
JUNO
GENETICS


DNA
three letters that
define everything
JUNO
four letters that
change everything

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

+350
scientific publications

3
research centers

UK USA SPAIN ITALY
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.**

OUR GOALS

Juno's goal is to provide innovative and efficient solutions in the field of assisted reproduction. Its services have been specially developed to:

Aid professionals working in reproductive medicine with the diagnosis and treatment of their patients by providing reliable tests that provide medically actionable information, based upon a solid scientific foundation.

Help future parents to have healthy babies, by detecting common genetic abnormalities that prevent a viable pregnancy, reducing risks of embryo implantation failure, miscarriage and abnormal pregnancies.

OUR TESTS

NEO24

Non-invasive prenatal test. We analyze all the 24 chromosomes for the peace of mind of future mothers.

Neo24 is a non-invasive prenatal test, performed with maternal blood, completely safe for the mother and her unborn child. We analyze the 24 chromosomes for the peace of mind of future mothers.

24
CHROMOSOMES

We analyse all of the foetal chromosomes

Neo24 reduces the number of unnecessary invasive prenatal tests

The Neo24 test successfully gives results in more samples than other tests

Enables established pregnancies (from 10 weeks of gestation) to be assessed for certain chromosome abnormalities that can lead to late miscarriages or the birth of a child with serious congenital abnormalities. Neo24 offers a high detection rate for the specific chromosome abnormalities tested and a low false-positive rate. Importantly, the non-invasive nature of the test means that it does not increase the risk of miscarriage unlike traditional invasive prenatal tests.

OUR TESTS

GENESeeker

We detect, determine and prevent genetic diseases

GeneSeeker harnesses the latest DNA sequencing technology to test patients for disease causing mutations. Simultaneous analysis of hundreds of genes helps identify couples who are at high risk of having an affected child.

256
GENES ANALYZED

20%

Inherited disorders represent 20% of the causes of infant mortality in developed countries.

When used in gamete donor programs, the information provided by GeneSeeker helps to avoid combinations of donors and patients associated with a high-risk of genetic disorder.

GeneSeeker covers critical regions of the genes assessed including some areas missed by alternative tests.

OUR TESTS

POC

Juno Genetics offers a test that sheds light on the cause of miscarriage. The test examines chromosomes in cells from the embryo/fetus or associated tissues, called products of conception (POC).

Testing of POC potentially provides useful information for any couples who have experienced a pregnancy loss, but may be particularly valuable for those with any of the following: a history of several miscarriages; an abnormal ultrasound prior to a lost pregnancy; a fetus affected by intrauterine growth retardation; an abnormal prenatal test result; a pregnancy loss after IVF.

25%

25% of clinical pregnancies miscarry

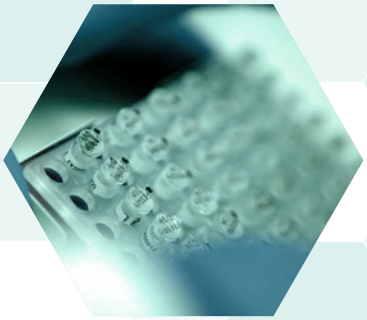
>60%

At least two thirds of miscarriages are chromosomally abnormal

No false negative results due to maternal contamination

99%

Results obtained from 99% of samples



OUR TESTS

PGT [A] Seq

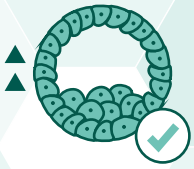
Increases the chance of a healthy birth per embryo transfer.

The best-in-class accuracy of PGT[A]Seq means an increased number of euploid embryos are correctly reported, leading to more viable embryos being transferred with higher pregnancy rates than is achieved using less accurate PGT-A methods.

More embryos are reported 'euploid' using PGT[A]Seq compared to some other PGT-A methods.

- More cycles have an embryo transfer
- More cycles achieve a pregnancy

Best-in-class accuracy



A high number of euploid embryos reported

Improved clinical outcomes

Fewer embryos classified mosaic

PGT[A]Seq has been developed following extensive analytical and clinical validation

JUNO PGT[A]SEQ INCREASES THE CHANCE OF A HEALTHY BIRTH PER EMBRYO TRANSFER

The best-in-class accuracy of PGT[A]Seq means an increased number of euploid embryos are correctly reported, leading to more viable embryos being transferred with higher pregnancy rates than is achieved using less accurate PGT-A methods

WHEN IS THE TEST PERFORMED?

