Aidiana genetics

Ziwig

Ziwig Endotest®

A saliva test for the early and reliable diagnosis of endometriosis

Women suffering from endometriosis, for the most part, experience a long delay between the onset of symptoms and diagnosis (between 7 and 11 years on average)[1,2]. During this time they may see multiple physicians, undergo numerous examinations and, in some cases, have surgery before a diagnosis is reached.

A non-invasive test now allows women suffering from symptoms of endometriosis to avoid this long and tortuous medical journey.
A team, made up of expert doctors specialized in endometriosis, engineers in artificial intelligence and medical researchers has recently developed a saliva based diagnostic test that uses Next Generation Sequencing of microRNAs.

This simple and non-invasive test, called Ziwig Endotest®, allows for the early diagnosis of all types of endometriosis with a performance that exceeds that of conventional diagnostic tests [3-8] (sensitivity > 97%, specificity > 93%[9]).

Ziwig Endotest® is based on robust clinical evidence including validation by one of the largest clinical trials ever carried out in the field of biomarkers for endometriosis, the multicenter prospective ENDOmiRNA Saliva Test study (NCT05244668). Ziwig Endotest® provides information as to the presence or absence of endometriosis to healthcare professionals who prescribe the test.

Ziwig Endotest® has obtained the CE label delivered by a notified body (2797).

Endometriosis, an all too scarcely recognized disease

Endometriosis affects about 10% of women of childbearing age world wide, i.e. about 190 million women. It potentially affects all women and can appear as early as from adolescence[1].

Endometriosis is characterized by the presence of fragments of endometrial tissue (a mucous membrane lining the interior of the uterus) outside of the uterine cavity (womb). The presence of these tissue fragments is frequently associated with an inflammatory process[10]. During menstruation, endometriosis lesions can react to variations in hormonal levels, leading to acute inflammation, bleeding, severe pain and other symptoms.

Endometriosis can be completely asymptomatic, and is sometimes diagnosed during a consultation prompted by difficulty in conceiving. In fact, a significant proportion of patients with endometriosis also suffer from infertility[10,11,12].

A major impact on personal and professional Wellbeing

Endometriosis can profoundly affect quality of life, interfering with social engagement, physical and sexual health, relationships, work and academic performance, mental health, and overall well-being. Over time, these ongoing challenges may lead to significant barriers in achieving life aspirations, such as completing education, advancing in a career, establishing meaningful relationships, or starting a family. As a result, it can reshape an individual's life path in impactful ways[12] .

Moreover, the persistence of pain can induce a phenomenon of hypersensitization: pain perception thresholds decrease over time leading to the onset of chronic pain[13,14].

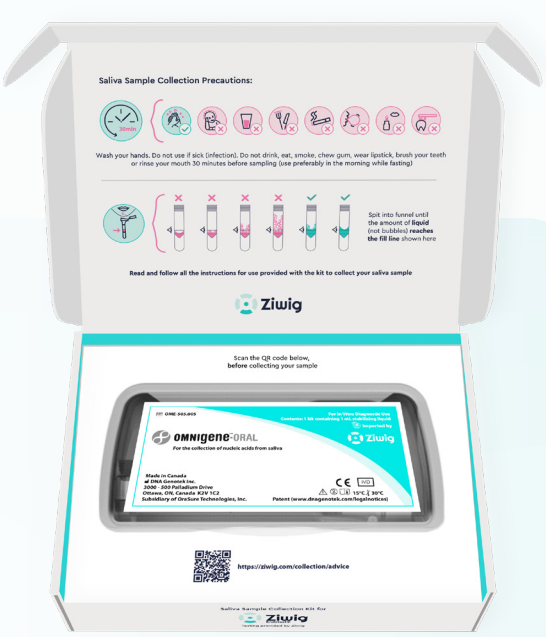
This phenomenon can occur at any stage of endometriosis and chronic pain can persist even after lesions have been treated[15].

When to use the salivary diagnostic test?

Ziwig Endotest® paves the way for an early diagnosis of endometriosis and represents a major paradigm shift in clinical practice[3].

The key advantages of Ziwig Endotest®:

- Clear Positive/negative result[9]
- Rapid diagnosis[9]
- All forms of endometriosis can be diagnosed[3-8]
- High reliability: Sensitivity > 97%, specificity > 93%[9]
- Simple and non-invasive sample collection[9]



When to prescribe the saliva test?

The prescription of Ziwig Endotest® is intended for patients between the age of 18 and 43 years with symptoms suggestive of endometriosis[9].

Suggestive symptoms of endometriosis[16]:

- Chronic pelvic pain
- +/- dysmenorrhea
- +/- deep dyspareunia
- +/- dysuria/painful urination
- +/- dyschezia/painful defecation
- +/- painful rectal bleeding or haematuria during menstruation
- +/- pain in the shoulder tip
- +/- infertility

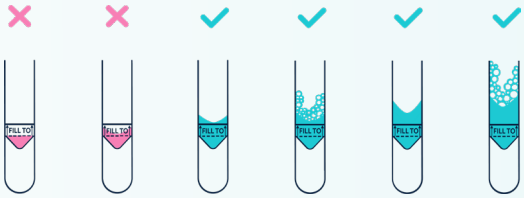
Ziwig Endotest® is not intended to replace diagnosis by pelvic medical imaging.
Medical imaging is complementary to Ziwig Endotest® and remains essential for lesion description, mapping, and classification.

