panorama®
NEXT GENERATION NIPT
POWERED BY NATERA®

Panorama: the next generation of NIPT

Screens for:

Singleton pregnancies

- Trisomies 21, 18, 13
- Monosomy X
- Triploidy
- Sex chromosome trisomies*
- 22q11.2 deletion syndrome (optional)
- Additional microdeletion syndromes (optional)
- Fetal sex (optional)

Twin pregnancies

- Zygosity
- Trisomies 21, 18, 13
- Fetal sex for each twin (optional)

If screening reveals monozygotic twins, Panorama can additionally screen for:

- Monosomy X
- Sex chromosome trisomies*
- 22q11.2 deletion syndrome (optional)

Egg donor or surrogate pregnancies
(Singleton pregnancies only)

- Trisomies 21, 18, 13
- Fetal sex (optional)

*Reported when suspected

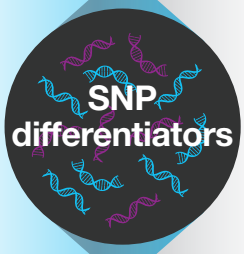
Non-invasive prenatal screen

natera®
Conceive. Deliver.

Panorama's unique SNP-based technology enables more comprehensive screening with greater accuracy in validation[1–16]

Singleton pregnancies

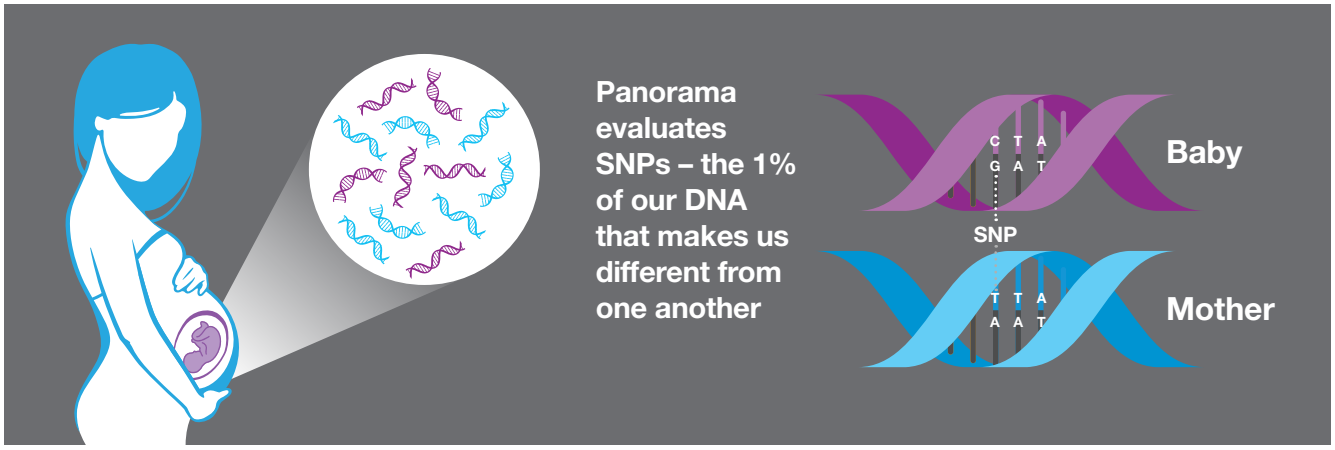
- Fewer false negatives and false positives[1–12]
- Fetal sex accuracy[1,2,3]
- Triploidy[13,14]
- Complete molar pregnancy[14]
- Vanishing twin[14]
- Maternal contribution[15]

