Role of Human Oral Epithelial Cells in Periodontal Diseases

Human Oral Epithelial Cells (HOECs) are the first line of cellular defense in the oral cavity and function as noncanonical immune cells. We have shown previously that HOECs play an important role in the regulation, initiation and maintenance of inflammation in periodontal disease. The immuno-metabolic role of HOECs in the oral cavity is severely understudied. We are interested in studying the immune response pathways of HOEC in response to various environmental stressors. In this study, we asked how TLR2/1 and TLR5 ligand stimulation affected genes associated with HOEC immuno-metabolism. The bacterial components flagellin and Pam3CSK4 were used simulate and immune response through activation of the ligand TLR2/1 (pro-inflammatory) and TLR5 (anti-inflammatory) respectively. This is the first step in identifying mucosal targets for non-invasive therapeutic interventions to prevent inflammation associated with periodontal disease and tooth loss.