PATIENT CONSENT FORM

Panorama™ Non-Invasive Prenatal Test (NIPT) Extended Panel with Microdeletions

SIGNED CONSENTS SHOULD BE KEPT IN THE PATIENT MEDICAL RECORD (do not return with the blood kit)

Purpose of the test: The purpose of the Panorama™ Non-Invasive Prenatal Test (NIPT) Extended Panel with Microdeletions is to screen the fetus for the chromosome abnormalities, including the specific whole extra or missing chromosomes and microdeletions (small missing sections of specified chromosomes), listed in the table below. You have the option of requesting a screen and reporting of the fetal sex as well. Panorama is performed on a maternal blood sample which contains DNA (genetic material) from both the mother and fetus. The fetal DNA tested comes from the placenta; this DNA is identical to the DNA found in the actual cells of the fetus in about 98% of all pregnancies. Panorama is available for women who are at least 9 weeks pregnant. Your health care provider can provide you with more details about the chromosome abnormalities screened with this test.

Whole chromosome abnormalities and microdeletions evaluated with Panorama:

Trisomy 21	This is caused by an extra copy of chromosome 21 and is also called Down syndrome. This is the most common genetic cause of intellectual disability and occurs in about 1 in every 830 liveborn babies.[1] Individuals with Down syndrome have an average IQ of 50 and all have some degree of intellectual disability. Some children with Down syndrome have defects of the heart or other organs that may require surgery or medical treatment. Some have other medical conditions including hearing or vision loss.
Trisomy 18	This is caused by an extra copy of chromosome 18; it is also called Edwards syndrome. Trisomy 18 occurs in about 1 in every 7500 liveborn babies and causes severe intellectual disability[1]. Most babies have multiple severe birth defects of the brain, heart and other organs. Poor growth during pregnancy is common and many babies are miscarried or stillborn. Of those babies born alive, most die before one year of age. Babies who survive have profound intellectual disabilities and growth and development problems.
Trisomy 13	This is caused by an extra copy of chromosome 13 and is also called Patau syndrome. Trisomy 13 occurs in about 1 in every 22,700 liveborn babies and causes severe intellectual disability[1]. Most babies with trisomy 13 have multiple severe birth defects of the brain and other organs. Many babies are miscarried or stillborn. Of those babies born alive, most die before one year of age.
Monosomy X	This is caused by a missing copy of the X chromosome and is also called Turner syndrome. This only affects girls and is found in about 1 in every 1 in 5000 liveborn babies[1,2]. Girls with Monosomy X are shorter than average. Some girls have heart or kidney defects, hearing problems, and some have minor learning disabilities. Girls with Monosomy X may need growth hormone treatments in early childhood and usually need sex hormone treatments at the time of puberty. As adults, they often have infertility.
Triploidy	This is caused by an extra copy of all chromosomes. Abnormalities are often present in both the placenta and the fetus. It is found in about 1 in 1000 first trimester pregnancies[1]; most babies with triploidy are miscarried or stillborn. Of those rare babies born alive, most die before one year of age. Mothers carrying a fetus with triploidy can also experience various pregnancy complications such as pre-eclampsia, severe nausea, excessive bleeding, and placental disease.
22q11.2 deletion syndrome	22q11.2 deletion syndrome is caused by a small missing piece of chromosome 22. It is found in about 1 in 2000 liveborn babies[1]. Most children with 22q11.2 deletion syndrome have mild-to-moderate intellectual disability and delayed speech and language. Many have heart defects, immune system problems, and other health problems. Some people with 22q11.2 deletion syndrome have autism spectrum disorder and some develop psychiatric illnesses such as schizophrenia.
1p36 deletion syndrome	This syndrome is caused by a small missing piece of chromosome 1 and is also called Monosomy 1p36. About 1 in every 5000 liveborn babies has this condition[3]. Children with Monosomy 1p36 have moderate-to-severe intellectual disability. Most children have heart defects that may require surgery or medical treatment. Some children may need special physical and occupational therapies to help with weak muscle tone. About half of children with Monosomy 1p36 have seizures and/or behavioral problems; some have hearing and/or vision loss.
Cri du chat syndrome (5p-)	This is caused by a small missing piece of chromosome number 5 and is also called 5p minus (5p-) syndrome. About 1 in 20,000 liveborn babies has this condition[4]. Babies are usually small at birth with a small brain and head size. They often have breathing and feeding problems and need extra medical care. Children with cri du chat have severe intellectual disability.
Angelman syndrome (15q11.2 deletion maternal)	Angelman syndrome (AS) is caused either by a small missing piece of chromosome number 15 or from inheriting two copies of chromosome 15 from one parent and none from the other; there are other rare causes as well. About 1 in 12,000 liveborn babies has this condition[3]. Babies often have feeding difficulties and weak muscle tone. Children have severe intellectual disability and motor problems; most have a small brain and head size and some have seizures. Most children do not develop speech.
Prader-Willi syndrome (15q11.2 deletion paternal)	Prader-Willi syndrome (PWS) is caused either by a small missing piece of chromosome number 15 or from inheriting two copies of chromosome 15 from one parent and none from the other; there are other rare causes as well. About 1 in 10,000 liveborn babies has this condition[3]. Babies have weak muscle tone and feeding problems. Children with PWS typically have intellectual disability, behavior problems, and delayed motor and language development. They also have excessive appetites and may become obese and may develop diabetes.