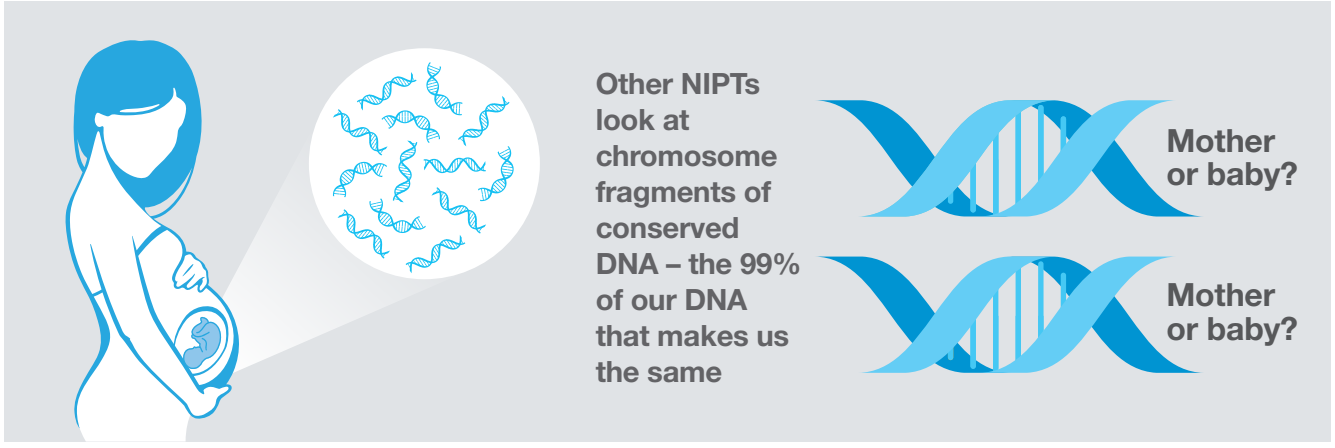


Twin pregnancies

- Zygosity[16]
- Individual fetal fractions for dizygotic twins[16]
- Fetal sex for each twin[16]
- Monosomy X, sex chromosome trisomies,* and 22q for monozygotic twins[16]

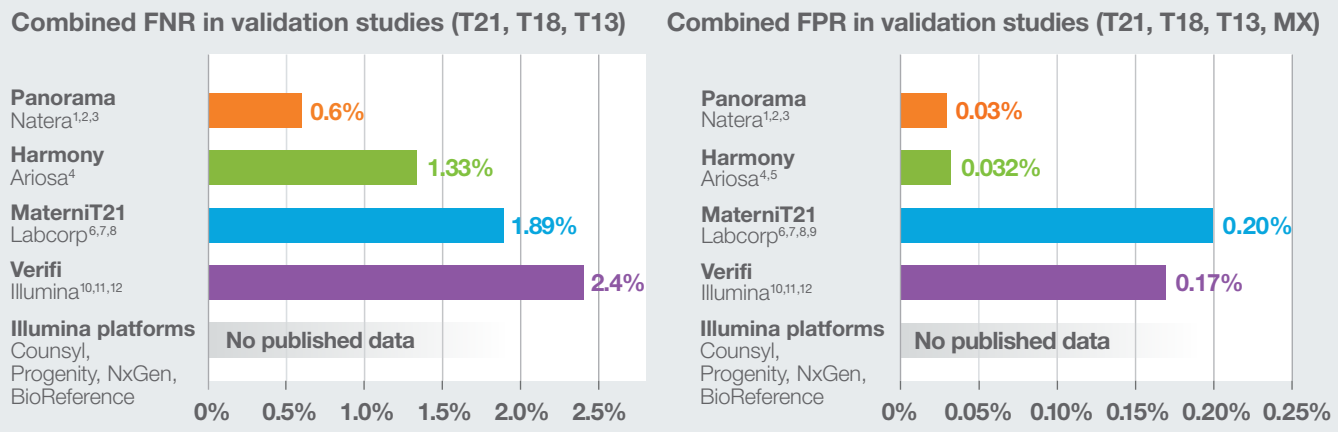
Only Panorama distinguishes between maternal and fetal (placental) DNA