Day 1 embryo

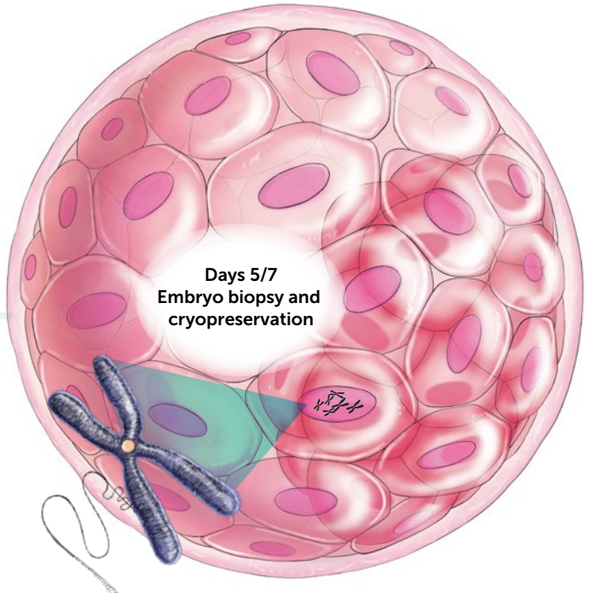
In vitro fertilisation takes place and embryo development begins

Day 2

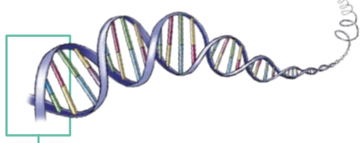
Day 3

Day 4

On the **fifth day**, a cell sample of the embryo is obtained and analysed



1

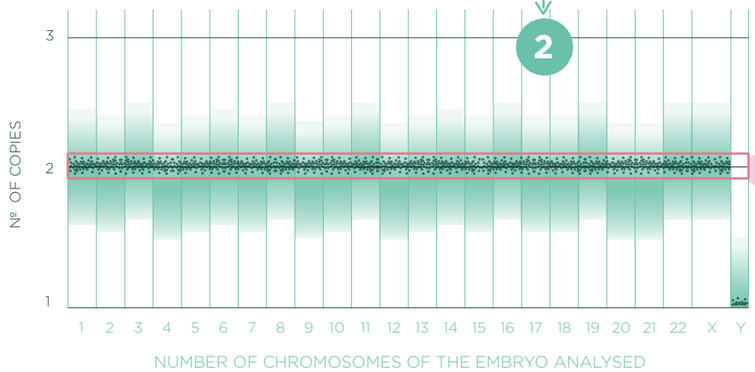


NGS

(The amount of DNA measured in thousands of individual points)

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



NGS + SNPs

Together, the measurement of the amount of DNA and the analysis of the DNA sequence greatly increases the accuracy of PGT[A]Seq

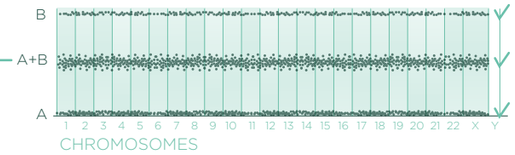
Juno looks at thousands of places where the DNA sequence can differ between individual chromosomes, called single nucleotide polymorphismus or "SNPs"

3

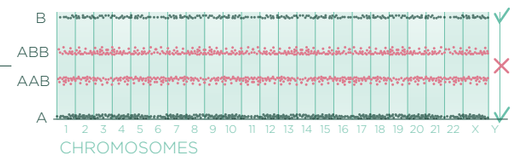
SNPs

(The amount of DNA measured in thousands of individual points)

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

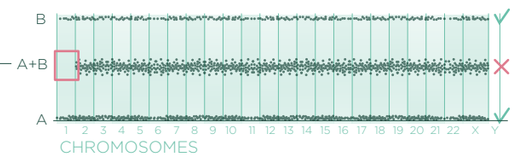


NORMAL
Some sites have only A or B, but others have A and B equally



RESULT

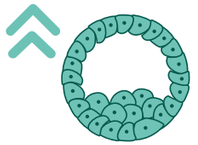
TRIPLOID
(extra chromosome)
No sites have A and B equally, but some are AAB or BBA



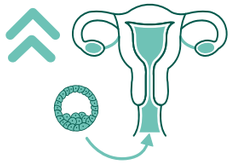
RESULT

MONOSOMY
(Chromosome loss)
All sites have either A or B, but never both types (no A+B)

8,00%
ONGOING PREGNANCIES



5,30%
MORE EUPLOID EMBRYOS REPORTED



+ 5,30%
EMBRYOS AVAILABLE TO TRANSFER

Day 7

Following PGT[A]Seq, embryos with the correct numbers of chromosomes can be thawed and transfer to the uterus or stored for future use

The study of NGS + SNPs can greatly increase the accuracy of PGT-A

4

ADVANTAGES OF USING JUNO PGT[A]SEQ

A higher number of euploid embryos reported

Improved clinical outcomes

Predictive value proven in well-designed published studies. The most powerful embryo selection too currently availablel

