



GENDIA

CT- DNA TEST (Liquid biopsy)

DNA from cancer cells circulates in the blood from most subjects with cancer.

This Circulating Tumor DNA (CT-DNA) harbors gene variants that cause the tumor. Cancer can therefore be detected and characterized with a CT-DNA test (also referred to as : liquid biopsy).

The CT-DNA test offered by GENDIA screens for +/- 2800 common gene variants in 50 cancer genes.

This test is important for a patient-specific cancer treatment (personalized medicine) in patients diagnosed with cancer.

The CT-DNA test can also detect cancer in an early stage, and is therefore a good screening test in individuals with an increased risk to develop cancer.

INDICATIONS : Circulating tumor DNA (CT-DNA) analysis is indicated :

A. In patients with cancer :

1. To identify the mutation that causes the cancer, thereby allowing to select a patient-specific treatment with a designer molecule (personalized treatment)
2. As follow up of oncogenic gene variants during cancer treatment
3. To detect resistance to therapy due to new oncogenic gene variants
4. To detect metastases

B. In patients with a high risk to develop cancer, such as carriers of germline gene variants (in BRCA, HNPCC, etc) in order to detect cancer in an early stage.

SAMPLES : At least 20 ml blood in specific blood tubes provided by GENDIA is required. The sample has to be sent to GENDIA in Antwerp, Belgium, and arrive there within 2 days of withdrawal.

TURNAROUND TIME : The CT-DNA test takes approximately 1 month from arrival of the sample at GENDIA.

METHODS : CT-DNA from blood is analyzed for +/- 2800 common gene variants in 50 oncogenes that cause many tumors (see Table 1).

The 50 cancer genes analysed in this test are (in alphabetical order) :

ABL1, AKT1, ALK, APC, ATM, **BRAF**, CDH1, CDKN2A, CSF1R, **CTNNB1**, **EGFR**, ERBB2, ERBB4, EZH2, FBXW7, FGFR1, FGFR2, FGFR3, FLT3, GNA11, GNAQ, **GNAS**, HNF1A, HRAS, IDH1, IDH2, JAK2, JAK3, KDR, KIT, **KRAS**, MET, MLH1, MPL, NOTCH1, NPM1, **NRAS**, PDGFRA, **PIK3CA**, PTEN, PTPN11, RB1, RET, SMAD4, SMARCB1, SMO, SRC, STK11, **TP53**, VHL.

Table 1. Frequency of oncogenic gene variants in different types of cancer

GENE	Lung	Colon	Breast	Ovary	Melanoma	Prostate	Pancreas
EGFR	30	50				3	
TP53	34	45	23	46	12	14	36
KRAS	17	36		12		4	57
BRAF	1	11		7	45	1	2
PIK3CA	4	14	26	9		2	2
NRAS		4			18		
CTNNB1		48		6	2-3	3	7
GNAS		2					16

RESULTS: The results will be sent to you personally by email. If you want to have third parties to receive a copy, you can indicate this on the submission form below. Genetic counseling with explanation of the test results and recommended follow-up steps, if necessary, can be provided by genetic counselors from GENDIA.

There are 2 possible test results of a CT-DNA test:

1. A gene variant is found in your blood: this means that one or more of the gene variants being tested with this CT-DNA test was found in your blood. This means you have an increased risk of cancer being present in the body. This does not mean that you have cancer, or that you will definitely develop cancer in the future. But in this case is important to discuss these results with the GENDIA doctor and your own doctor in order to make a personalized cancer screening program to determine whether there is cancer in the body present.

2. No gene variant is found in your blood: this means that none of the gene variants that is tested with the CT-DNA test was found in your blood. However, this does not mean that there exists cancer at the moment of the test, or afterwards, for several reasons: i) cancer which is not associated with the gene variants analyzed with this test is not detected, ii) cancer associated with one of the gene variants being tested with the CT-DNA test, may be missed at an early stage of cancer development.