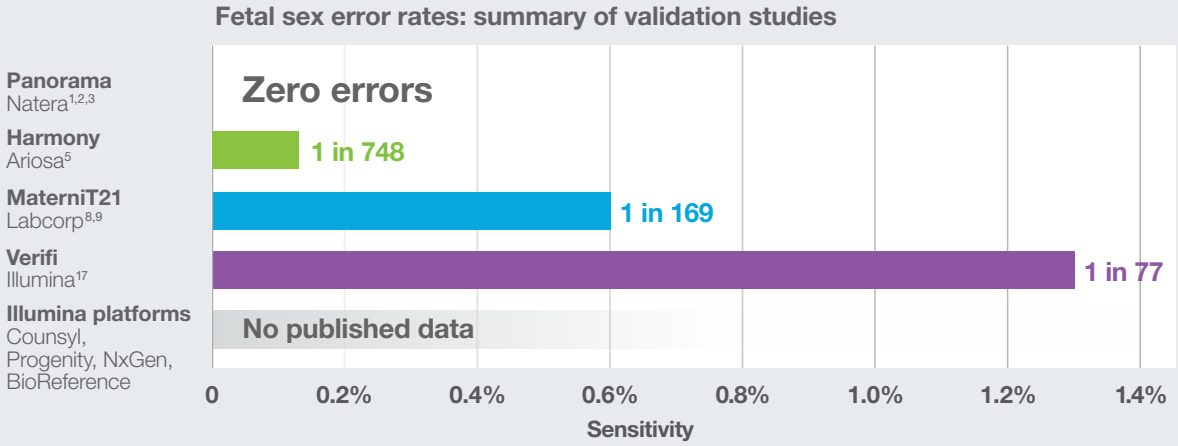
*Reported when suspected

Panorama reduces both false negative rates (FNR) and false positive rates (FPR) compared to other NIPTs



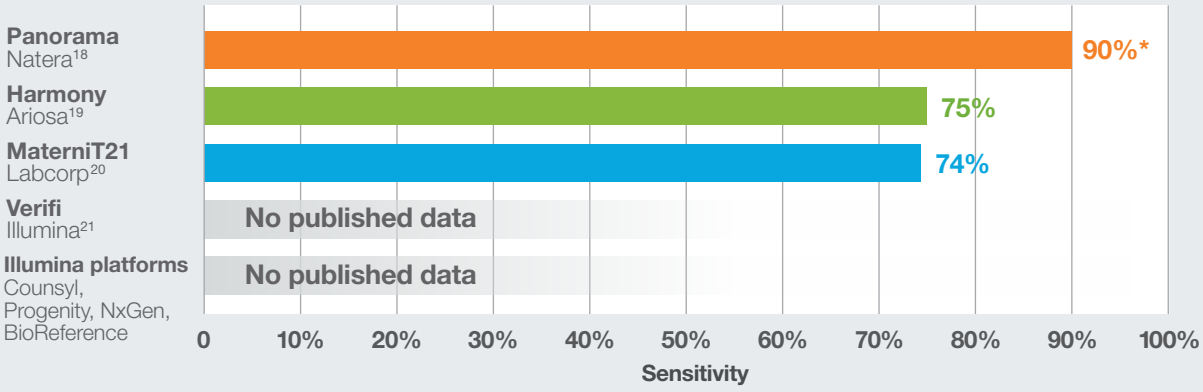
Panorama's SNP-based technology results in the highest fetal sex accuracy of any NIPT in validation studies

Other NIPTs may report incorrect gender for as many as 1 in 77 cases. A wrong call can lead to unnecessary clinical work-up and create anxiety for the patient.



Panorama's SNP-based approach yields the highest commercially available sensitivity for the most common ~3Mb 22q11.2 deletion

For small deletions like 22q11.2, Panorama's ability to evaluate unique DNA sequences within the region of interest enables better detection.