([1] Nussbaum et al 2007 Thompson and Thompson Genetics in Medicine (7th Ed) Oxford Saunders, Phila, PA; [2]Arthur Robinson & Mary G Linden, 1993, Clinical Genetics Handbook, (2nd Ed). Cambridge, Mass, Blackwell Scientific Publications); [3]GeneReviews: http://genereviews.org/ ; [4]Genetics Home Reference: http://ghr.nlm.nih.gov

Methods: Two tubes of blood are required from the mother. If available, a cheek swab from the father of the pregnancy is also requested. Submitting the father's sample may help reduce the need for a repeat test on the mother or clarify rare results that fall in a borderline risk category. If the father's DNA sample is submitted and does not match the fetus, this information will not be revealed to you, your partner, or your doctor. The samples are screened for only those chromosome abnormalities listed above.

Test Results Follow-up: Your test results will be sent to the health care provider who ordered the test.

- A 'low risk' result indicates a reduced chance that your fetus has the listed chromosome abnormalities but it cannot guarantee normal chromosomes or a healthy baby.
- A 'high risk' result indicates that there is an increased likelihood your fetus has one of the chromosome abnormalities tested but does not confirm that the fetus has that abnormality. The recommended follow-up is a prenatal diagnostic test such as chorionic villus sampling (CVS) or amniocentesis. Your health care provider will explain the test results and recommended follow-up steps to you, which may include a referral to a genetic counselor in addition to the prenatal diagnostic testing.
- The Panorama screen is not a diagnostic test – it will not confirm any of these chromosome abnormalities. It will only provide the risk for each of these in your current pregnancy. Therefore, **DECISIONS ABOUT YOUR PREGNANCY SHOULD NEVER BE MADE BASED ON THESE SCREENING RESULTS ALONE AS THEY NEITHER CONFIRM NOR RULE OUT THE PRESENCE OF A CHROMOSOME ABNORMALITY IN THE FETUS**. Follow-up diagnostic testing should always be performed during pregnancy or at birth to confirm or rule out a chromosome abnormality or microdeletion.

There is a chance that the sample(s) submitted will not return results; in this case, a second sample from the mother may be requested to repeat the test at no charge. In rare cases, Natera may not be able to return results on a subsequent sample.

Test limitations and risks: **Although this screening test will detect the majority of pregnancies in which the fetus has one of the above listed chromosome abnormalities, it cannot detect 100% of pregnancies with these conditions.** The results of this test do not eliminate the possibility of other abnormalities of the tested chromosomes, and it does not detect abnormalities of untested chromosomes, other microdeletions, genetic disorders, birth defects, or other complications in your fetus. The Panorama prenatal test was developed by Natera, Inc., a laboratory certified under the Clinical Laboratory Improvement Amendments (CLIA). This test has not been cleared or approved by the U.S. Food and Drug Administration (FDA).

