Theme 3: Interactions of infectious disease & CMD

Project title:
Cardiometabolic diseases, Periodontitis and Dental Caries: Deciphering the role of Intrinsic and Extrinsic regulatory Mechanisms (CARPE DIEM)

Grant amount:
DKK 59,999,999 over 6 years

Main applicant:
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Brief description:
Over the course of our lives, it is estimated that everyone will be affected by an oral infection, such as dental caries or periodontitis. There are well-established epidemiological links between oral infections and cardiometabolic diseases like obesity, metabolic syndrome, type 2 diabetes, and cardiovascular disease. These relationships point to localised oral infections having widespread systemic effects, the mechanisms of which remain to be uncovered. A deeper understanding of this connection can improve prevention and treatment strategies for both conditions.

The CARPE DIEM project will use Danish registries and biobank resources and advanced omics technologies to leverage data from diverse populations, including Greenland, to uncover genetic and molecular mechanisms linking oral infections and cardiometabolic diseases.

The project has the potential to significantly impact public health and medical science. By identifying causal pathways between oral infections and cardiometabolic diseases, it will enhance risk prediction, prevention, and management strategies. Additionally, combining metagenomic and metaproteomic data with immune responses could help discover new biomarkers and active peptides, leading to earlier and more accurate diagnosis and monitoring of type 2 diabetes and cardiovascular disease. This would assist policymakers in including oral health in broader disease prevention strategies, promoting a more comprehensive healthcare approach.