LIMITATIONS: The CT-DNA test is designed to detect +/- 2800 gene variants in 50 cancer genes. As with all medical tests, there is a chance of a false-positive or false-negative results. A false-positive result means that the CT-DNA test detects a gene variant that, in fact, is not present, or is present without any cancer in the body being present. It is important to understand that the CT-DNA test does not diagnoses no cancer, but gives an indication that there could be cancer cells present in the body.

A false-negative result means that the CT DNA test will not detect a gene variant that is present. Cancer that is not associated with any of the gene variants is not detected by this test. Also, cancers with one of the gene variants being tested with the CT-DNA test, may be missing in an early stage of their development. Other sources of error include steel mistaken identity, poor quality of steel or contamination, specific DNA sequence characteristics and technical errors in the lab. The test lab is not liable in these cases.

PRIVACY and CONFIDENTIALITY: Your sample and the DNA extracted from it will only be used for the CT-DNA test and as set forth herein. Your DNA will be stored at the performing test laboratory, unless you ask GENDIA to destroy it. The results from the CT-DNA test will be stored at GENDIA and the performing test laboratory, GENDIA will comply with the laws and regulations of Belgium and the EU regarding data privacy and the collection, use, processing and storage of patient information.

Your sample and related genetic information will be anonymized, stored and used by the performing laboratory for internal quality control, validation studies, and research and development with other third parties. At any time prior to such use, you have the option of asking GENDIA to have your anonymized sample and related genetic information destroyed. The results of the CT-DNA test will only be reported to you personally, and never to third parties, including family members, insurance companies and physicians, unless required by law or regulation, or if you ask GENDIA to do so.

GENETIC COUNSELING: A consultation with genetic counseling and discussion of the CT-DNA test results and the follow up steps is indicated certainly when a pathogenic gene variant is identified that is associated with an increased cancer risk. Such consultation is available at GENDIA. You can make an appointment by emailing at info@gendia.net

PRICE: 690 Euro.

PAYMENT: Payment is due one month after the issue date of the invoice.

Page 5 - 8 : Please complete p5-8 and put the submission form in the blood kit

Page 1 - 4 : You can keep page 1 -4 for your personal information

INFORMED CONSENT

1. I confirm that I have read all of the information in this authorization and informed consent document, and I understand what it says and agree to it.
2. I confirm that I have filled out the patient submission form below to the best of my knowledge.
3. I agree to the Terms of Service and privacy policy of GENDIA.

Signature: ...

Date: ...

ADMINISTRATIVE DATA

Patiënt Information (<i>Please complete in capitals</i>)	
* In order to guarantee maximal patient privacy GENDIA only works with patient codes and not with patient names. Please use a CODE (with at least 6 numbers and/or letters) instead of your NAME and keep this code in a safe place, as GENDIA will only use this code in all documents.	
Patient Code*	...
Date of Birth	...
Sex	<input type="checkbox"/> Male <input type="checkbox"/> Female
Address	...
Phone Number	...
Email	...

Referring Physician	
Last Name + First Name	...
Address	...
Phone Number	...
Email	...

PERSONAL HEALTH HISTORY**1. Did you ever have cancer ?**

- No
- Yes, please provide more info :
 - Which cancer did you have ?
 - When did you develop cancer ?
 - Which therapy did you get ?
 - Was genetic testing on the cancer tissue performed ?

2. Do you have an increased risk to develop cancer ?

- No
- Yes, please provide more info

3. Did you ever have a CT-DNA test (liquid biopsy) ?

- No
- Yes, a CT-DNA test was performed by
 - GENDIA: ...
 - Other lab; please specify: ...

Could you attach the result of that test ?

PERSONAL HEALTH HISTORY**4. Did you ever have a genetic test performed on blood?**

- No
- Yes, a DNA test was performed by the following lab; please specify: ...

Could you attach the result of that test ?

5. Did you ever have a genetic test performed on cancer tissue?

- No
- Yes, a DNA test was performed on the following cancer tissue, please specify:
- Yes, a DNA test was performed by the following lab; please specify: ...

Could you attach the result of that test ?