SPECTRUM™
24-Chromosome Preimplantation Genetic Screening (PGS)
with Parental Support™

THE SMART CHOICE FOR A BETTER START
Understanding Spectrum™
Preimplantation Genetic Screening (PGS)

For couples who pursue in vitro fertilization (IVF), Spectrum PGS offers embryo screening to improve the chance of achieving a healthy pregnancy. PGS is used to identify embryo(s) that have extra or missing chromosomes, also called aneuploidy. Screening for the number of chromosomes allows for the selection and transfer of embryo(s) most likely to have the correct chromosome number. These embryos are more likely to implant and are much less likely to miscarry.

While any couple can have an embryo with aneuploidy, couples at higher risk (see section on “What is the chance of Aneuploidy?”) and couples who are considering single embryo transfer (SET) should ask their doctor about Spectrum.

Is Spectrum PGS right for me?

Discuss PGS with your doctor, especially if you have one or more of the following indications:

- Maternal age over 35
- Single embryo transfer
- Previous IVF failure
- History of recurrent pregnancy loss
- Prior child/pregnancy with a chromosome abnormality
- Sex determination due to a family history of an X-linked condition
“I would highly recommend Natera testing to anyone doing IVF. I had several eggs retrieved, but Natera’s test results showed me that only 2 had the possibility of resulting in a successful, healthy pregnancy. The genetic testing gave me a sense of security regarding the health of my unborn son.”

- Brenda, Natera Patient, Utah

“My husband and I couldn’t shake the desire to have another child. But we were not getting pregnant after trying for a long time. Through testing, we learned that in fact we were infertile. Using IVF, we ended up with 8 embryos, but only 1 of those had the right number of chromosomes. This “normal” embryo resulted in the birth of our beautiful daughter! What was amazing to us was that out of the embryos the embryologist told us she would have chosen for implantation without PGS testing, all but one were genetically abnormal.”

- Jennifer, Natera Patient, California
The PGS process

PGS REQUIRES EMBRYO BIOPSY, the removal of either a single or a small number of cells from a growing embryo. The biopsy procedure can be performed on day 3 after egg retrieval, or more commonly, on day 5 or 6 when embryos reach the blastocyst stage of development. The cell(s) removed from the embryo are frozen and shipped by a medical courier to Natera for screening. Your embryo(s) remain at the clinic and are frozen, a process known as cryopreservation.

BLASTOCYST TERMINOLOGY (DAY 5+ EMBRYO)

Outer cells (Trophectoderm-TE): Location where biopsy is performed. These cells give rise to the placenta.

Inner cells (Inner cell mass - ICM): Cluster of cells that give rise to the fetus.

Fluid-filled cavity (Blastocoel)

WHEN WILL MY RESULTS BE AVAILABLE?
Test results are typically delivered to your doctor in 5 business days.
Humans generally have 23 pairs of chromosomes, identified as chromosome numbers 1-22, with the 23rd pair being the sex chromosomes, XX (female) or XY (male). Aneuploidy is when too many or too few chromosomes are present. Most of the time, aneuploidy occurs by chance during the formation of the egg or sperm, or during the early development of the embryo. Embryos with aneuploidy usually either fail to implant or miscarry — in fact, the majority of miscarriages are due to aneuploidy.

Certain forms of aneuploidy can be found in liveborn babies and typically cause varying degrees of intellectual disability and birth defects. For example, Down syndrome, a common form of intellectual disability, is caused by an extra copy of chromosome number 21.

**REPRESENTATION OF CHROMOSOMALLY NORMAL AND ABNORMAL EMBRYOS**

- **Normal embryo**: (one copy of each chromosome from the egg and sperm)
- **Normal pairing (euploid)**

- **Embryo with Trisomy**: (more than one copy of a chromosome inherited from egg or sperm)

- **Embryo with Monosomy**: (missing one copy of a chromosome from the egg or sperm)

Abnormal pairing (aneuploid)
Any couple can have an embryo with aneuploidy, but the chances increase with the age of the mother. For day 5/6 embryos, this ranges from approximately 32% in women under age 35 to over 75% in women 40 and older. Research also suggests that couples that have had multiple miscarriages, previously failed IVF cycles, or a prior pregnancy with a chromosome problem are at increased risk of having embryos with aneuploidy.

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**What is the chance of Aneuploidy?**

When considering single embryo transfer, the ability to choose an embryo with normal chromosome results improves the chances of implantation and a healthy pregnancy. Your doctor may recommend chromosomal screening if you are planning single embryo transfer.
The Power of Spectrum Technology

• COMPREHENSIVE
  - Screens all 24 chromosomes
  - Identifies whether extra/missing chromosome(s) in an embryo originated in the egg or the sperm
  - Detects Uniparental Disomy (UPD) – both copies of a particular chromosome are inherited from one parent – some forms of UPD cause serious genetic conditions

• ACCURATE - TYPICALLY EXCEEDS 99% FOR EACH CHROMOSOME CALL⁸

• ENHANCES YOUR CHANCE FOR A SUCCESSFUL PREGNANCY
  Spectrum's patented technology is the first of its kind to draw from advances in the Human Genome Project and use of parental DNA. This provides the most comprehensive 24-chromosome PGS available, helping to give you the best chance of transferring an embryo with the correct number of chromosomes, which is more likely to implant and less likely to miscarry. In fact, successful implantation rates are higher when Spectrum is used during IVF.⁹

![Implantation Rates](image)

Implantation Rates
IVF Cycles with Spectrum PGS vs. SART Data

- Implantation Rate Natera (Day 3)
- Implantation Rate Natera (Day 5)
- Implantation Rate SART

Natera Day 3 data from 1320 transferred embryos and Day 5 data from 558 transferred embryos. Society for Assisted Reproductive Technology (SART) published data from 2012. Does not include egg donor cycles.
AT NATERA, WE BELIEVE IN RESPONSIBLE SCREENING, which means we offer a portfolio of genetic diagnostic and screening tests to assist you throughout your journey of creating a family. Multiple medical associations including the American Congress of Obstetricians and Gynecologists (ACOG) and the American College of Medical Genetics (ACMG) recommend intended parents undergo genetic carrier screening. This is a test that checks to see if a healthy person is a carrier for one or more recessive genetic diseases of interest. Natera offers the Horizon™ carrier screen. If you and your partner choose to have the Horizon test and are found to be at risk for having a child with an inherited genetic disorder, Natera can provide Spectrum PGS plus Spectrum Preimplantation Genetic Diagnosis (PGD) testing at a significant cost reduction to you. Please contact Natera for details.

WE'RE HERE FOR YOU
We want to ensure you have all your questions answered, and understand the benefits and limitations of the Spectrum screen. That is why we have a team of Board Certified Genetic Counselors on staff to answer any questions you may have.

You may contact our genetic counselors by phoning 877.476.4743. We also invite you to learn more about PGS and PGD by visiting our website at www.natera.com (Spectrum).

References: For a list of complete citations please visit: http://www.natera.com/spectrumPTBreferences1

CAP accredited, ISO 13485 and CLIA certified
These tests were developed by Natera, Inc., a laboratory certified under the Clinical Laboratory Improvement Amendments (CLIA).
These tests have not been cleared or approved by the U.S. Food and Drug Administration (FDA).
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