PGT A Seq

JUNO GENETICS

PGT A Seq

PGT[A], increases the chance of a healthy birth per embryo transfer

The most powerful and accurate embryo analysis on the market

Juno uses a unique PGT[A]Seq methodology, which is the only method in the world to have successfully demonstrated clinical validity in a non-selection study.

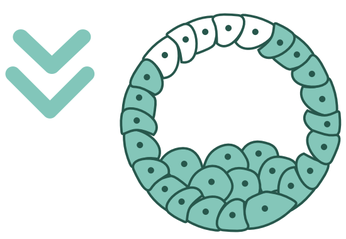
Our PGT[A]Seq strategy employs the latest next-generation sequencing methods, increasing the quality of the data obtained and yielding results of unparalleled accuracy.

PGTseq-A has been developed following extensive analytical and clinical validation

PGTA seq

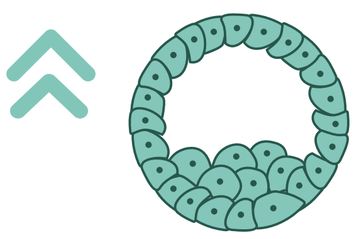
What is PGTseq-A?

Aneuploidy screening through Juno Genetics utilizes targeted next-generation sequencing (tNGS). PGTseq-A has been developed following extensive analytical and clinical validation studies and identifies whole chromosome aneuploidy (extra or missing whole chromosomes). PGTseq-A is greater than 98% accurate in screening for whole chromosome aneuploidy. PGTseq-A also can detect some cases of segmental aneuploidy.



REDUCTION IN MOSAIC EMBRYOS

The enhanced accuracy of PGT[A]Seq prevents viable embryos from being incorrectly classified mosaic.

