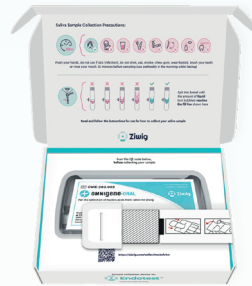




# Guidelines for the use of Ziwig Endotest®

Ziwig Endotest® is an in vitro diagnostic device for use by healthcare professionals only for the **diagnosis of endometriosis from a saliva sample.**

Ziwig endotest® is an innovative, non invasive, diagnostic tool based on the **analysis of salivary miRNAs via NGS (Next Generation Sequencing) and by Artificial Intelligence (AI).**



## The advantages of Ziwig Endotest®

- Clear positive/negative result
- Rapid diagnosis
- All forms of endometriosis can be diagnosed<sup>1-5</sup>
- High reliability close to 100% (sensitivity > 95%, specificity > 95%, diagnostic accuracy (AUC) > 98%)<sup>3</sup>
- Simple and non-invasive sample collection

## Indications for Use

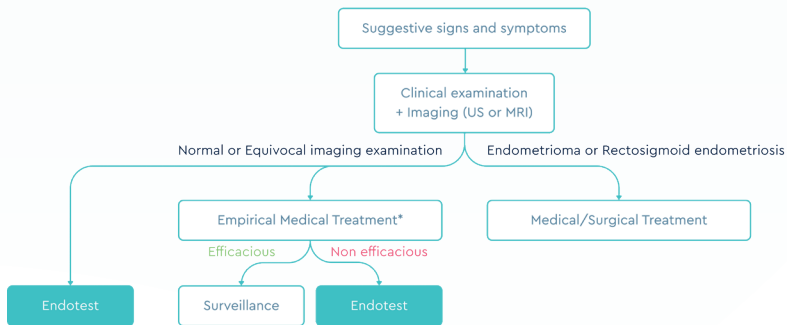
Ziwig Endotest® is intended for patients **between the age of 18 and 43 years** with symptoms suggestive of endometriosis<sup>6</sup>:

- 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

## 1. The reasons for, or situations in, which someone would use the diagnostic tool

- Patients with suggestive symptoms of endometriosis and when imaging examination results are normal or equivocal, before empirical medical treatment.
- Patients with persistent suggestive symptoms of endometriosis despite medical treatment and when imaging examination results are normal or equivocal.

### Explore a diagnosis of endometriosis



\*Endotest® Diagnostic can be offered to patients who do not wish to take empirical medical treatment.

Figure 1: Indications for Ziwig Endotest®

## 2. Exclusion Case

- Endometrioma or rectosigmoid endometriosis found on US and/or MRI examination.

Ziwig Endotest® is a prescriptive-use only device, and saliva collection must be done under the supervision of a healthcare professional.

## Limitations regarding the population

- The patient must be at least 18 and no more than 43 years of age at the time of testing.
- The patient must not have a history of cancer or Human Immunodeficiency Virus (HIV) infection.
- The patient must not be pregnant at the time of testing.
- Ziwig Endotest® is intended for female patients only.
- Ziwig Endotest® can be performed under hormonal treatment.
- Ziwig Endotest® can be performed at any time of the cycle.

## Sample collection precautions

Test results depend on the quality of specimen collection, storage conditions, handling, transportation, and storage at all stages. Poor control of collection, transport, storage, or handling may result in incorrect test results.

- Ziwig Endotest® pre-analytical precautions during sample collection:
  - The patient must have clean, soap-washed hands and must:
    - ▶ Not show signs of acute infection,
    - ▶ Not drink within 30 minutes of collection,
    - ▶ Not eat within 30 minutes of collection,
    - ▶ Not smoke within 30 minutes of collection,
    - ▶ Not chew gum within 30 minutes of collection,
    - ▶ Not wear lipstick within 30 minutes of collection,
    - ▶ Not brush teeth within 30 minutes of collection,
    - ▶ Not rinse mouth within 30 minutes of collection,
    - ▶ Preferably take the sample in the morning on an empty stomach.
- Collection should only be done under the supervision of a healthcare professional.

