Test results and actions

- Test results are available **7 to 10 calendar days** counting from reception of the blood sample in our laboratory.
- **Normal:**
  - ✓ No indication of fetal trisomy 21, 18 or 13
  - ✓ Standard pregnancy follow-up
- **Abnormal:**
  - ✓ Strong indication of fetal trisomy 21, 18 or 13
  - ✓ Confirmation by amniocentesis
- **Inconclusive result for chromosome 21, 18 or 13:**
  - ✓ Trisomy 21, 18 or 13 cannot be confirmed nor excluded
  - ✓ Repeat NIPT on new blood sample (no extra cost) OR ultrasound follow-up + amniocentesis
- **Non interpretable test:**
  - ✓ No reliable analysis possible due to insufficient quality or low fetal fraction.
  - ✓ Repeat NIPT on new blood sample (no extra cost), preferably 14 days after the first blood sampling.

Quality control

We appreciate your feedback!
Please update us with the outcome
of the pregnancy after NIPT
via *cme.nipt@uzleuven.be*

- Ultrasound abnormalities
- Spontaneous miscarriages
- Discrepant results (false positives/negatives)
- Invasive testing:
  - ✓ Tissue type: CVS / amniotic fluid
  - ✓ Type of analysis: array / FISH / qPCR
  - ✓ Result (as compared to NIPT)

Selected scientific publications

(1) Bayindir, B. *et al.* Noninvasive prenatal testing using a novel analysis pipeline to screen for all autosomal fetal aneuploidies improves pregnancy management. Eur J Hum (2015)

(2) Brady, P. *et al.* Clinical implementation of NIPT – technical and biological challenges. Clin Genet (2016)

(3) Brison, N. *et al.* Accuracy and clinical value of maternal incidental findings during noninvasive prenatal testing for fetal aneuploidies. Genet Med (2017)

(4) Brison, N. *et al.* Predicting fetoplacental chromosomal mosaicism during non-invasive prenatal testing. Prenat (2018)

(5) Villela, D. *et al.* Fetal sex determination in twin pregnancies using non-invaisve prenatal testing. NPJ Genom Med (2019)

(6) Lenaerts, L. *et al.* Noninvasive Prenatal Testing and Detection of Occult Maternal Malignancies. Clinical Chemistry (2019)

(7) Van Den Bogaert, K. et al. Outcome of publicly funded nationwide first-tier noninvasive prenatal screening. Genet Med (2021)

(8) van Riel, M. et al. Performance and Diagnostic Value of Genome-Wide Noninvasive Prenatal Testing in Multiple Gestations. Obstet Gynecol (2021)

(9) Lannoo, L. et al. Rare autosomal trisomies detected by non-invasive prenatal testing: an overview of current knowledge. Eur J Hum Genet (2022)

Find more on PubMed

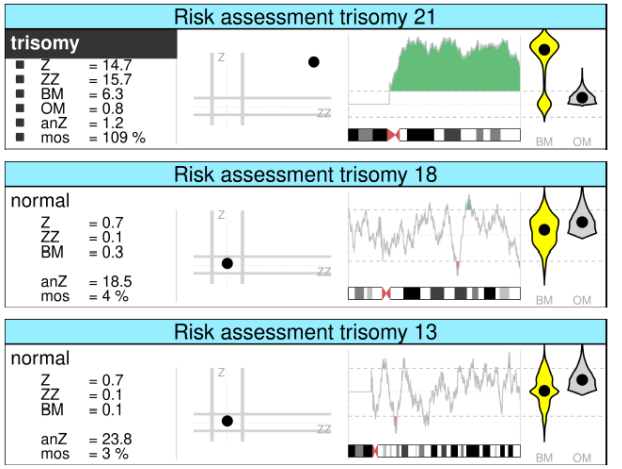
Disclaimer

NIPT is a non-invasive screening test for fetal trisomy 21, 18 and 13 from 12 weeks of gestation onwards. NIPT also determines the sex of the fetus. In rare cases, NIPT may also detect other chromosome abnormalities, including some specific microdeletion syndromes (22q11 deletion syndrome, Prader-Willi/Angelman syndrome, Smith Magenis syndrome, 8p23.1 deletion syndrome), other fetal autosomal aneuploidies or a relevant maternal chromosome abnormality. However, NIPT is not suitable for detecting all cases of these rare chromosome abnormalities. NIPT is also not able to detect sex chromosome abnormalities, mosaicism, monogenic disorders, microduplications and microdeletions other than those mentioned above. NIPT is not recommended when the mother has had stem cell therapy or an organ/tissue transplant. When ultrasound abnormalities are present in the fetus, an invasive test is indicated.
A genome-wide analysis is always performed. Only in case clinically relevant findings are detected in addition to the standard risk assessment for fetal trisomy 13, 18 and 21, will this be stated in the report. An abnormal test result should always be confirmed with an invasive test (preferably an amniocentesis).
NIPT is performed on a maternal blood sample using NIPT-PLUZ, a genome-wide analysis method developed in-house by UZ Leuven (based on Illumina HiSeq4000 or Novaseq shallow whole genome sequencing followed by custom bioinformatic data analysis, version GCAP_18 _12_cloud, and dynamic GIPSeq). An overview of the diagnostic experience and reliability (including sensitivity and specificity) of the NIPT-PLUZ is available at www.uzleuven.be/nipt.