*Based on a validation study of 419 samples, in which Panorama correctly identified 9/10 samples that were positive for 22q11.2. Only the paternal allele is evaluated at fetal fractions < 6.5%.

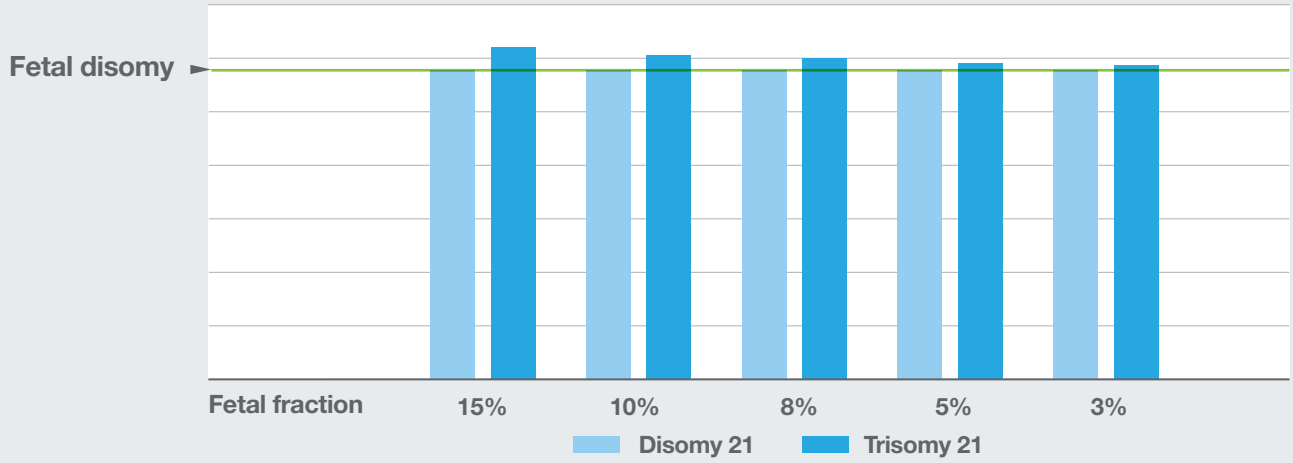
Accurate fetal fraction measurement is essential for accurate results[22]

Panorama is the only NIPT that has always measured and reported fetal fraction

Panorama's SNP-based method is a gold standard in fetal fraction measurement

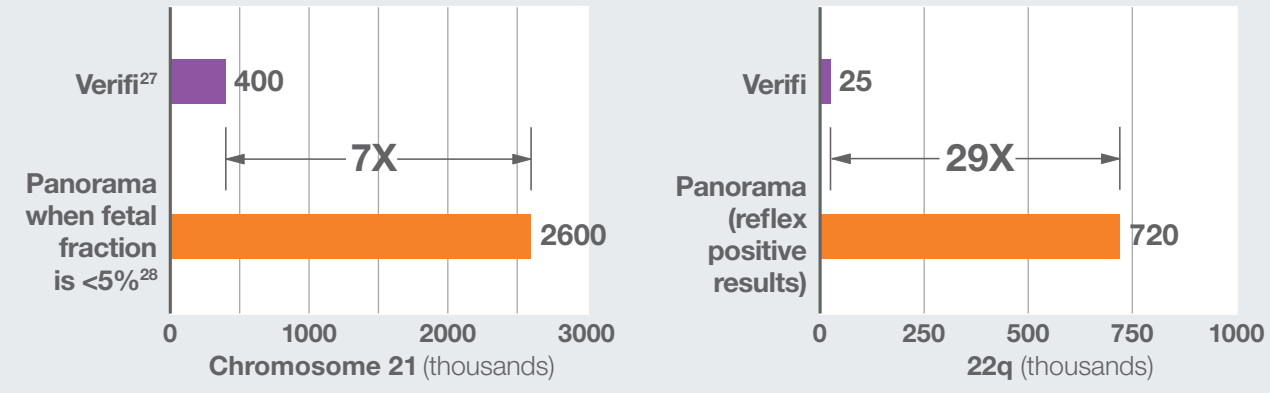
	Panorama[1,2,3]	Harmony[4,23]	MaterniT21[5,6,7,24]	Verifi[10,11,12]	Illumina platforms
Method of fetal fraction measurement	**13,392 SNPs**	576 SNPs	Distribution of short (<150 bp) cfDNA	No data available on methodology or performance	No data available on methodology or performance
Combined false negative rate in validation studies (trisomies 21, 18, 13)	**0.60%**	1.33%	1.89%	2.40%	No published data