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

Avoid 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

Infografía:
Pedro Jiménez

OUR TEST

PGT [A] Seq

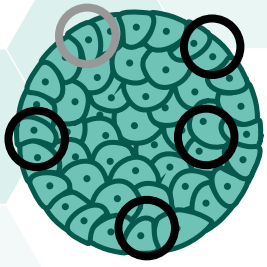
The most accurate available

PGT[A]Seq has been developed following extensive analytical and clinical validation studies and identifies whole chromosome aneuploidy (extra or missing whole chromosomes). PGT[A]Seq is greater than 98% accurate in screening for whole chromosome aneuploidy. PGT[A]Seq 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]Seq Result

The concordance rates of an initial trophectoderm biopsy with the rest of the embryo using PGT[A]Seq, a targeted next-generation sequencing platform for preimplantation genetic testing-aneuploidy

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

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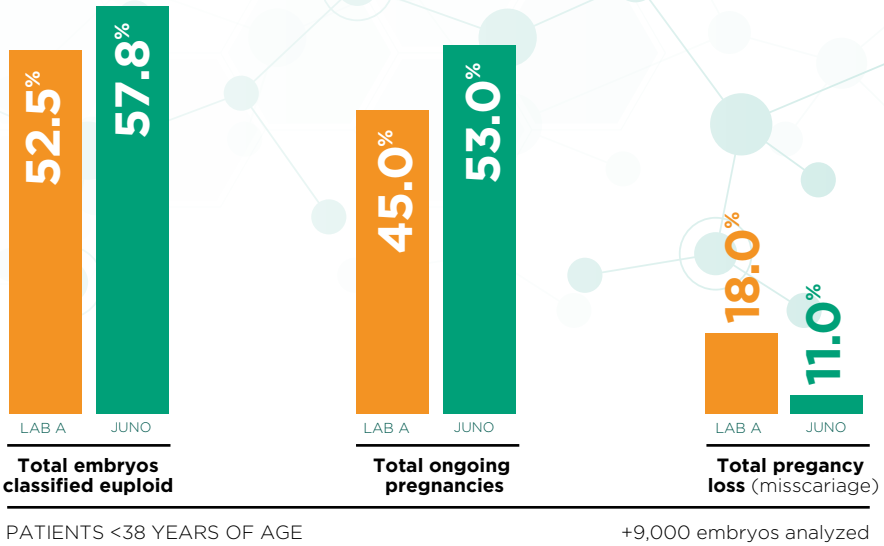
OUR RESULTS

PGT A Seq

Improved clinical outcomes for cycles using preimplantation genetic testing for aneuploidy (PGT-A) may be associated with a change in genetic service provider



BACKGROUND

An increasing number of IVF cycles include PGT-A to assist in the selection of euploid embryos for transfer to the uterus. All modern PGT laboratories utilise next generation sequencing (NGS) to predict the copy number of each chromosome. Given this technical convergence, it has generally been supposed that the choice of PGT-A provider need only depend on factors such as the quality of the user experience, convenience and price. Here we consider whether the choice of PGT-A provider might have more profound affects, potentially impacting clinical results.

METHODS

A large network of IVF clinics switched from PGT-A provider 'A' to provider 'B'. The final 6 months of clinical data using A was compared to 6 months of data after the switch to B. No significant changes in any aspect of patient population, treatment or embryological practice occurred between the two time periods evaluated.

RESULTS

Within the two time periods considered, 9,091 embryos underwent PGT-A using A and 9,550 using B. The average female age was 39.0 and 39.3, respectively. Differences in important clinical outcomes were observed, which were particularly apparent for female patients <38 years of age. For that group, A versus B results were: 52.5% of embryos classified euploid vs. 57.8% ($p<0.0001$); 45% ongoing pregnancy after the first embryo transfer vs. 53% ($p=0.04$); 18% miscarriage rate vs. 11% ($p=0.048$).

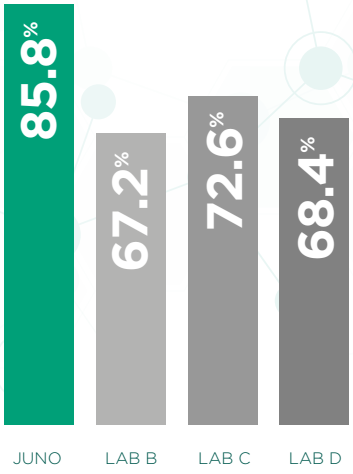
CONCLUSIONS

PGT-A and NGS are umbrella terms encompassing different methods with widely varying levels of validation and accuracy. The results of this study suggest that the choice of PGT-A provider has implications for clinical results. One possible interpretation of the data is that higher rates of euploidy and pregnancy with B might be a consequence of embryos being wrongly classified as aneuploid by A, while incorrect labelling of abnormal embryos as euploid could explain the relative increase in miscarriage rates when using that provider.

