

HEALTH

Israeli device opens up the saliva diagnostic market

By ISRAEL21c staff May 29, 2008

An Israeli professor has developed a new saliva-based disposable device that could be used to increase the diagnostic value of saliva, enabling physicians to do away with blood and other invasive diagnostic tests.

The device, created by Professor Aaron Palmon of the Faculty of Dental Medicine at The Hebrew University of Jerusalem, clears human saliva from its major protein constituent - alpha amylase - which masks the presence of other protein components, enabling the detection of various low-abundance biomarkers associated with a number of diseases.

"Professor Palmon's technology paves the way for a quick and efficient, non-invasive diagnostic tool which may replace current blood and other invasive tests," said Nava Swersky Sofer, president and CEO of Yissum, the technology transfer company of The Hebrew University, which introduced the device at the ILSI Biomed Israel 2008 conference in Tel Aviv this week.

"The disposable device is an important addition to current diagnostic technologies and will contribute to patient welfare. We also believe it carries significant commercial potential," she continued.

Saliva has the potential to become an important diagnostic tool in today's medicine, not least because it is the most easily obtainable body fluid. Most molecules found in the blood or urine, can also be detected in the oral cavity, although usually at lower concentrations.

Studies indicate saliva may be useful for detecting various cancers, heart disease, diabetes, periodontal diseases, and other conditions, as well a host of infectious agents such as HIV. Compared to collecting blood samples, obtaining saliva samples is non-invasive, inexpensive and convenient. It can even be carried out at home.

A major hurdle, however, is that saliva contains a high content of proteins whose function is to digest food. One protein in particular, amylase, is extremely abundant and constitutes up to 60 percent of saliva proteins. The massive presence of this protein can mask the presence of other protein components and hamper certain diagnostic tests.

Prof. Palmon and his research student Omer Deutsch from the Institute of Dental Sciences, together with Dr. Doron Aframian, head of the Salivary Gland Clinic, Department of Oral Medicine, at The Hebrew University-Hadassah School of Dental Medicine, found a way to remove amylase from saliva (and other body fluids) by using modified potato starch, which absorbs large quantities of amylase.

In 2007, the global market for biomarkers was \$5.6 billion, and it is expected to rise to more than \$12.8 billion by 2012. Over \$65 million was invested in the US alone for the development of diagnostic kits based on saliva.