LifeLabs GENETICS™

Highly accurate, comprehensive **results you can trust**

Panorama™ Non-Invasive Prenatal Test Screens For:

TESTED IN CANADA

Whole Chromosome Conditions

- Trisomy 21, 18, 13
- Monosomy X
- Sex chromosome trisomies
- Triploidy
- Complete molar pregnancy

Optional

- 22q11.2 deletion syndrome
- Additional microdeletion syndromes
- Fetal sex

Available for singleton, twin, egg donor, and surrogate pregnancies

panorama™ NEXT GENERATION NIPT | natera™ Conceive. Deliver.

A superior first-line screening test for pregnancy

Panorama non-invasive prenatal testing (NIPT) screens for more chromosomal abnormalities, with greater accuracy

Compared to First Trimester Screening, Panorama has higher sensitivity and lower false positive rates for the conditions screened.

HIGHLY ACCURATE AND COMPREHENSIVE SCREENING

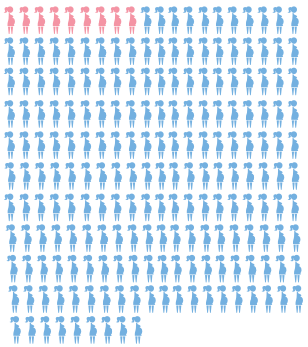
Condition	First Trim. Screen[1-6]	Panorama[9,10,27]
	Sensitivity False Positive Rate	**Sensitivity** False Positive Rate
Trisomy 21 *Down Syndrome*	**75%-90%*** (3-10%)	**>99%** (<0.1%)
Trisomy 18 *Edwards Syndrome*	**70-90%*** (1-3%)	**98.2%** (<0.1%)
Trisomy 13 *Patau Syndrome*	**50%-90%*** (0.3%)	**>99%** (<0.1%)
Monosomy X *Turner Syndrome*	*Does not screen*	**94.7%** (<0.1%)
Triploidy	*Does not screen*	**>99%**
Female	*Does not screen*	**>99.9%** (<0.1%)
Male	*Does not screen*	**>99.9%** (<0.1%)
Optional Microdeletion Syndromes		
22q11.2 deletion *DiGeorge syndrome*	*Does not screen*	**90%**
Additional microdeletions*	*Does not screen*	**93.8 - >99%**

*Multiple options for prenatal screening exist in Canada. The range reflects data from studies using enhanced First Trimester Screening, Integrated Prenatal Screening, Serum integrated Prenatal Screening and Maternal Serum Screening. Physicians should familiarize themselves with the specific offers in their area.

Higher positive predictive value (PPV) = Less anxiety for patients

TRADITIONAL SCREENING

PPV: 3-4%
Maternal serum screening would require **265** women to undergo invasive testing to discover **9** true positives.[1]



NON-INVASIVE PRENATAL TESTING (NIPT)

PPV: 91%*
With NIPT, **10** women will undergo invasive testing to discover **9** true positives.[7,8]

* Specific to Trisomy 21

Non-invasive method with more informative results

Discussing NIPT with your patients, per SOGC-CCMG guidelines

"Testing for chromosome abnormalities is optional."

*"If you would like to know the risk of your baby having a chromosome abnormality, **screening options** are available."*

*"If you want to know for sure about chromosome abnormalities, you can opt for **diagnostic testing.**"*

Least Information → **Most Information**

	No testing	Traditional Serum Screen	NIPT	CVS/AMNIO
BENEFITS	- Less anxiety for women who may worry about testing - No difficult decisions to make in case of abnormal results	- Non-invasive - If performed in 2nd trimester, screens for certain birth defects like spina bifida in some regions and patients	- Non-invasive - Screens for more conditions* - Higher sensitivity & positive predictive value* - Most women receive low risk results,[4] thereby reducing anxiety - Screen as early as 9 weeks	- Definitive results - More comprehensive than NIPT or serum screening - Ability to plan for baby's care in case of abnormal results
LIMITATIONS	- Inability to plan medically, financially & emotionally - Missed opportunity to engage with specialists & community support resources	- Not diagnostic - Limited to Trisomy 21, 18 and 13 - Lower sensitivity, higher false positive rate and lower positive predictive value than NIPT	- Not diagnostic; false positives and false negatives do occur - Does not screen for all chromosome abnormalities - May not be able to report results in a small number of patients	- Invasive; small risk of miscarriage - Amnio results not available until 2nd trimester - Possible results of uncertain significance

*Compared to serum screening

Extensive clinical experience around the world[29]

1 million+
Panorama cases have been reported.

80,000+
patients in peer reviewed articles.

70+
countries around the world have Panorama commercially available.

