Your healthcare provider can refer you to a genetics professional in your area. A genetics professional – either a genetic counsellor or a medical geneticist - can discuss genetic conditions in more detail, tell you about follow-up testing to confirm or rule out this condition in your baby, and answer any questions you may have about your results.

Additional information can be found online:
- Canadian Organization for Rare Disorders (CORD) http://www.raredisorders.ca/
- Orphanet Canada http://www.orpha.net/national/CA-EN/index/homepage/
- Canadian Down Syndrome Society http://www.cdss.ca/
- Chromosome 22 central http://www.c22c.org/

This test was developed by Natera, Inc., a laboratory certified under the Clinical Laboratory Improvement Amendments (CLIA).

WHEN WILL I GET MY PANORAMA RESULTS?
Your healthcare provider will usually get your results back in 7-10 calendar days.

WHAT OTHER PRENATAL TESTS ARE AVAILABLE?
There are various other tests available from other suppliers. Traditional serum screening tests are not as accurate as Panorama and are designed to screen for fewer conditions. Diagnostic tests such as amnio or CVS can provide a definitive diagnosis and can test for more conditions, but have a slight risk of pregnancy complications including miscarriage.

WHAT DOES PANORAMA SCREEN FOR?
Panorama screens for common genetic conditions that are caused by extra or missing chromosomes in the baby’s DNA:
- Down syndrome (Trisomy 21)
- Edwards syndrome (Trisomy 18)
- Patau syndrome (Trisomy 13)
- Certain sex chromosome abnormalities:
  - Turner syndrome (monosomy X)
  - Klinefelter syndrome (XXY)
  - Jacobs syndrome (XYY)
  - Triple X syndrome (XXX)
- Triploidy

In addition to these chromosomal abnormalities, you can optionally screen for five microdeletion syndromes. Panorama can also tell you the baby’s gender, if you so choose.

WHAT ARE MICRODELETIONS?
A small, missing piece of a chromosome is called a microdeletion. Unlike Down syndrome, which occurs more frequently in mothers who are 35 and older, microdeletions occur in pregnancies at the same rate for mothers of any age. While many microdeletions have little impact on a child’s health or life, there are some that can cause intellectual disabilities and birth defects. Panorama screens for five microdeletion syndromes associated with serious health problems:
- 22q11.2 deletion (DiGeorge) syndrome
- 1p36 deletion syndrome
- Angelman syndrome
- Prader-Willi syndrome
- Cri-du-chat syndrome

Panorama gives you a personalized risk score and tells you if the baby is at high risk or low risk for the conditions it screens for. Like other screening tests, Panorama does not provide a definitive diagnosis of the condition.

WHAT RESULTS MIGHT I GET WITH PANORAMA?
Low Risk Result: A Low Risk result indicates that it is unlikely that your baby is affected by one of the conditions on the Panorama panel. Note, however, that a low risk result does not guarantee a healthy pregnancy as Panorama is not a diagnostic test and only screens for certain conditions.

High Risk Result: A High Risk result means that there is an increased risk that your baby has the condition, but it is not certain. Invasive testing during the pregnancy, such as amniocentesis (amnio) or chorionic villus sampling (CVS), or testing after the baby is born, can tell you for certain if the baby has the condition. Speak with your healthcare provider about your follow-up options.

No Result: In a small percentage of cases, Panorama may not be able to obtain sufficient information from your blood sample to determine an accurate result. If this occurs, a second blood sample may be requested.

WHEN CAN I GET PANORAMA?
You can have this test as early as 9 weeks gestation.

Other NIPTs cannot tell the difference between mom’s and baby’s DNA.

PANORAMA IS A NON-INVASIVE PRENATAL SCREENING TEST (NIPT) performed through a simple blood draw from your arm. During pregnancy, some of the DNA from the baby crosses into the mother’s bloodstream. Panorama looks at this DNA to see if there is evidence of certain genetic conditions that could affect the baby’s health.

PANORAMA CAN. Because of its unique technology, Panorama is the only NIPT that can distinguish between the mom’s DNA and the baby’s DNA from the placenta. This enables Panorama to be a highly accurate screen.