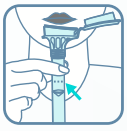
Instructions for collecting saliva samples

30 minutes before sampling:

- Wash your hands
- Do not use if you are ill
- Do not eat or drink
- Do not smoke
- Do not chew gum
- Do not wear lipstick
- Do not brush your teeth

The quantity of liquid must be sufficient and exceed the fill line (bubbles not included).





1. Spit into the tube until the saliva is above the fill line (excluding bubbles).

2. Close the tube tightly by pressing strongly on the funnel cap until you hear a clear click.

3. Unscrew the funnel from the tube.

4. Close the tube with the small cap

5. Shake the capped tube for 5 seconds.

Treatment and care

Currently, treatment regimens aim to slow down the progression of the disease, combat symptoms and improve quality of life. Furthermore, an optimized treatment strategy can be implemented in case of associated infertility.

In addition to personalized analgesic and supportive care, hormonal treatments, including estrogen-progestin or progestin-only therapies, are used to regulate or suppress menstruation. These treatments are designed to alleviate symptoms and improve patients' quality of life. As a second-line option, GnRH analogues may be prescribed, to further reduce symptoms. To mitigate side effects like hot flashes, this therapy is typically combined with "add-back therapy." Furthermore, as research continues to advance, new therapies are becoming increasingly available to patients, offering more options for effective management and improved outcomes.

Surgical treatment is considered when medical treatments are insufficient to alleviate symptoms. The objective of surgery is to remove lesions and correct anatomical abnormalities caused by the disease. The procedure is most often performed by laparoscopy.

Sciences

Ziwig Endotest® uses two cutting-edge technologies: Next Generation Sequencing (NGS) and Artificial Intelligence (AI) to reach a robust diagnosis. In fact, 109 different microRNAs are analyzed in each sample to determine the absence or presence of endometriosis[5,6].

The development of a non-invasive test for the diagnosis of endometriosis has been the subject of intense medical research for many years. More than 100 biomarkers have been evaluated over the last decades. Among them, a new class of molecules first described in 1993, microRNAs, has emergeď as a promising option, supported by a growing number of studies across different medical specialities.

MicroRNAs are small non-coding RNAs. They participate in gene expression: when a microRNA binds to its target, a specific messenger RNA, it primarily blocks protein synthesis, this phenomenon is known as silencing.

MicroRNAs are released into the extracellular environment through various transport structures that shield them from being degraded, thereby enhancing their stability. These circulating microRNAs are present in varying concentrations in different body fluids, including blood, urine, breast milk, tears, and saliva[17].

In recent years, there has been increasing evidence of the contribution of microRNAs in the pathophysiological mechanisms of endometriosis. A direct link has been made between the dysregulation of certain microRNAs and the development of endometriosis lesions[18].

The studies on Ziwig Endotest® have been published in international peer-reviewed scientific journals.

Find all the publications and their abstracts on the website www.ziwig.com

International Journal of Gynecology & Obstetrics

August 2024
Clues to revising the conventional diagnostic algorithm for endometriosis.
Read article

NEJM Evidence

June 2023
Validation of the Salivary miRNA Signature of Endometriosis — Interim Data
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Value of non-coding RNAs to assess lymph node status in cervical cancer
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BJOG An International Journal of Obstetrics and Gynaecology

November 2022
Saliva microRNA signature to diagnose endometriosis: A cost-effectiveness evaluation of the Endotest®
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RBMO Reproductive Biomedicine Online

October 2022
Endometriosis-associated infertility diagnosis based on saliva microRNA signatures
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International Journal of Molecular Sciences

July 2022
A Bioinformatics Approach to MicroRNA-Sequencing Analysis Based on Human Saliva Samples of Patients with Endometriosis
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May 2022
Endometriosis Associated-miRNome Analysis of Blood Samples: A Prospective Study
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March 2022
MicroRNome analysis generates a blood-based signature for endometriosis
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January 2022
Salivary MicroRNA Signature for Diagnosis of Endometriosis
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January 2022
Clues for Improving the Pathophysiology Knowledge for Endometriosis Using Serum Micro-RNA Expression
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Machine learning algorithms as new screening approach for patients with endometriosis
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About Ziwig

Ziwig® is an innovative French biotech specialising in salivary RNA analysis and AI. It operates as an ecosystem at the crossroads of several medical, scientific and digital disciplines. Ziwig® is strongly committed to disruptive innovations that support the transformation of healthcare systems towards more effective, more humane and more accessible precision medicine.

www.ziwig.com

Acknowledgements

Ziwig®'s ambition to foster research and treatment of endometriosis and to change the way we understand this debilitating disease that affects so many women around the world, would never have succeeded without all the women and men who believed in our project.

They fought alongside us to make this innovation possible. On behalf of all those who will benefit from our progress, we thank them!

Ziwig Endotest® wins
the Prix Galien 2024

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*Omnigene Oral is an IVD for the collection and stabilisation of nucleic acids in saliva.
Manufacturer of the Omnigene Oral : DNA Genotek Inc.

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