Thesis outline

In **Chapter 2** the variation and relationships between a set of salivary proteins and enzymes with known relevance for oral health were analyzed using targeted antibody- and enzyme activity-based assays. Subgroups in the sample population of young healthy adults and sex-related differences in salivary biochemistry were also examined.

In **Chapter 3** the variation in salivary peptide profiles in healthy adults was characterized using MALDI-TOF mass spectrometry. Subgroups of individuals were defined based on these profiles and the functional differences between them were assessed. The subset of peptides responsible for discriminating the subgroups was identified and the possible mechanisms were discussed.

In **Chapter 4** an ecosystemic network of the healthy mouth was built by integrating and interrelating salivary functional biochemistry with salivary microbiome and salivary metabolome data. Metabolome data were acquired using a multi-platform mass spectrometry-based approach, while microbiome data were obtained by 16S rRNA gene amplicon sequencing.

In **Chapter 5** the changes occurring in the salivary functional biochemistry and the salivary metabolome during a challenge intervention in healthy adults were examined. The challenge was a 2-week induction of experimental gingivitis. The effect of erythritol was also assessed in a randomized trial setting.

In **Chapter 6** the changes occurring in the salivary peptide profiles during a 2-week induction of experimental gingivitis in healthy adults were examined. The effect of erythritol was also assessed in a randomized trial setting.

In **Chapter 7** a summary of the findings was compiled together with a general discussion and an outlook for future studies.

The studies encompassed in this thesis were performed as part of the ‘Novel strategies to promote oral health’ project within the framework of TI Food and Nutrition. Data were acquired from two separate clinical studies: a cross-sectional observational study aimed at estimating the boundaries of a healthy oral ecosystem (**Chapters 2, 3, and 4**) and a challenge intervention, randomized clinical trial exploring the dynamic interactions in the oral ecosystem during the induction of mild gingival inflammation (**Chapters 5 and 6**).