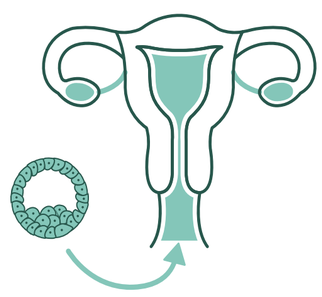


6%

MORE EUPLOID EMBRYOS REPORTED

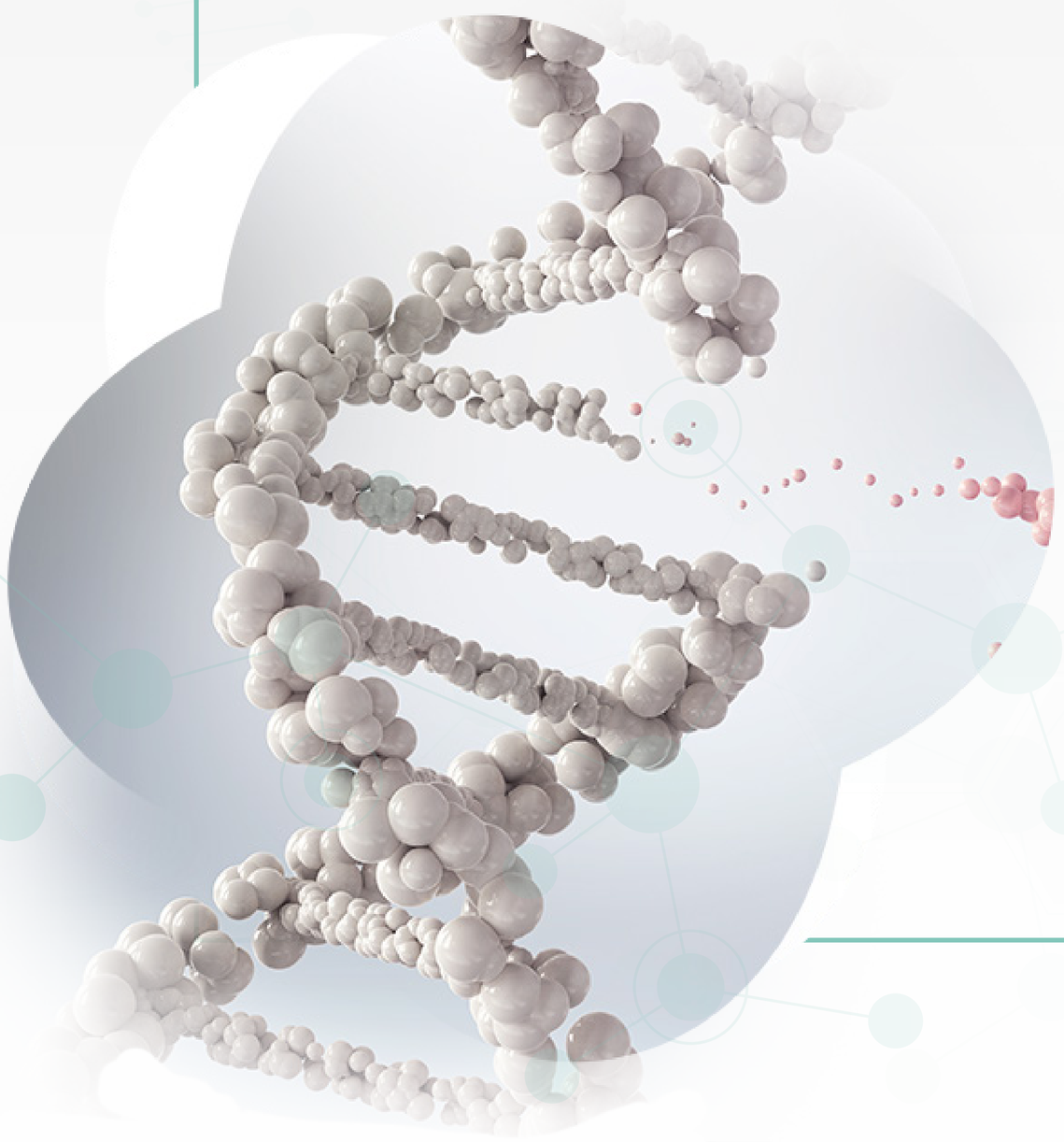
+1,525

EXTRA EMBRYOS reported for transfer from a dataset of 25,007 embryos derived from 15 different IVF clinics



+1,525

EMBRYOS AVAILABLE to Transfer



PGTA seq

What is segmental aneuploidy?

Segmental aneuploidy refers to extra or missing genetic material from a part of a chromosome rather than from the whole chromosome.

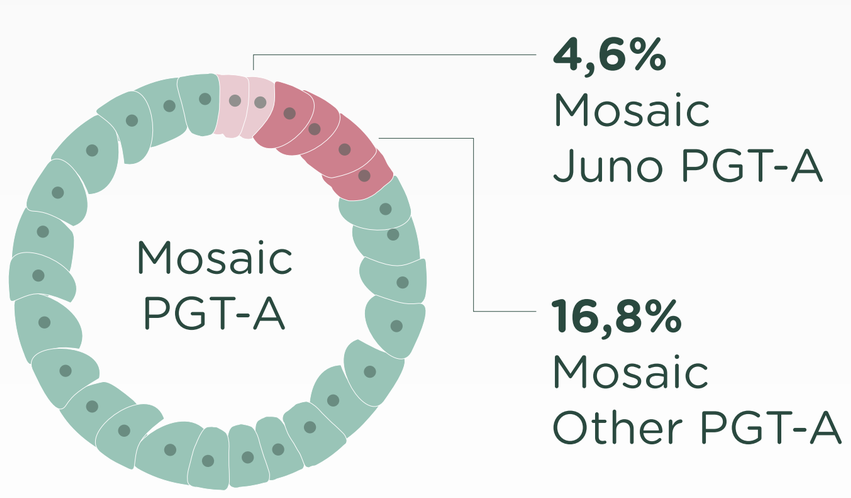
In an internal study where embryos had multiple biopsies performed, the segmental aneuploidy was identified in approximately 50% of rebiopsy samples. Studies have also shown that embryos with segmental aneuploidies can result in a normal pregnancy. However, there have been reports of segmental aneuploidies identified in an embryo biopsy sample that were confirmed to be present in the fetus and resulted in abnormal ultrasound findings.

What is mosaicism?

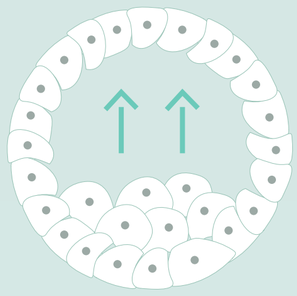
Mosaicism refers to a potential combination chromosomally normal and chromosomally abnormal cells in a single embryo biopsy sample. Some studies suggest a mosaic result is associated with an increased risk for implantation failure and miscarriage. However, there is no consensus, and these studies are not conclusive. Additionally, embryos with mosaic results have resulted in children who were healthy at birth.

Since the significance of mosaic range results is uncertain, Juno Genetics refers to them as secondary findings of uncertain clinical significance. You and your provider have the option to decide whether you would like Juno Genetics to report results in the mosaic range.

