients With Relapsing-Remitting Multiple Sclerosis After Treatment With Oral Cladribine: Protocol for a Prospective Observational Study. *JMIR Res Protoc*. 2020 Jul 29;9(7):e16162.
13. Ciardiello, T, Pinto, D, Marotta, L, et al. Effects of Fermented Oils on Alpha-Biodiversity and Relative Abundance of Cheek Resident Skin Microbiota. *Cosmetics* 2020, 7, 34.
14. Cieplik F, Wiedenhofer AM, Pietsch V, et al. Oral Health, Oral Microbiota, and Incidence of Stroke-Associated Pneumonia-A Prospective Observational Study. *Front Neurol*. 2020 Nov 6;11:528056.
15. <https://www.genome.gov/Pages/EducationKit/images/nhgri.pdf>
16. Horton RH, Lucassen AM. Recent developments in genetic/genomic medicine. *Clin Sci (Lond)*. 2019;133(5):697-708. Published 2019 Mar 5.



This document may contain product information otherwise not accessible or valid in your country. Please be aware that Copan Italia S.p.A. does take any responsibility for accessing such information which may not comply with any valid legal process, regulation, registration or usage in the country of your origin. Product clearance and availability restrictions may apply in some Countries. Please refer to Copan website (www.copangroup.com) to view and/or download the most recent version of the brochure. This document is mainly intended for marketing purposes, always consult product insert for complete information. The use of this product in association with diagnostic kits or instrumentation should be internally validated by the user. ©2021 Copan Italia. All rights reserved. The trademarks mentioned herein are property of Copan Italia S.p.A.
Code: **JMKCo4Roo**



@copangroup

Copan Italia s.p.a.
Via Francesco Perotti 10,
25125 Brescia, Italy

t | f +030 2687211
@ | info@copangroup.com
www.copangroup.com