High accuracy through SNP-based NIPT methodology

Different Screening Test Options Based on Pregnancy Status

	Singleton	Monozygotic twins (identical)	Dizygotic twins (fraternal)	Egg Donor or Surrogate (singleton gestations only)
Trisomies 21, 18, and 13	✓	✓	✓	✓
Sex chromosome abnormalities (Monosomy X, XXX, XXY, XYY)	✓	✓	✗	✗
22q11.2 deletion syndrome	✓	✓	✗	✗
Additional microdeletions syndromes: Cri-du-chat, 1p36 deletion, Angelman, and Prader-Willi	✓	✗	✗	✗
Triploidy	✓	✗	✗	✗

NIPT is not recommended in cases of vanishing twin pregnancies, higher order multiples or twin pregnancies conceived by egg donor or surrogate.

Panorama is not suitable for bone marrow recipients.

Unique clinical benefits due to SNP-based methodology

REDUCES FALSE POSITIVES COMPARED TO OTHER NIPT METHODS

VANISHING TWIN

Only Panorama can identify a vanishing twin, which may contribute to >15% of false positive results with other NIPTs.[21,22]

>99.9% FETAL SEX ACCURACY[10, 11, 28]

No incorrect gender calls in validation studies. Less anxiety and unnecessary work-up for patients.

MATERNAL CHROMOSOME CONTRIBUTION

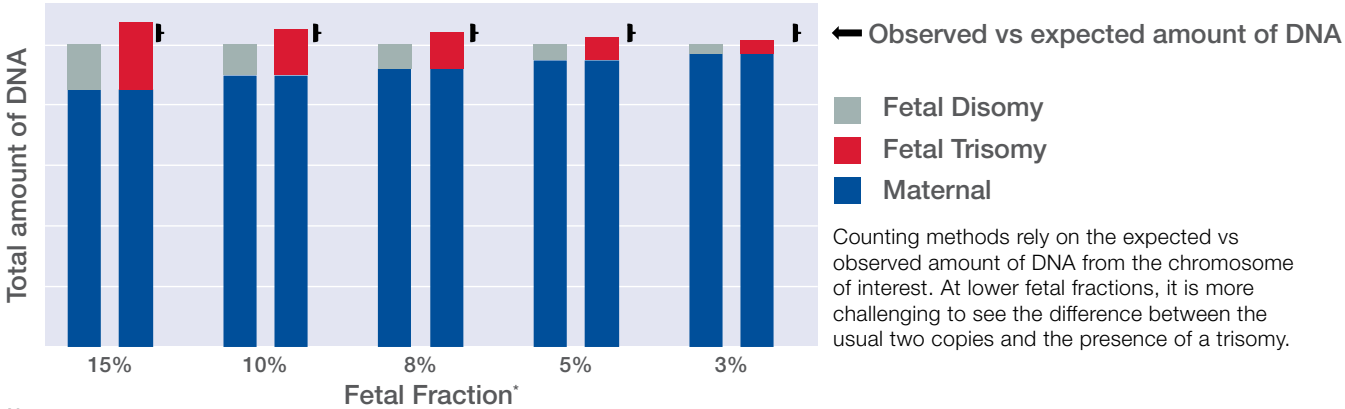
Only Panorama minimizes the chance that a maternal chromosome anomaly leads to a false positive result. This is a significant cause of false positives when using other NIPTs.[24]

EVALUATES CONDITIONS ASSOCIATED WITH COMPLICATIONS FOR MOM

TRIPLOIDY AND COMPLETE MOLAR PREGNANCY

Only Panorama identifies triploidy, which can be associated with miscarriage, stillbirth, preeclampsia, hemorrhage, and gestational trophoblastic neoplasia, and rarely, a form of cancer. It can also increase the chance for recurrence in future pregnancies and thus identify which patients should be carefully managed in the future.[21,23]

How Counting is Affected by Fetal Fraction



Counting methods rely on the expected vs observed amount of DNA from the chromosome of interest. At lower fetal fractions, it is more challenging to see the difference between the usual two copies and the presence of a trisomy.

Notes:

*Representative comparison between expected and observed for a single chromosome.

Fraction of cfDNA that is fetal is a key component, with trisomy becoming easier to detect at higher fetal fractions[7, 22]

Excess maternal DNA could lower the sensitivity of the test[22]

The next generation of non-invasive prenatal testing

Non-invasive prenatal testing (NIPT) analyzes cell-free DNA in a pregnant woman's blood to estimate the risk of fetal chromosomal abnormalities.

Panorama uniquely distinguishes between fetal (placental) and maternal cell-free DNA, leading to fewer false positives and a more comprehensive basic panel compared with other screening methods.

Panorama has validated performance in both high and average risk pregnancies

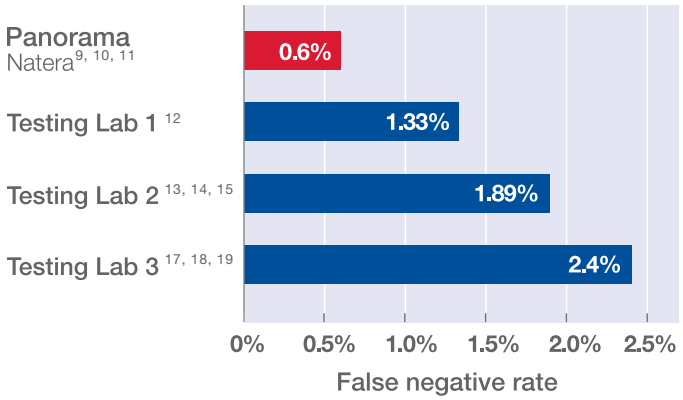
	Validation T21, T18, T13 and MX[10]		Clinical Outcomes T21, T18, T13 and MX[8]
	Sensitivity	Specificity	PPV*
High Risk**	98.0% (98/100)	99.5% (389/391)	82.9% (2.4%)
Average Risk**	>99% (5/5)	100% (469/469)	87.2% (1.0%)

* PPV = positive predictive value.

