

Individual proteomic analysis of the initial pellicle formed *in situ* on dental enamel

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The dental pellicle formation is a continuous process starting immediately after oral hygiene due to the adsorption of mostly salivary proteins to the tooth surface. It protects the dental surface from mechanical damages and demineralization processes caused by acids. Till this day no proteomic data of individual pellicle profiles formed on dental enamel are available.

The aim of the current study was to characterize individual proteomic profiles of the 3-min pellicle formed on dental enamel and to compare them to the corresponding salivary profiles to obtain information on potentially occurring selective adsorption patterns. Therefore the initial pellicle of five subjects was generated *in situ* on bovine enamel, eluted chemically and analyzed by tandem nano-mass spectrometry. The corresponding saliva was analyzed in parallel, resulting in the identification of up to 498 pellicle proteins and 1032 salivary proteins in the individual samples. Despite major individual differences in the proteomic profiles, 19 proteins were found to be significantly enriched and 22 proteins were found to be significantly depleted in the 3-min pellicle off all subjects. The results state the initial pellicle formation to rely on selective adsorption processes most likely induced by the physico-chemical properties and molecular functions of the salivary proteins.