Counting methodologies' ability to detect abnormalities decreases below 8% fetal fraction, which may increase false negative results[25,26]



Deeper sequencing on chromosomal regions of interest enables Panorama to maintain high-quality results at lower fetal fractions

Panorama's proprietary algorithm incorporates fetal fraction measurement and reflexes samples with lower fetal fraction to a higher depth of read.



Panorama for twin pregnancies

Only Panorama reports zygosity, individual fetal fractions for dizygotic twins, and fetal sex for each twin[16]

	Panorama[16]	Harmony[29,30]	MaterniT21[31]	Verifi[32]	Illumina platforms[33,34,35,36]
Zygosity	✓	✗	✗	✗	✗
Individual fetal fractions	✓	✗	✗	✗	✗
Fetal sex for each twin	✓	✗	✗	✗	✗
Trisomies 21, 18, 13	✓	✓	✓	✓	✓
Monosomy X*	✓*	✗	✗	✗	✗
22q11.2 deletion syndrome*	✓*	✗	✓	✗	✗

*Available for monozygotic twins only

FINAL RESULTS SUMMARY: TWINS

Result	*Zygosity*	*Fetal Sex*	*Fetal Fraction(s)*
LOW RISK ✓	**Dizygotic** *FRATERNAL TWINS*	♂ **Male** ♀ **Female**	**8.3%, 8.4%**

Notes by the clinical reviewer, if any, will be shown here.

Panorama allows clinicians to align their ultrasound findings with early and accurate zygosity information

Chorionicity is the strongest predictor for pregnancy complications in twins.[37] Studies have shown that up to 19% of monochorionic pregnancies are incorrectly classified as dichorionic using ultrasound.[38]

Monozygotic

- Higher risk for twin-twin transfusion syndrome (TTTS), birth defects, etc. if monochorionic
- Consider early MFM referral to confirm chorionicity
- Develop tailored care plan for pregnancy

Dizygotic

- All dizygotic pregnancies are dichorionic
- Low risk for TTTS
- Continue standard care for pregnancy

Fetal fraction measurement and reporting in twins is important for reliable NIPT results

Fetal fraction is, on average, 30% higher in twin pregnancies, but fetal fraction per twin is lower compared to singleton pregnancies.[28]

Provider support

Proactive billing outreach and price transparency

Complimentary mobile phlebotomy services and in-office phlebotomist for our testing*

Direct support from board-certified genetic counselors; call 650.249.9090 or email niptgc@natera.com for:

- Clinical questions
- Consultations on high-risk results
- Regional medical education and support

Our Natera Connect provider portal can be accessed online at connect.natera.com to:

- Order and track tests electronically
- Release low-risk results to patients (optional)

Patient support

Patients can learn about testing, book services, and track test results through our patient portal at my.natera.com

Complimentary mobile phlebotomy services can be scheduled by calling 855.271.1502 and pressing option 1

Complimentary pre- and post-test genetic information sessions with a board certified genetic counselor can be scheduled by calling 855.271.1502 and pressing option 2

Flexible payment plans, including assistance for financial hardship, are available

