NICE® Test Report

Non Invasive Chromosome Examination

Sample Information
Sample Type: PLASMA
Client Sample ID:
Date of Draw:
Date Received:
Reporting Date:
Resample: No

Patient Information
Name:
Date of Birth:
Gest. Age at Draw:
Pregnancy type: Singleton
Indication: Advanced Maternal Age
Medical Record/Patient ID:

Provider Information
Hospital:
Physician:
Phone:
Fax:

Quality Test

Sample suitablilty	Pass	**NGS data quality**	Pass
DNA quality	Pass	**Reference material test**	Pass
Library quality	Pass	**Fetal fraction**	14.3%

Results

Ver.4.0

Chromosome	Result	Interpretation
Trisomy 21	Low Risk	Result consistent with two copies for Chromosomes 21,18,13,9,16,22 and Sex Chromosomes.
Trisomy 18	Low Risk	
Trisomy 13	Low Risk	
Trisomy 9	Low Risk	
Trisomy 16	Low Risk	
Trisomy 22	Low Risk	
XO	Low Risk	
XXX	Low Risk	
XXY	Low Risk	
XYY	Low Risk	

Fetal Sex	**male**

Limitations of Test

This test is designed to screen for fetal chromosome aneuploidies from cell-free DNA analysis, and is validated for detecting chromosome 21, 18, 13, 9, 16, 22, X and Y clinical sample testing. The test is validated for singleton pregnancies with gestational age of at least 10 weeks, as estimated by last menstrual period. These results do not eliminate the possibility that this pregnancy may be associated with other chromosomal or subchromosomal abnormalities, birth defects, and other conditions. This test is not intended to identify pregnancies at risk for open neural tube defects. A negative test result does not eliminate the possibility of chromosomal abnormalities such as trisomy 21, trisomy 18, trisomy 13, trisomy 9, trisomy 16, trisomy 22. There is a small possibility that the test results might not reflect the chromosomes of the fetus, but may reflect chromosomal changes of the placenta(confined placental mosaicism) or of the mother(chromosomal mosaicism). Potential sources of an inaccurate test result may include but are not limited to: maternal, fetal and/or placental mosaicism, low fetal fraction, blood transfusion, transplant surgery and stem cell therapy. Especially, fetal deduction including vanishing fetus, fetal demise can result in false negative result or false positive result. If definitive diagnosis is desired, chorionic villus sampling or amniocentesis would be necessary.

■ **Disclaimer :** The manner in which this information is used to guide patient care is the responsibility of the healthcare provider, including advising for the need for genetic counseling or diagnostic testing. Any test should be interpreted in the context of all available clinical findings. The result of this test are not interceded to be used as the sole means for management decisions.

Predictive Value based on Maternal age

(%)

Maternal age	T21		T18		T13		XO		XXX		XXY		XYY	
	PPV	NPV	PPV	NPV	PPV	NPV	PPV	NPV	PPV	NPV	PPV	NPV	PPV	NPV
34	96	>99	>99	>99	>99	>99	78	>99	>99	>99	>99	>99	>99	>99

* PPV : Positive Predictive Values, NPV : Negative Predictive Values
* All the probabilities and rates are calculated using below site based on the maternal age and NICE sensitivity/specifcity data. (https://www.perinatalquality.org/Vendors/NSGC/ NIPT/)
* Due to the liimited data of T9, T16 and T22, we precluded performance calculations.
* The predictive rates may vary depending on gestational age, ultrasound findings, and biochemical screening.

Performance Metrics

Trisomy	N	Sensitivity %	95% CI	Specificity %	95% CI	PPV %	95% CI	NPV %	95% CI
T21	6,238	100(54/54)	93.40-100	99.98(6,237/6,238)	99.91-100	98.18	88.38-99.74	100	99.92-100
T18	6,238	100(14/14)	76.84-100	100(6,238/6,238)	99.91-100	100	73.23-100	100	99.92-100
T13	6,238	100(2/2)	15.81-100	100(6,238/6,238)	99.91-100	100	19.78-100	100	99.92-100
XO	6,238	100(6/6)	54.07-100	99.94(6,234/6,238)	99.84-99.98	60	36.03-79.98	100	99.92-100
XXX	6,238	100(4/4)	39.76-100	100(6,238/6,238)	99.91-100	100	39.58-100	100	99.92-100
XXY	6,238	100(1/1)	2.5-100	100(6,238/6,238)	99.91-100	100	0.05-100	100	99.92-100
XYY	6,238	100(1/1)	2.5-100	100(6,238/6,238)	99.91-100	100	0.05-100	100	99.92-100

* Due to the limited data and rare abnormalities of other autosomal aneuploidies and microdeletion, we precluded performance calculations.

