In the past six years, saliva has risen to center stage for disease detection, monitoring and even health surveillance.

In cooperation with FDI World Dental Daily, Dental Tribune Asia Pacific spoke with UCLA’s Dr. David Wong, director of the Dental Research Institute, at this year’s World Dental Congress in Singapore about salivary diagnostic toolboxes and how they could be utilized for detecting systematic diseases.

In recent years, the role of saliva for the detection and monitoring of diseases has risen to center stage. Can you summarize the latest findings for us?

Seven years ago, the National Institute of Dental and Craniofacial Research (NIDCR), one of the 27 institutes at the U.S. National Institute of Health (NIH), made a visionary investment to turn salivary diagnostics into a clinical reality.

The outcomes of this scientific investment are what constitute the recent excitement and clinical potential for salivary diagnostics.

We now know there are multiple diagnostic alphabets in saliva to define the diagnostic coordinates of oral and systemic diseases. Point-of-care diagnostic technologies are soon to be in place to permit a drop of saliva to detect and monitor diseases at the dental practice.

How exactly does saliva work as a biomarker? Biomarkers are defined as cellular, biochemical and molecular characteristics by which normal and/or abnormal processes can be recognized and/or monitored.

The salivary glands — major and minor — secrete approximately 1.5 liters of saliva into the oral cavity daily, carrying with it health/disease information, biomarker information. The sources of these biomarkers can be disease sites or the salivary gland itself.

Salivary biomarkers for systemic disease is one of the final frontiers

An interview with Dr. David Wong

Dr. Dan McEowen presented at last year’s Dental Tribune Study Club Symposium during the Greater N.Y. Dental Meeting, and he is scheduled to speak this year too.

‘Salivary biomarkers for systemic disease is one of the final frontiers’
It was people everywhere in the front lobby of the Hawaii Convention Center during the ADA Annual Session. (Photo by Kristine Colker/Dental Tribune)

Dr. Lee Ann Brady and Dr. Peter Fay demonstrate impression technique for multiple implants during an Education in the Round session at the recent ADA meeting in Hawaii. (Photo by Fred Michmershuizen/Dental Tribune)

The salivary gland system can be viewed as a local anatomical organ that is poised to monitor local and systemic diseases. The good news is that the biofluid secreted, saliva, can be obtained non-invasively, painlessly and without embarrassment to the patient — no needles and no cringing.

Which salivary diagnostic toolboxes are at hand or currently in development and how could these be incorporated into the clinical practice?

Current salivary diagnostic toolboxes include the diagnostic alphabets — proteome, transcriptome, micro-RNA and microbial — and point-of-care diagnostic technologies. Integration into clinical practice requires identification of effective clinical application and approval by the Federal Drug Administration in the U.S.

With the exception of the salivary HIV-antibody test, no other salivary biomarker test has reached the FDA-level evaluation. We anticipate that our point-of-care device and biomarkers for oral cancer detection will be evaluated by the FDA in the next two years.

Do oral diseases have any impact on the diagnostic value of saliva?

A number of oral diseases have been evaluated for salivary diagnostic applications, including caries assessment, oral cancer and periodontal disease.

Proper control of oral diseases in the study population to control the effect of periodontal disease and inflammation, in particular, is important.

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Dr. Lee Ann Brady and Dr. Peter Fay demonstrate impression technique for multiple implants during an Education in the Round session at the recent ADA meeting in Hawaii. (Photo by Fred Michmershuizen/Dental Tribune)

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