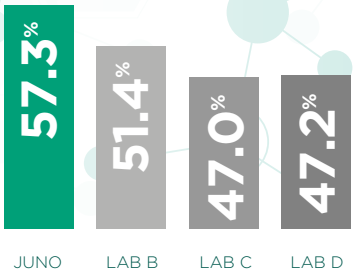
OUR RESULTS

PGT A Seq

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.

OUR TESTS

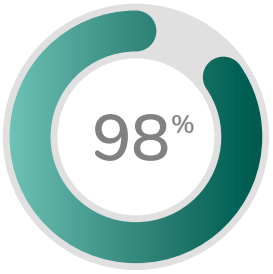
PGT [M] Seq

Reducing the risk of inherited disease.

PGT[M]Seq aims to reduce the chances of transmitting an inherited disorder by avoiding transfer of affected embryos. A small number of cells are sampled from embryos, produced using IVF technology, and analysed to predict whether a specific defective gene has been inherited. Juno typically combines more than one advanced method in order to provide highly accurate results.

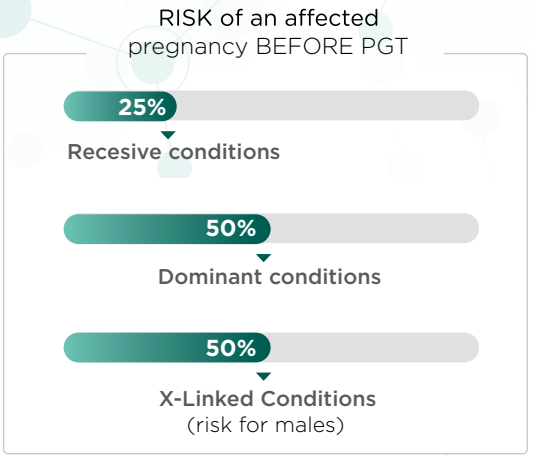
Most tests are custom designed for individual patients, taking into account their unique genetics. The majority of chromosome abnormalities, responsible for most cases of miscarriage and problems such as Down syndrome, are also detected at no extra cost.

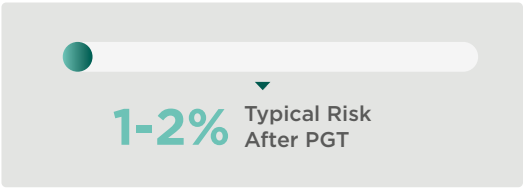
OVER



ACCURACY*

That accuracy rates can be less in specific cases or for individual embryos.





OUR TESTS

PGT SR Seq

PGT-SR (preimplantation genetic testing for structural rearrangements) is a test developed for carriers of chromosome rearrangements.

Chromosome rearrangements are formed when one or more pieces of chromosomes, the structures that contain an individual's genetic material, find themselves in an altered position.

For example, one common type of rearrangement, called a 'translocation', occurs when there is an exchange of materials between two chromosomes.

1 IN 500 PEOPLE CARRIES A CHROMOSOME REARRANGMENT

OUR RESULTS

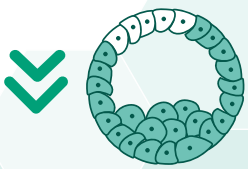
JUNO GENETICS

Juno achieves the best results thanks to

1. Utilisation of **the most advanced technology**, enabling high-accuracy analysis of a broad range of genetic abnormalities during all stages of a fertility treatment.

2. Research and development, with **more than 30 years of research carried out and more than 350 scientific publications and 3 research centers.**

3. **Establishing the most robust processes for** ensuring delivery of the **highest quality** of genetic tests.



REDUCTION IN MOSAIC EMBRYOS

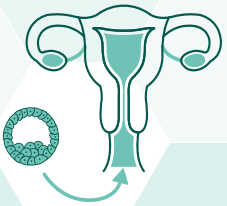
The enhanced accuracy of PGT[A]Seq prevents viable embryos from being incorrectly classified mosaic.

8,00%

ONGOING PREGNANCIES

5,30%

MORE EUPLOID EMBRYOS REPORTED



+ 5,30%

EMBRYOS AVAILABLE TO TRANSFER

UKAS MEDICAL

Regulated by Care Quality Commission

Clinical Laboratory Improvement Amendments

Juno Genetics is the world's preeminent center for the advancement of in vitro fertilization (IVF) diagnostics, preimplantation genetic testing, research, and education.

JUNO GENETICS

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Juno Genetics is a paperless company

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JUNO
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