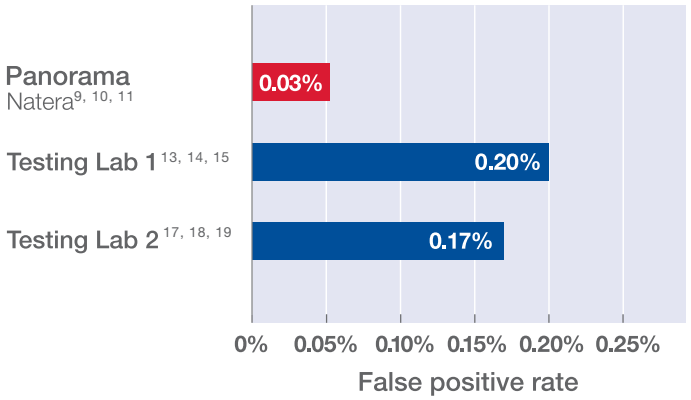
** For the purposes of calculating PPV, high risk was defined as women ≥35 years old at delivery, and average risk was defined as women <35 years old at delivery.

Compared to other NIPTs, Panorama reduces both false negative rates (FNR) and false positive rates (FPR).[20, 24]

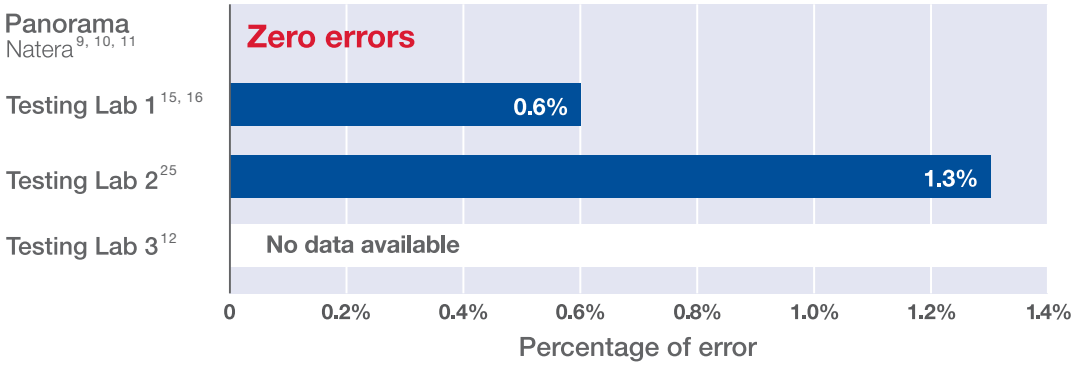
COMBINED FNR IN VALIDATION STUDIES (T21, T18, T13)



COMBINED FPR IN VALIDATION STUDIES (T21, T18, T13)



FETAL SEX ERROR RATES: SUMMARY OF VALIDATION STUDIES



Support every step of the way

1 SEAMLESS INTEGRATION into your workflow

- You can offer Panorama as early as 9 weeks gestation.
- Appropriate for singleton, twin, egg donor, and surrogate pregnancies.
- Customer support from Canadian genetic counsellors.

2 SAFE, EASY sample collection

- Patients can visit any LifeLabs location in Ontario and British Columbia.
- We support collections in all provinces and territories, as well as clinics who wish to draw in house. Please contact us for more details.

3 ADVANCED TECHNOLOGY for results you can trust

- Panorama utilizes SNP-based sequencing and Natera's proprietary algorithms to deliver highly accurate and comprehensive results.

4 FAST, CLEAR REPORTING with support from our team

- Results will be available within 7-10 calendar days and will be faxed to the requesting healthcare provider.
- Reports include risk score, PPV (if high risk) and fetal fraction to give you confidence in the results and the care plan for your patient.

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

Panorama's advantages, when compared to traditional maternal serum screening

Higher sensitivity
for the conditions screened

Fewer false positives
fewer unnecessary invasive procedures[5]

Comprehensive Screening
More conditions included with more informative results

Ordering Information

Please contact us for more information, including how to order the Panorama Prenatal Screen.
Ask.Genetics@LifeLabs.com | 1-84-GENEHELP (1-844-363-4357)
Turnaround time: 7-10 calendar days, once the sample has been received at the laboratory.
Additional information including forms and requisitions can be found on www.lifelabsgenetics.com

LifeLabs GENETICS™

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DETAIL AID

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