Mosaicisms overestimated by some PGT-A tests

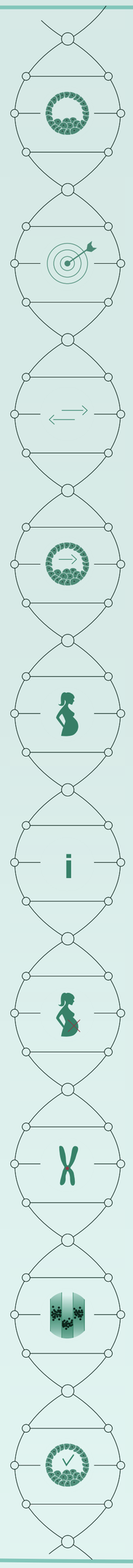


Advantages of using Juno PGT[A]Seq



A high number of euploid embryos reported

Improved clinical outcomes



Predective value proven in well-designed published studies. The most powerful embryo selection tool currently available

High accuracy, including detection of triploid embryos and detection of DNA contamination

Avoids unsuccessful transfer of non-viable aneuploid embryos

Permits high efficiency single embryo transfer (SET)

Faster time to pregnancy

Provides information on likely potential of stored material and avoids storage of non-viable embryo

Reduced miscarriage rate

Reduced risk of aneuploid syndromes

Avoids incorrect classification of euploid embryos as abnormal or mosaic

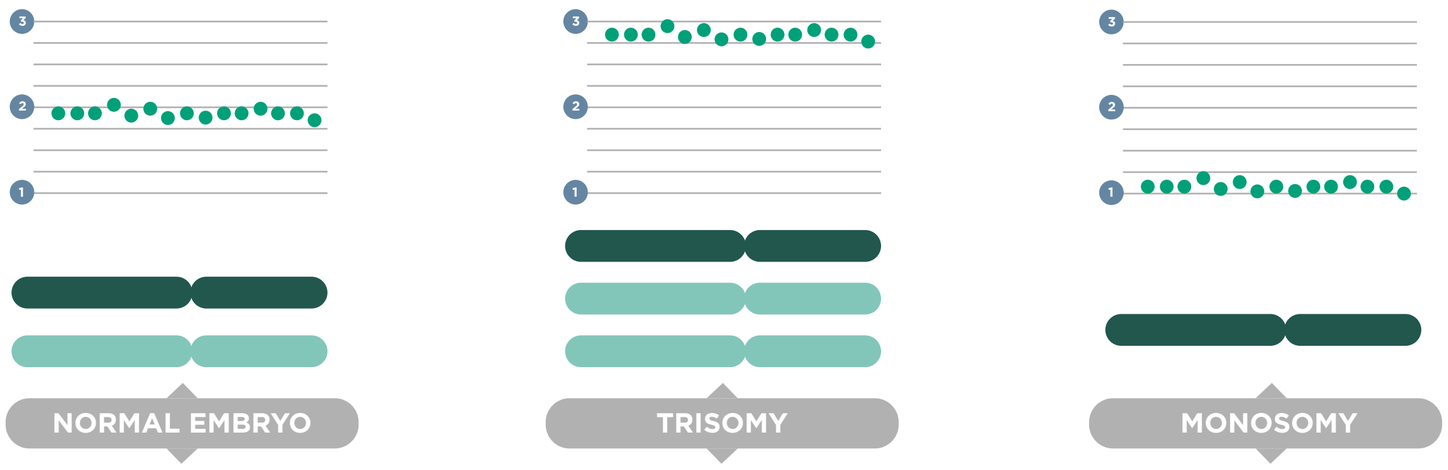
Compared to other methods, Juno PGT[A]Seq is associated with a higher proportion of embryos categorised as euploid

PGTA seq

Increased proportion of embryos classified euploid with respect to some other methods

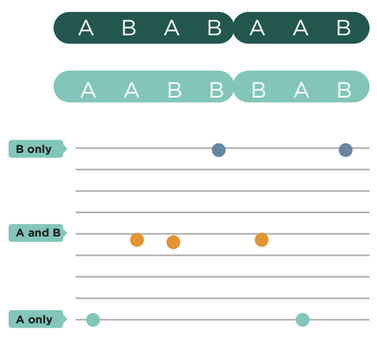
1 NGS

Juno uses next-generation sequencing to measure the amount of DNA at thousands of sites on each chromosome. This allows the number of copies of the chromosome to be calculated with high accuracy.

