

Diagnosing hormone-based disorders using saliva

Diagnosing hormone-based disorders using saliva samples dates back to the 1980s, but it is only the sensitivity improvements over the last decade that have led to saliva-based diagnostics becoming a viable alternative to blood testing. Biovis' Diagnostik, a medical laboratory based in Limburg, Germany, has been at the forefront of saliva diagnostics since 2012, providing comprehensive testing to improve the analysis of hormone-based disorders.

Biovis' Diagnostik was founded in 2004 to offer a broad range of clinical diagnostic tests, including gastrointestinal, immune and metabolic analyses. The company began looking into the benefits of saliva testing in 2010, after requests from many smaller labs for support. Dr. med. Burkhard Schütz, founder of Biovis', explained: "I had always worked with serum diagnostics, and there were always a few reasons that spoke against saliva diagnostics to me. However, when I started to look into it, I realized that it was actually extremely interesting, and could provide complementary findings to support more traditional diagnostics. We therefore started to offer more services in this area, putting us on the journey to becoming one of the largest providers of saliva hormone testing in Germany."

"Over the last 10 years, saliva diagnostics has increased in popularity as an


alternative to blood-based testing, and has now established itself as a stable field – I would have made a big mistake if I hadn't taken it up," Burkhard continued. "It offers an incredibly simple way of collecting samples. It's non-invasive, and the patients can take samples themselves, without the need to go to the doctor's office. They can take the samples at any time across the day, which is very useful for determining various phase-dependent parameters – such as melatonin or cortisol – that you can only monitor in blood if the patient comes to the practice again and again. The stability is also very good, and samples are easier to transport than blood."

Saliva diagnostics is perfectly suited to the analysis of biologically active, free hormone levels, offering accurate diagnosis of hormone disorders – particularly where regular testing is required. Hormone levels can be

monitored using simple immunoassays, which can be easily automated when they are being carried out on a large scale. "These benefits make it highly advantageous to measure various types of hormones in saliva, including cortisol, melatonin, progesterone, estradiol and testosterone. This approach is particularly useful in several phase-dependent disorders, such as monitoring progesterone and estradiol throughout the menstrual cycle, to be able to correct imbalances associated with pre-menstrual syndrome. It is also very helpful for detecting adrenal gland weakness, by tracking changes in cortisol and other adrenal hormones. A third use is for monitoring estradiol levels, since imbalances can be associated with dry mucous membranes and frequent urinary tract infections. All of these imbalances can be corrected with therapies once they have been identified correctly, so accurate diagnosis is crucial."

Biovis' has streamlined its saliva testing activities by integrating Tecan hormone diagnostics ELISA kits into its workflow. The lab uses three Freedom EVOlyzer® platforms to automate all common ELISA steps, including sample distribution and predilution, reagent pipetting, incubation, plate washing, optical density measurements and result generation. These instruments

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support the running of Tecan ELISA kits for estradiol, estriol, progesterone, cortisol, testosterone, DHEA and melatonin measurement in salivary samples, as well as the quantification of free vitamin D, neopterin and serotonin in serum or urine samples. Automating the process has allowed Biovis' to increase throughput, while improving the accuracy and reproducibility of results. "I have worked with Tecan for many years, which has built a relationship of trust. The Tecan ELISA kits provide reliable results, and the support is there if any issues occur. Saliva diagnostics is a simple tool, and I believe it will continue to be an important

approach for providing better diagnosis of hormone imbalances in cycle disturbances – prolonged or shortened cycles – or the absence of ovulation. It can also support the many women who have pre-menstrual syndrome associated with changes in the progesterone-estradiol ratio. Being able to detect these imbalances allows women to seek therapies to overcome their challenging symptoms," Burkhard concluded.

For more about Tecan's saliva diagnostic solutions, visit
www.tecan.com/saliva-general-information

To learn more about Biovis' Diagnostik, go to
www.biovis.eu/en/