WHY IS THIS IMPORTANT?
Fewer False Positives: Because Panorama analyzes the baby’s DNA separately, it has a lower false positive rate than other NIPTs.

Highest gender accuracy: Panorama has the highest reported accuracy in determining the baby’s gender. Gender reporting is optional.

Triploidy: Panorama is the only NIPT that can detect triploidy, a severe chromosomal abnormality that can result in serious pregnancy complications if unmonitored.

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High Risk Result: A High Risk result means that there is an increased risk that your baby has the condition, but it is not certain. Invasive testing during the pregnancy, such as amniocentesis (amnio) or chorionic villus sampling (CVS), or testing after the baby is born, can tell you for certain if the baby has the condition. Speak with your healthcare provider about your follow-up options.

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**LIFELABS/BCBio STAFF: PHOTOCOPY REQUISITION, INCLUDE 1 COPY WITH SAMPLES**

Panorama Prenatal Test performed by LifeLabs Genetics (175 Galaxy Blvd., Suite 105, Toronto ON, M9W 0C9, Canada)

**PATIENT CONSENT - MANDATORY:**

I have read and signed the Patient Consent Form, which remains with the ordering physician. I understand that 2 blood samples will be taken by LifeLabs staff. I acknowledge that my sample(s) and personal health information will be sent to LifeLabs and/or Natera for the purpose of non-invasive prenatal testing at LifeLabs Genetics. I also understand that LifeLabs will contact me for a new blood sample if a test result cannot be provided from the original blood samples. I acknowledge that LifeLabs will send the results to my ordering physician and, if testing is performed at Natera, LifeLabs will receive results from Natera and send the results to my ordering physician. Should we be asked to disclose information about you for another reason, other than as required or permitted by law, we will contact you to obtain your consent. In the event of a high risk or no result, I acknowledge that LifeLabs may contact my healthcare provider to obtain follow-up diagnostic information to ensure quality and accuracy in reporting.

Patient Sign Here: __________________________ Date: ________/______/______
Whole Chromosome Abnormalities and Microdeletions Evaluated With the Panorama™ Test Options

| 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 approximately 1 in every 830 live births. 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 and is also called Edwards syndrome. Trisomy 18 occurs in about 1 in every 7500 live births and causes severe intellectual disability. Most babies with trisomy 18 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 live births and causes severe intellectual disability. 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 5000 live births. 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 | Triploidy is a condition in which the fetus has 3 copies of each chromosome instead of two. It is found in about 1 in 1000 first trimester pregnancies. Features include brain and craniofacial abnormalities, neural tube defects, heart defects, as well as genitourinary and gastrointestinal abnormalities. Most pregnancies with triploidy will miscarry in the early part of the first trimester, although later miscarriage or stillbirth can occur. The majority of those that survive die shortly after birth. Triploidy may also put the mother’s health at risk from pregnancy complications like pre-eclampsia, postpartum hemorrhage and molar pregnancy with the potential for malignancy. |
| 22q11.2 Deletion Syndrome | This syndrome is caused by a small missing piece of chromosome 22. It is found in about 1 in 1000 live born babies. 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 live born babies has this condition. 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 5 and is also called 5p minus (5p-) syndrome. About 1 in 20,000 live born babies has this condition. 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 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 live born babies has this condition. They 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 15 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 live born babies has this condition. 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. |

Methods & Test Results

The Panorama Prenatal Test (testing of chromosomes 13, 18, 21, X, Y, triploidy, 22q deletion syndrome, Cri-du-chat syndrome, 1p36 deletion syndrome, Angelman syndrome, and Prader-Willi syndrome) is performed by LifeLabs Genetics (LifeLabs) in Toronto, ON. Panorama was developed by Natera Inc., a laboratory certified under the Clinical Laboratory Improvement Act (CLIA). All testing is performed under prevailing regulations in accredited facilities. Two tubes of blood are required from the mother. The samples are only screened for those chromosome abnormalities listed above. Sex chromosome trisomies (XXX, XXX, and XY) will also be reported if identified. Incidental findings will not be reported.