Inaccurate test results or a failure to obtain test results may occur due to one or more of the following rare occurrences: courier/shipping delay; sample mix-up; laboratory failure or error; biological factors such as but not limited to: sample contamination or degradation, too little DNA from the fetus in the maternal blood sample, mosaicism (a mixture of cells with normal and abnormal chromosomes) in the fetus, placenta or mother, other genetic variants in the mother or fetus, or an unrecognized twin pregnancy; other circumstances beyond our control; or unforeseen problems that may arise. About 1 to 2% of all pregnancies have confined placental mosaicism, a situation in which the placenta has cells with a chromosome abnormality while the fetus has normal chromosomes or vice versa. This means that there is a chance that the chromosomes in the fetus may not match the chromosomes in the DNA screened.

This test cannot be performed on patients who are carrying multiple babies (twins, triplets, etc.), on pregnancies that used a donor egg or surrogate, or on pregnancies in which the mother has had a prior bone marrow transplant.

If you and your partner are related by blood (e.g. cousins), or if the mother of the pregnancy has parents who are related to each other by blood (e.g., first cousins), Natera technology may not be able to return results on your pregnancy. Other testing methods may be a better option for couples with close blood relationships.

If you, the mother of the pregnancy, are found to be a carrier of one of the microdeletions on this panel, this screen will not be able to return results on the fetus. Finding out you carry a microdeletion may cause feelings of anxiety or concern about your own health and well-being as well as concerns about your pregnancy. If you know you carry one of the microdeletions on this screen, it is recommended that you use another form of testing to detect the presence or absence of that microdeletion in your fetus and not Panorama.

Alternatives: There are multiple other screening options available during pregnancy which can be discussed with your health care provider. You also have the option to decline all chromosome screening tests during your pregnancy. If you want or need conclusive information about the fetal chromosomes, invasive diagnostic tests such as CVS or amniocentesis are available.

Confidential Reporting Practices: Natera complies with HIPAA confidentiality laws. Test results will be reported only to the ordering health care providers(s) or genetic counselor (where allowed). You must contact your provider to obtain the results of the test. Additionally, the test results could be released to those who, by law, may have access to such data.

Financial Responsibility: You are responsible for fees incurred with Natera for services performed. Natera will submit claims to your medical insurance upon request. You are responsible to pay Natera, Inc. any fees reimbursed directly to you or not paid by your insurance provider.

Genetic Counseling: If you have remaining questions about non-invasive prenatal testing after talking with your health care provider you have the option to see a genetic counselor who can give you more information about your testing options. You can find a genetic counselor in your area through the National Society of Genetic Counselors website www.nsgc.org.

Disposition or Retention of samples:

Natera may also keep your leftover de-identified samples for ongoing research and development. You and your heirs will not receive any payments, benefits, or rights to any resulting products or discoveries. If you do not want your de-identified sample used, you may send a request in writing to Natera at Attn: Sample Retention, 201 Industrial Rd, Ste. 410, San Carlos, CA 94070 within 60 days after test results have been issued and your sample will be destroyed.

PATIENT CONSENT STATEMENT:

I have read or have had read to me the above informed consent information about the Panorama Non-Invasive Prenatal Test (NIPT). I have had the opportunity to ask questions of my health care provider regarding this test, including the reliability of test results, the risks, and the alternatives prior to my informed consent. I request and authorize Natera to test my sample(s) for the chromosome abnormalities listed above. I acknowledge that I must sign the consent statement located on the test requisition form that will be sent with my sample(s) to Natera. I understand that I must also sign this consent form which will remain in my clinic chart.

_____	_____	_____	_____
Signature of Patient	Date	Signature of Father of pregnancy *(only necessary if he submits sample)*	Date
_____		_____	
Printed Name		Printed Name	
_____	_____		
Witness	Date		