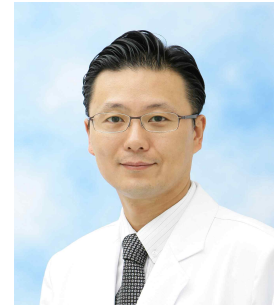


**Title:** Early detection of oral disease using optical fluorescence technology

**Author:** Kim Baek-Il

**Affiliation:** Yonsei Dental University, Department of Preventive Dentistry



### **Abstract**

Traditional paradigm in dentistry was a surgical model that visually detects late stage lesions and then removes them surgically. However, there has been increasing needs for the traditional paradigm to change. A new paradigm in dentistry is a nonsurgical approach which allows early detection of the oral disease, followed by minimal invasive dentistry. For this to be achieved, a high-technology detection device recognizing changes in the earlier stages which could not be visually observed is needed.

Dental biofilms are the main causes of oral disease which are groups of microorganism to accumulate to a surface. As biofilm grows, pathogenicity gradually increases. If the pathogenicity of dental biofilms can be detected by optical fluorescence technology, it will be a useful tool to prevent the oral disease.

The current optical fluorescence technology for detection of biofilms have focused to the red fluorescence of bacteria induced porphyrin. Among these medical devices, Quantitative Light-induced Fluorescence (QLF) conspicuously stands out among the newly released devices. QLF technology is the quantitative visible blue light such as 405 nm induced fluorescence system which can capture changes in mineral contents in tooth and bacterial porphyrin induced red fluorescence from biofilms at high resolution. This optical fluorescence technology can extend its detection area which can evaluate incipient caries, mature plaque, crack, and proximal caries. In this presentation, the various clinical applications of this optical fluorescence technology in the dentistry will be introduced.

### **CV**

Visting researcher, Dept. of hygiene, Tokyo dental college(2004)

Assistant professor, Yonsei Dental University Department of Preventive

dentistry(2004-2009)

Chairperson of ISO TC106 Korea branch SC 7 (2008-present)

Visiting professor, Dept. of Oral biology research group, Melbourne university(2009-2010)

Assistant professor, Yonsei Dental University Department of Preventive dentistry(2009-2014)

Professor, Yonsei Dental University Department of Preventive dentistry(2010-present)

Dean, Yonsei Dental University Department of Research(2014-2016)

Professor, Yonsei Dental University Department of Preventive dentistry(2014-present)