



The most advanced genetic test
for investigating the genetic
causes of couple infertility

www.fertiladvance.it



FERTILADVANCE



COUPLE INFERTILITY

Infertility is defined as the **inability to achieve pregnancy after 12 months of regular, unprotected, targeted sexual intercourse.**

According to data from the Italian National Institute of Health (Istituto Superiore di Sanità)**¹, infertility affects approximately **15% of couples**, with a substantially equal distribution between men and women.

Genetic causes account for approximately:

- **10–15%** of male infertility cases;
- **8–10%** of female infertility cases.

These causes may include **chromosomal abnormalities** or **mutations in specific genes involved in reproductive processes.**

In approximately **20% of cases**, infertility is classified as **idiopathic**, meaning that no specific etiological factor can be identified through standard diagnostic investigations.

¹ Registro Nazionale PMA – Istituto Superiore di Sanità, “Infertilità e tecniche di PMA”, aggiornamento 09/03/2018





WHAT IS FERTILADVANCE

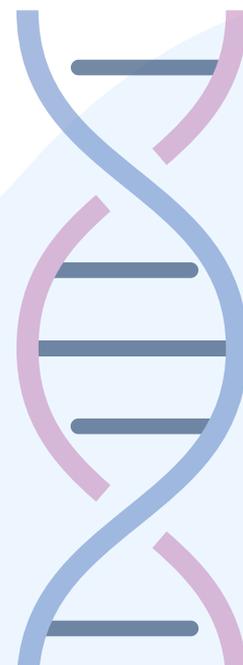
FERTILADVANCE is a next-generation genetic test designed for the **comprehensive evaluation of the genetic causes of male and female infertility** in couples experiencing reproductive difficulties.

Through a multigene approach based on high-resolution Next Generation Sequencing (NGS) technology, FertilAdvance enables a comprehensive analysis of the key genes involved in:

- gametogenesis
- oocyte maturation
- early embryonic development
- hormonal regulation

Clinical Value

- **Support for etiological diagnosis** (reducing the proportion of “idiopathic” infertility)
- **Reproductive risk stratification**
- **Definition of personalized clinical strategies** (ART, targeted PGT when indicated, and family counseling)





FERTILADVANCE

DIFFERENT TESTING OPTIONS FOR EVERY CLINICAL NEED

 FERTILADVANCE	♀
Female Infertility Panel COMPLETE	70+ Genes
Primary Ovarian Insufficiency/Ovarian Dysfunction	50+ Genes
Ovarian Dysgenesis	11 Genes
Preimplantation Embryonic Lethality	10 Genes
Oocyte Maturation Defect	7 Genes
Recurrent Miscarriages	19 Genes
Polycystic Ovary Syndrome (PCOS)	2 Genes
Ovarian Hyperstimulation Syndrome/Ovarian Response to Stimulation	5 Genes
Aneuploidy Risk	13 Genes

 FERTILADVANCE	♂
Male Infertility Panel COMPLETE	60+ Genes
TESE	200+ Genes



FERTILADVANCE

TESTS DEDICATED TO FEMALE PARTNER

→ FERTILADVANCE – Female Infertility Panel

Genetic test designed to identify the main **genetic causes of female infertility** as well as **rare genetic forms of infertility** and **recurrent miscarriage**.

Available in two formats

1

Complete Version

FertilAdvance – Female Infertility Panel COMPLETE

Simultaneous analysis of **more than 70 genes**, enabling an extensive evaluation of the genetic basis of **female infertility**.

2

Targeted Versions (specific panels for defined clinical conditions)





Targeted Versions (specific panels for defined clinical conditions)

FertilAdvance – Primary Ovarian Insufficiency/Ovarian Dysfunction

Advanced genetic test based on the analysis of **more than 50 genes** involved in oocyte maturation and ovarian dysfunction, aimed at identifying mutations associated with **primary ovarian insufficiency (POI)** and ovarian dysfunction.

FertilAdvance – Ovarian Dysgenesis

Advanced genetic test analyzing **11 genes** involved in **gonadal differentiation** and **maturation to identify mutations associated with ovarian dysgenesis.**

FertilAdvance – Preimplantation Embryonic Lethality

Advanced genetic test based on the analysis of **10 genes** involved in **early embryonic developmental arrest**, aimed at identifying mutations associated with **preimplantation embryonic lethality.**

FertilAdvance – Oocyte Maturation Defect

Advanced genetic test analyzing **7 genes** involved in oocyte maturation processes to detect mutations associated with **oocyte maturation arrest syndrome**, a rare genetic condition characterized by the production of immature oocytes.



FertilAdvance – Recurrent Miscarriages

Advanced genetic test based on the analysis of **14 genes** involved in **placental formation, maternal immune tolerance, and early embryonic development**, aimed at identifying mutations associated with **recurrent spontaneous miscarriage**.

FertilAdvance – Polycystic Ovary Syndrome (PCOS)

Advanced genetic test analyzing **2 genes** involved in **metabolic and ovarian regulation mechanisms** and **insulin resistance**, aimed at identifying variants associated with **polycystic ovary syndrome (PCOS)**

FertilAdvance – Ovarian Hyperstimulation Syndrome / Ovarian Response to Stimulation

Advanced genetic test analyzing **5 genes** involved in ovarian response to stimulation during ART treatments to identify variants associated with:

- Suboptimal ovarian response (poor/low responder) to FSH stimulation.
- Increased risk of ovarian hyperstimulation syndrome (OHSS).

FertilAdvance – Aneuploidy Risk

Advanced genetic test designed to evaluate **predisposition to embryonic aneuploidies of meiotic and/or mitotic origin**.

