

# Exploring the microbial dark matter of the human mouth

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At the 96th General Session of the International Association for Dental Research (IADR), held in conjunction with the IADR Pan European Regional (PER) Congress, Alexandra Clark, Queen Mary University of London, Barts and The London School of Medicine and Dentistry, England gave a poster presentation titled "Exploring the Microbial Dark Matter of the Human Mouth." The IADR/PER General Session & Exhibition is in London, England at the ExCeL London Convention Center from July 25-28, 2018.

Bacterial community profiling targeting 16S rRNA genes has revolutionized knowledge of the diversity of bacteria but recently the use of metagenomic analysis has revealed the presence of bacteria not detected by both [culture](#) and traditional 16S rRNA gene sequencing. The majority of these novel organisms fall into one monophyletic group, the Candidate Phyla Radiation (CPR). In this study, Clark and co-authors investigated the presence and the diversity of CPR bacteria in the human mouth and sought to cultivate CPR representatives.

To enrich Saccharibacteria (TM7) Clark and co-authors used a combination of sequential colony hybridisation (CH) enrichment and liquid culture with potential bacterial hosts, and a culture in a mixed in-vitro biofilm model from human saliva samples. The presence of Saccharibacteria and their relative abundance were evaluated by Q-PCR, FISH and 16S sequencing.

The results showed that CH enabled two independent co-isolations of

Saccharibacteria HOT352/353 with two hosts but the Saccharibacteria cultures were lost after five and eight passages. Liquid cultures resulted in stable co-culture of Saccharibacteria but higher yields were obtained when the simplified community obtained by CH was propagated as a mixed culture in the biofilm model after preliminary amplification in liquid culture.

A combination of CH and minimal biofilm-eradication concentration is highly promising for the cultivation of Saccharibacteria species. The culture of CPR bacteria will provide insight into their unusual lifestyles and metabolism and role in oral health and disease.

Provided by International & American Associations for Dental Research

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