UZ LEUVEN

NON-INVASIVE PRENATAL TESTING

NIPT



First center in Belgium and in Europe to perform NIPT

In-house developed and optimized genome-wide analysis

Validated and accredited for the detection of trisomy 21, 18 and 13 as well as fetal sex

Document version CC-MT061-AN01-M09

Diagnostic Experience at UZ Leuven
July 1, 2017 – January 1, 2022

~100.000 samples have been analyzed

>98% of cases received a result after first sampling
>99,7% of cases received a result after second sampling

Test Performance

Unprecedented sensitivity for
detection of fetal trisomy 21, 18 and 13

Singleton pregnancies	Observed sensitivity	Observed specificity	PPV	NPV
Trisomy 21	99,47%	99,99%	93,97%	100%
Trisomy 18	91,89%	99,99%	73,91%	100%
Trisomy 13	100%	99,98%	55,56%	100%

Inconclusive results

	1st sample inconclusive	**2nd sample** normal	trisomy	inconclusive
Chr 21	0,43%	98,41%	0,45%	1,13%
Chr 18	0,87%	93,13%	0,33%	6,54%
Chr 13	0,17%	91,67%	0,56%	7,78%

Incidental Findings

Genome-wide analysis allows
detection of other clinically relevant
maternal / fetal chromosomal abnormalities

❖ Other fetal autosomal aneuploidy	1/500
❖ Fetal segmental imbalance	1/1.250
❖ Maternal copy number variant	1/370
❖ Maternal presymptomatic cancer	1/5.000

Regulations and accreditation

The NIPT performed within the Center of Human Genetics in Leuven is an in-house optimized and validated test and has been published in various scientific journals. The NIPT is accredited according to the ISO 15189 quality standard via BELAC (215-MED).

BeSHG

CME-UZ Leuven is part of the national consortium for prenatal testing. The consortium is comprised of 8 genetic centers, all of which are nationally accredited by the Ministry of Health. NIPT at CME-UZ Leuven is offered in full compliance with the national guidelines for NIPT testing and management of incidental findings of the Belgian Society of Human Genetics (approved by the College of Genetics) and the Belgian Advisory Committee on Bioethics (Opinion no. 66). As a genetic center, we provide multidisciplinary expertise that guarantees the correct interpretation and follow-up of the NIPT.

Contact us:
cme.nipt@uzleuven.be
+32 (0)16 34 59 03

More information:
www.uzleuven.be/nipt

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FAQs

When? ≥ 12 weeks of gestation

Blood collection tubes?

- ❖ cfDNA tubes [Roche] (white cap)
- ❖ Cell3 Preserver tubes [Nonacus] (purple/dark blue)
- ❖ Paxgene blood ccfDNA tubes [BD Biosciences] (transparent)
- ❖ S-Monovette DNA exact [Sarstedt] (pink)
- ❖ Cell-free DNA BCT tubes [Streck] (glass, camouflage pattern)

Contra-indications?

- ❖ Ultrasound abnormalities (incl. NT > 3,5mm)
- ❖ Mothers who had a stem cell transplant or an organ/tissue transplant

Please indicate the following information on the request form for correct interpretation of the NIPT results:

- ❖ Mono- or dizygotic twin pregnancy
- ❖ Vanishing twin pregnancy
- ❖ Mothers with high pre-pregnancy weight (> 100kg)
- ❖ Mothers on heparin therapy
- ❖ Mothers with lupus
- ❖ Mothers who have (had) cancer

Cost of laboratory test for the pregnant women?

- ❖ Pregnant women with a Belgian medical insurance: 8,68€
- ❖ Others: see our website for the current price: *www.uzleuven.be/nipt*

To change how to receive your patients NIPT results (by eHealth/KWS inbox/E-mail/fax/post):

Please send an E-mail to *aflevervoorkeur@uzleuven.be*