## Control of samples

The collector (under the supervision of a healthcare professional) must perform **3 visual checks**:

1. Verify that the sample kit components are free of defects.
2. Saliva verification:
  - The amount of saliva must reach 1 cm above the indication line on the tube
  - The appearance of the saliva mixed with the stabilizing liquid must be clear and transparent, without discoloration, food residues or other residues.
3. Verification that the kit expiry date (written next to the unique tube identifier) has not passed.

If one of these 3 controls shows an abnormality, proceed to a new sampling of the patient.

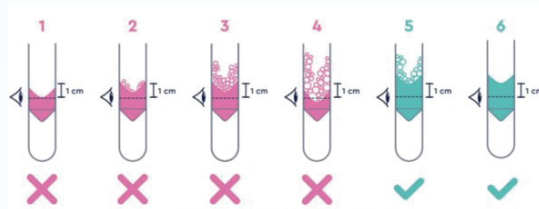


Figure 2: Saliva level verifications

Caption: In this figure saliva is clear, transparent, without discoloration, without food or other debris. The pink and turquoise colors are not representative of the expected color of the saliva sample.

Dotted line to the left of an eye: Indication line. The fluid level in the sampling tube should be measured in relation to the lowest part of the meniscus.

In pink marked with a cross: non-compliant tubes.

In turquoise: compliant tubes.

## Storage and preservation of specimens

Once the sample has been taken, it must be sent to the laboratory within 7 days. The sample can be stored at 4°C for a maximum of 7 days before sending it to the laboratory.

## Interpretation of results

Three types of results are possible for Ziwig Endotest®:

- A **positive result** from the Ziwig Endotest® is in favor of the presence of endometriosis in the patient. A positive result cannot completely confirm the presence of endometriosis.
- A **negative result** from the Ziwig Endotest® is in favor of the absence of endometriosis in the patient. A negative result does not completely rule out the presence of endometriosis.
- An **invalid result**: the sample and/or the sequencing file could not be analyzed or is not interpretable.

Medical management of the patient must be based on all available clinical and biological data.

Results are provided to the healthcare professional on average within 3/4 weeks from the date of reception of the sample by the laboratory.

## Bibliography

1. Machine learning algorithms as new screening approach for patients with endometriosis. Bendifallah S & al. Sci Rep. 2022 Jan 12;12(1):639. doi: 10.1038/s41598-021-04637-2. [https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8755739/pdf/41598\\_2021\\_Article\\_4637.pdf](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8755739/pdf/41598_2021_Article_4637.pdf)
2. Clues for Improving the Pathophysiology Knowledge for Endometriosis Using Serum Micro- RNA Expression. Dabi Y & al. Diagnostics (Basel). 2022 Jan 12;12(1):175. doi: 10.3390/diagnostics12010175. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8774370/pdf/diagnostics-12-00175.pdf>
3. Salivary MicroRNA Signature for Diagnosis of Endometriosis. Bendifallah & al. J Clin Med. 2022 Jan 26;11(3):612. doi: 10.3390/jcm11030612. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8836532/pdf/jcm-11-00612.pdf>
4. MicroRNome analysis generates a blood-based signature for endometriosis. Bendifallah S & al. Sci Rep. 2022 Mar 8;12(1):4051. doi: 10.1038/s41598-022-07771-7. [https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8902281/pdf/41598\\_2022\\_Article\\_7771.pdf](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8902281/pdf/41598_2022_Article_7771.pdf)
5. Endometriosis Associated-miRNome Analysis of Blood Samples:A Prospective Study Bendifallah S & al. Diagnostics. 2022; 12(5):1150. <https://doi.org/10.3390/diagnostics12051150>
6. <https://www.eshre.eu/Guidelines-and-Legal/Guidelines/Endometriosis-guideline.aspx>

*Ziwig Endotest® is the trade name used for the kit provided to collect the saliva for the diagnosis. The communication is made under this trade name while the diagnosis of endometriosis is performed by the CE marked software named Endotest® Diagnostic.*