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 baby has the listed chromosome abnormalities but cannot guarantee normal chromosomes or a healthy baby. ▪ A high risk result indicates that there is an increased chance your baby has one of the chromosome abnormalities listed 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. In the event of a high risk result, LifeLabs may contact your healthcare provider to obtain follow-up diagnostic information to ensure quality and accuracy in reporting.

Panorama™ is not a diagnostic test – 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, your health care provider will be informed by LifeLabs and you may be asked to provide a second blood sample to repeat the test. There is no charge for a repeat. In rare cases, a result cannot be provided on a subsequent sample. You will receive a full refund in this case.
Test Limitations
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 result of this test does 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 or pregnancy. The Panorama® prenatal test has not been cleared or approved by the U.S. Food and Drug Administration (FDA) or Health Canada.

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. Also, if you and your partner are related by blood, or if the mother of the pregnancy has parents who are related to each other by blood (e.g., first cousins), Panorama® 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 the microdeletion panel is selected and if the mother of the pregnancy is 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. It is possible that during analysis that you may be identified as a carrier of a 22q11.2 deletion. If this occurs, the Panorama report will state that there is a 1 in 2 or 50% chance to have an affected pregnancy (as fetal status cannot be determined in this case). Your provider may offer additional testing to confirm if you carry the 22q11.2 deletion. Finding out you carry a microdeletion may cause feelings of anxiety or concern about your own health 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. Women who do not wish to risk finding out whether they carry a microdeletion should consider opting out of the microdeletion component of the screening test (the percentage of fetal (placental) DNA in the sample is below 7%), screening for Angelman syndrome will not be performed and the results will be reported as “risk unchanged”. A redraw will not be recommended and if so chosen by the ordering healthcare provider, the cost will be borne by the patient.

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

Confidential Reporting Practices
Natera and LifeLabs comply with applicable American and Canadian privacy laws. Test results will be reported to the ordering health care provider(s) or genetic counsellor involved. You must contact your provider to obtain the results of the test. Additionally, your personal information could be released to others as permitted or required by law (e.g. – law enforcement).

Financial Responsibility
Some provincial health plans may cover the cost of Panorama® so speak with your health care provider. As well, some personal medical insurance plans may cover the cost of the test. Check with your carrier. Otherwise, you are responsible for the cost of the test and will provide payment to LifeLabs, who in turn will provide payment to Natera if applicable. Payment can be made by credit card or debit.

Genetic Counselling
If you have remaining questions about non-invasive prenatal testing after talking with your health care provider, we recommend that you speak with a genetic counsellor who can give you more information about your testing options. You can find a genetic counsellor in your area by going to the Canadian Association of Genetic Counsellors website at https://cagc-acg.ca/.

Cancellation, Disposition or Retention of Samples
If a test is cancelled prior to test set-up, LifeLabs will send a cancellation report free of charge. Once testing is initiated, the full price of the analysis will be charged. LifeLabs and/or 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 and/or data used for the purposes listed above, you may send a request in writing to LifeLabs at 175 Galaxy Boulevard, Toronto ON, M9W OC9 within 60 days after test results have been issued and your sample will be destroyed. You may also make this request by email to ask.genetics@lifelabs.com and indicate “Sample Retention” in the subject line. LifeLabs will forward your request to Natera if your sample has been tested at their laboratory.

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 giving my informed consent. I understand that my personal health information and my blood samples will be sent to LifeLabs Genetics in Toronto, ON, and/or to Natera’s testing facility in San Carlos, California, USA. I request and authorize LifeLabs to test my sample(s) for the chromosome conditions listed above. I acknowledge that LifeLabs will send the results to my ordering healthcare provider. In the event of a high risk or no result, I acknowledge that LifeLabs may contact my healthcare provider to obtain follow-up diagnostic information to ensure quality and accuracy in reporting. I acknowledge that I must sign the consent statement located on the test requisition form that will be sent with my sample(s) to LifeLabs. I understand that I must also sign this consent form which will remain in my clinic chart.

__________________________
Signature of Patient

__________________________
Date

__________________________
Printed Name