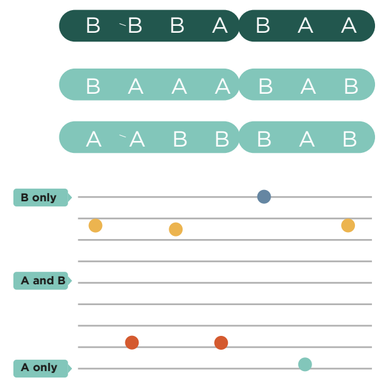


2 SNPs

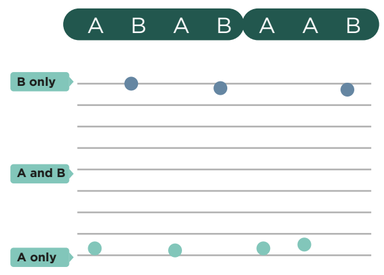
**Juno looks at thousands of places where the DNA sequence can differ between individual chromosomes.
Each of these sites of variation can be type 'A' or type 'B'.
Normal, Trisomy and monosomy each have characteristic patterns of As and Bs**



Some sites have only A or B, but others have A and B equally



No sites have A and B equally, but some are AAB or BBA



All sites have either A or B, but never both types

Together, the measurement of the amount of DNA and the analysis of the DNA sequence greatly increases the accuracy of PGT-A

Juno's PGT-A Seq method

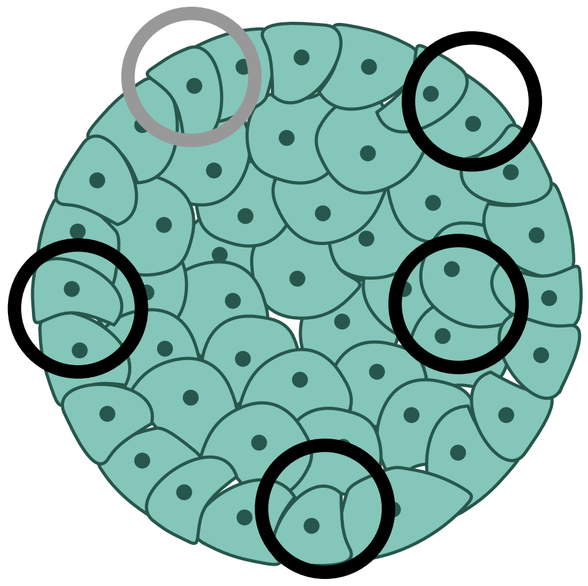
The most accurate available

PGTseq-A has been developed following extensive analytical and clinical validation studies and identifies whole chromosome aneuploidy (extra or missing whole chromosomes). PGTseq-A is greater than 98% accurate in screening for whole chromosome aneuploidy. PGTseq-A also can detect some cases of segmental aneuploidy.

Blastocysts with a routine PGT-A Seq result

Donated for research

Biopsied an additional 4 times



Original PGT-A Result

	EUPLOID	ANEUPLOID
PGT-A result confirmed in ≥1 other biopsy*	100%	99.6%
PGT-A result confirmed in all other biopsy*	98.5%	96.7%

***The concordance rates of an initial trophectoderm biopsy with the rest of the embryo using PGTseq, a targeted next-generation sequencing platform for preimplantation genetic testing-aneuploidy**

Julia Kim, M.D., M.P.H. Xin Tao, Ph.D. Michael Cheng, M.S. Ayesha Steward, M.S. Vanessa Guo, B.A. Yiping Zhan, Ph.D. Richard T. Scott Jr., M.D., H.C.L.D. Chaim Jalas

Published: December 31, 2021DOI:https://doi.org/10.1016/j.fertnstert.2021.10.011

Juno's PGT-A Seq method

vs other PGT-A methods
JUNO'S PGT-A SEQ METHOD

Looking at multiple biopsies from the same embryo using competitors PGT-A methods, have often reported disagreement between different biopsies in 10-20% of embryos*