Particularly useful in complex clinical cases such as:

- repeated implantation failure
- recurrent miscarriage
- unexpectedly high rates of aneuploid embryos at PGT-A

The test analyzes mutations in **13 genes** associated with an **increased probability of embryonic aneuploidy**.



FERTILADVANCE

TESTS DEDICATED TO MALE PARTNER

→ FERTILADVANCE – Male Infertility Panel

Genetic test designed to identify the **genetic causes of male infertility**, including:

- Azoospermia
- Asthenospermia
- Sperm morphology defects

The test simultaneously analyzes more than **60 genes** involved in key processes of **spermatogenesis**.

→ FERTILADVANCE – TESE

Advanced genetic test designed to estimate the **probability of sperm retrieval** in patients with **non-obstructive azoospermia (NOA)** by providing a prognostic evaluation of **TESE/micro-TESE** outcomes. The test analyzes **more than 200 genes** involved in spermatogenesis, searching for mutations associated with failed sperm retrieval (**negative TESE**) or residual sperm production with the potential for retrieval (**positive TESE**).

Integrated Multigene Approach

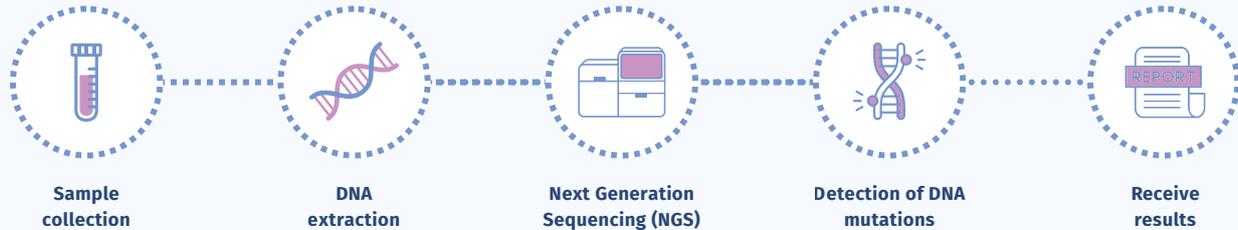
Simultaneous analysis of multiple genes allows a **comprehensive genetic evaluation**, facilitating:

- etiological diagnosis of infertility
- development of personalized clinical strategies
- improved clinical management of ART treatments



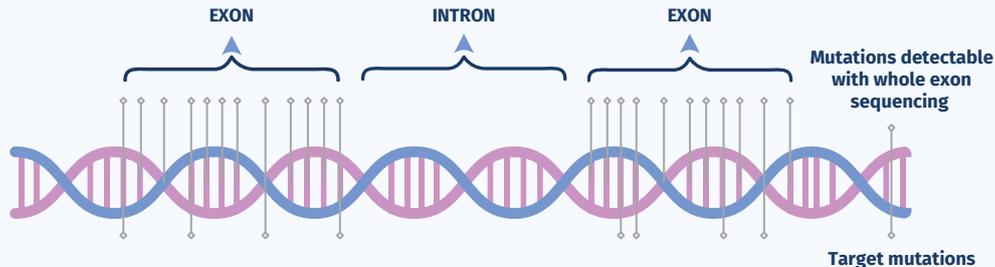


TECHNOLOGY: HIGH RESOLUTION AND ADVANCED BIOINFORMATICS ANALYSIS



FERTILADVANCE uses **Next Generation Sequencing (NGS)** technology with complete sequencing of the coding regions (**whole exon sequencing**) of the genes analyzed, combined with an advanced bioinformatics pipeline.

Advantage compared to targeted tests: rather than searching only for predefined mutations, **FertilAdvance** enables the identification of any genetic variant within the sequenced regions, significantly increasing diagnostic capability.





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POSSIBLE TEST RESULTS



Positive – Pathogenic Variant Detected

Identification of one or more variants with known pathogenic significance consistent with the patient's infertility condition.



Negative – No Pathogenic Variant Detected

No pathogenic variants are detected in the genes analyzed. However, this result does not exclude the presence of mutations in genomic regions not investigated by the test.



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CLINICAL INDICATIONS

FERTILADVANCE is recommended in the following cases:

- Couples with **reproductive dysfunction**
- **Recurrent miscarriage**
- **Repeated failures of IVF treatments**
- Suspected **hereditary infertility**
- Couples planning **assisted reproductive technology (ART)** procedures



FERTILADVANCE

ADVANTAGES OF FERTILADVANCE



EASY

Sample required: **3 ml peripheral blood**



INFORMATIVE

Comprehensive genetic investigation of infertility causes



ADVANCED

State-of-the-art **NGS technology** and sophisticated bioinformatics analysis



ACCURATE

Sensitivity and specificity **>99%**



FERTILADVANCE

SIMPLE AND FAST WORKFLOW



**Kit
request**



**Completion of kit
documentation**



**Sample
collection**



**Sample
shipment**



**Report
delivery**

Turnaround time



~ 15 days

GENOMICA is a highly innovative company with extensive technical and scientific expertise, active in both clinical applications and research. Supported by a team with over 20 years of experience in molecular diagnostics, GENOMICA combines cutting-edge technology with a strong commitment to innovation, delivering increasingly accurate and accessible diagnostic services.



Over **100.000 genetic tests/year**



Laboratories with **groundbreaking technologies** and high quality standards



Dedicated **R&D Team**



International **Partnerships**



Personalized genetic counseling with genetic counselors experts in discussing genetic test results and familial risks



20+ years experience in prenatal molecular diagnostics

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Visit the website
dedicated to the test