Method and Disclosure

■ Test Method : Cell-free DNA extraction, massively parallel sequencing, and analysis of sequencing results to determine fetal aneuploidy.
■ Disclosure : This test was developed and its performance characteristics determined by Eone-Diagnomics Genome Center, Co. Ltd. The EDGC laboratory is CAP-accredited and certified under Korean Institute of Genetic Testing Evaluation (KIGTE) as qualified to perform accurate genetic testing. This prenatal test has not been cleared or approved by the FDA. This test is a trademark of by Eone-Diagnomics Genome Center, Co. Ltd. All names. Logos and trademarks are the property of by Eone-Diagnomics Genome Center, Co. Ltd.

References

1. Anthony R et al., Noninvasive prenatal screening for fetal aneuploidy 2016 update: a position statement of the American College of Medical Genetics and Genomics. Genet Med 2016; 18:1056-65.
2. Bianchi DW et al., DNA sequencing versus standard prenatal aneuploidy screening. N Engl J Med. 2014; 370:799-808.
3. Kwon HJ et al., Multiple z-score based method for noninvasive prenatal test using cell-free DNA in maternal plasm. Open Journal of Genetics, 2017; 7:1-8.
4. Wong FC, Lo YM. Prenatal Diagnosis Innovation: Genome Sequencing of Maternal plasma. Annu Rev Med 2016; 67: 419-32.
5. Yun SY et al., Noninvasive prenatal testing for fetal chromosomal abnormalities using massively parallel sequencing: Clinical experience from 7,910 Korean pregnancies. Open Journal of Genetics, 2018; 3:42-53.

EDGC EONE-DIAGNOMICS Genome Center BRIA

CAP & KIGTE Laboratory Director : Jin-Sik Bae, Ph.D. CAP : 9515154 KIGTE : 259
291 Harmony-ro, Yeonsu-gu, Incheon 22014, South Korea / www.edgc.com

6 (Sonthiwattana3) Ladprao 110, Plubpla, Wangtonglang, Bangkok 10310, Thailand.
TEL +662 106 6999

NICE® Microdeletion Report

NICE® Non Invasive Chromosome Examination

Sample Information
Sample Type: PLASMA
Client Sample ID:
Date of Draw:
Date Received:
Reporting Date:
Resample: No

Patient Information
Name:
Date of Birth:
Gest. Age at Draw:
Pregnancy type: Singleton
Indication: Advanced Maternal Age
Medical Record/Patient ID:

Provider Information
Hospital:
Physician:
Phone:
Fax:

Quality Test

Sample suitablilty	Pass	**NGS data quality**	Pass
DNA quality	Pass	**Reference material test**	Pass
Library quality	Pass		

Results

Ver.4.0

Location	Disease	Result	Interpretation
1p36	1p36 deletion syndrome	Low Risk	Results consistent with Low Risk of microdeletions in the regions of interest.
2q33.1	2q33.1 deletion syndrome	Low Risk	
4p16.3	Wolf-Hirschhorn syndrome	Low Risk	
5p-	Cri Du Chat syndrome	Low Risk	
7q11.23	Williams-Beuren syndrome	Low Risk	
11q23	Jacobsen syndrome	Low Risk	
15q11.2-q13	Prader-willi / Angelman syndrome	Low Risk	
22q11.2	DiGeorge syndrome	Low Risk	

Comments

This is a screening test and this can result in false positives or false negatives. Therefore negative results do not eliminate the possibility of 1p36 deletion, 2q33.1 deletion, 4p16.3 deletion, 5p- deletion, 7q11.23 deletion, 11q23 deletion, 15q11.2-q13 deletion and 22q11.2 deletion. If definitive diagnosis is desired, chorionic villus sampling or amniocentesis would be necessary, with consideration of prenatal microarray or region specific DNA probes.

Limitations of Test

1. This test is designed to screen for subchromosomal deletions in chromosomal regions- 1p36, 2q33.1, 4p16.3, 5p-, 7q11.23, 11q23, 15q11.2-q13, 22q11.2 and is available for singleton pregnancies with gestational age of at least 10 weeks 0 days, as estimated by last menstrual period, crown rump length, or other appropriate method.
2. These results do not eliminate the possibility that this pregnancy may be associated with other chromosomal or subchromosomal abnormalities, birth defects, and other conditions. This test is not intended to identify pregnancies at risk for open neural tube
3. In addition, there is a small possibility that the test results might not reflect the chromosome status of the fetus, but may reflects subchromosomal changes of the placenta (confined placental mosaicism), or of the mother.

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CAP & KIGTE Laboratory Director : Jin-Sik Bae, Ph.D. CAP : 9515154 KIGTE : 259
291 Harmony-ro, Yeonsu-gu, Incheon 22014, South Korea / www.edgc.com
6 (Sonthiwattana3) Ladprao 110, Plubpla, Wangtonglang, Bangkok 10310, Thailand.
TEL +662 106 6999