10-20%

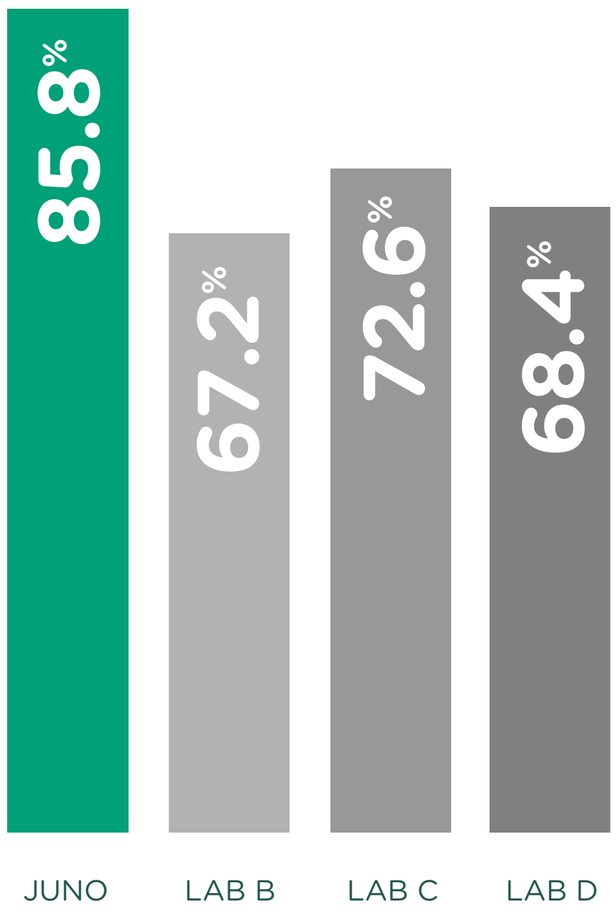
More accurate than other methods

***A multicenter, prospective, blinded, nonselection study evaluating the predictive value of an aneuploid diagnosis using a targeted next-generation sequencing–based preimplantation genetic testing for aneuploidy assay and impact of biopsy**

Ashley W. Tiegs, M.D. Xin Tao, Ph.D. Yiping Zhan, Ph.D. Christine Whitehead, R.N. Julia Kim, M.D. Brent Hanson, M.D. Emily Osman, M.D. Thomas J. Kim, M.D. George Patounakis, M.D., Ph.D. Jacqueline Gutmann, M.D. Arthur Castelbaum, M.D. Emre Seli, M.D. Chaim Jalas Richard T. Scott Jr., M.D.

Published: August 28, 2020DOI:https://doi.org/10.1016/j.fertnstert.2020.07.052

PGT-A Seq method
JUNO VS OTHER LABS



EMBRYOS CHARACTERISED EUPLOID

P VALUE <0.001 all versus JUNO

LIVE BIRTH RATE/OPR

P VALUE 0.060 other combined versus JUNO

Independent study conducted by Bardos et al (ASRM, 2021), comparing four PGT-A providers (one of which was Juno).
The study, involving oocyte donation cycles, confirms that Juno classifies 10-20% more embryos euploid in young patients. Birth rates appear higher for Juno cycles (6-10%), although the study was not powered to look at that outcome.

JUNO vs other labs

PGT-A Seq method

Total number of transfers

LAB A	1,333
JUNO	1,374

Total normal embryos transferred (including mosaics with JUNO)

LAB A	1,361
JUNO	1,389

LAB A (1st Jan 1, 2019 – 30th June, 2019).

JUNO (1st July, 2021 – 31st December, 2021).

In summary:

1. Results based on large numbers of embryos and cycles (7,583 embryos analysed by previous provider, 8,400 embryos tested by Juno)

2. More embryos are classified euploid (normal) by Juno (44.4% versus 39.8%, i.e. ~5% increase, p<0.0001)

3. Ongoing pregnancy/live birth rate after switching to Juno was 5.2% higher (2,300 procedures)

4. Clinical miscarriages were reduced by more than one-third (p<0.0001).

About JUNO

Juno has developed unique algorithms, techniques and processes, with the aim of increasing the chances for a healthy pregnancy

+30

years of research carried out

+1900

scientific publications

73

researchers

4

research centers

UK USA SPAIN

3 state-of-the-art laboratories

Juno Genetics is a state-of-the-art laboratory specialising in genetic testing. Our mission is to provide clinically useful information of the highest quality for couples who are planning to start a family, patients undergoing fertility treatments, and for women who are already pregnant.

The innovative tests offered by Juno Genetics are amongst the most technologically advanced and accurate available anywhere in the world.

The cutting-edge tests provided by Juno are the **result of world-class research carried out by an internationally renowned team of scientists.**

JUNO GENETICS

YOUR PARTNERS in GENETIC HEALTH

specialist in reproductive genetics

UK USA Spain

Juno Genetics Ltd
Winchester House, Heatley Road,
Oxford Science Park, Oxford OX4 4GE
+44 203 743 1944
junogenetics.co.uk

Juno Genetics España
Ronda Guillermo Marconi, 11-A , 1º22B
46980-Paterna, Valencia, Spain
+34 900 828 420
junogenetics.es

Juno Genetics, US Inc.
140 Allen Road, Suite 300
Basking Ridge, NJ 07920
+1 908 495 1111
junogenetics.com