*Where permitted by state law

POWERED BY NATERA

panorama® NEXT GENERATION NIPT | horizon™ ADVANCED CARRIER SCREEN | vistara SINGLE-GENE NIPT | spectrum® PREIMPLANTATION GENETICS (PGS/PGD) | anora® MISCARRIAGE TEST (POC) | evercord™ NEWBORN STEM CELL BANKING

References

1. Nicolaides et al. Prenat Diagn. 2013 June; 33(6):575-9.
2. Pergament et al. Obstet Gynecol. 2014 Aug; 124(2 Pt 1):210-8.
3. Ryan et al. Fetal Diagn Ther. 2016;40(3):219-223.
4. Stokowski et al. Prenat Diagn. 2015 Dec; 35(12):1243-6.
5. Jones et al. Ultrasound Obstet Gynecol. Accepted manuscript. DOI: 10.1002/uog.18986
6. Palomaki et al. Genet Med. 2011 Nov; 13(11):913-20.
7. Palomaki et al. Genet Med. 2012 Mar; 14(3):296-305.
8. Porreco et al. Am J Obstet Gynecol 2014;211:365.e1-12.
9. Mazloom et al. Prenat Diagn 2013 Jun; 33(6):591-7.
10. Sehnert et al. Clinical Chemistry 2011 Jun;57(7):1042–1049.
11. Bianchi et al. Obstet Gynecol. 2012 May; 119(5):890-901.
12. Bianchi et al. N Engl J Med 2014;370:799-808.
13. Nicolaides et al. Fetal Diagn Ther. 2014;35(3):212-7.
14. Curnow et al. Am J Obstet Gynecol. 2015 Jan; 212(1):79.e1-9.
15. Samango-Sprouse et al. Prenat Diagn. 2013;33:1–7.
16. Natera validation data for twin pregnancies. Manuscript in preparation.
17. Verinata white paper. Analytical validation of the Veri prenatal test. 2012.
18. Norvez et al. The European Human Genetics Conference, ESHG. Copenhagen, Denmark. May 27–30, 2017.
19. Schmid et al. Fetal Diagn Ther. 2017, DOI: 10.1159/000484317.
20. Tynan et al. Society for Maternal-Fetal Medicine, SMFM. Las Vegas, Nevada. Jan 23-28, 2017.
21. Commercial protocol not validated; Illumina marketing materials cite “Srinivasan et al. Am J Hum Genet. 2013 Feb 7; 92(2): 167–176” which does not match number of reads used in commercial testing.
22. American College of Obstetricians and Gynecologists (ACOG/SMFM), #640, Sept 2015.
23. Juneau et al. Fetal Diagn Ther. 2014;36(4):282-6.
24. Kim et al. Prenatal Diagnosis 2015, 35, 810–815.
25. Canick, et al. Prenatal Diagnosis 2013, 33, 1–8.
26. Wright et al. Ultrasound Obstet Gynecol 2015; 45: 48–54.
27. Verifi marketing materials, 2016.
28. Internal data, Natera. 2017.
29. Gil et al. Fetal Diagn Ther 2014; 35: 204-211.
30. Bevilacqua et al. Ultrasound Obstet Gynecol 2015; 45: 61–66.
31. Canick et al. Prenat Diagn. 2012 Aug; 32(8): 730-4.
32. Fosler et al. Ultrasound Obstet Gynecol 2015; 45: 61–66.
33. Counsyl marketing materials, 2018.
34. Progenity marketing materials, 2018.
35. NxGen marketing materials, 2018.
36. BioReference marketing materials, 2018.
37. Society for Maternal-Fetal Medicine, Clinical guideline: Twin-twin transfusion syndrome, Jan 2013.
38. Blumenfeld et al. J Ultrasound in Med. 2014 Dec; 33(12):2187-92.

natera®
Conceive. Deliver.

201 Industrial Road, Suite 410, San Carlos, CA 94070
Tel: 1.650.249.9090 Fax: 1.650.730.2272 www.natera.com