

Sompop Bencharit

Biosketch:

Dr. Sompop Bencharit is an Assistant Professor in the Department of Prosthodontics, School of Dentistry and an Adjunct Assistant Professor in the Department of Pharmacology, School of Medicine at the University of North Carolina at Chapel Hill (UNC). Dr. Bencharit is a Diplomate of the American Board of Prosthodontics. Dr. Bencharit is a protein structural biologist specializing in protein X-ray crystallography. He has his research interests in structural biology and its applications to human diseases in particular the role of signaling proteins involved in vessel and bone development as well as disease-related salivary proteomics, metabolomics, and microbiomics. His current research mainly includes the clinical applications of structural biology and mass spectrometry proteomics, including (1) structural and functional studies of cerebral cavernous malformation (CCM), a genetic disorder resulting in vascular defects in the brain causing hemorrhagic stroke; (2) salivary proteomic analysis and biomarker discovery for systemic and oral diseases including diabetes, oral candidiasis, and HIV infection, and (3) biology of bone regeneration and dental implants. He currently runs several clinical studies including studies on salivary proteomics in diabetes, role of IL37-master regulator of inflammation in periodontal disease, initial wound healing around trabecular metal implants, effects of antibiotics on immediate single implants, as well as long-term clinical outcomes of immediate implant loading using angled abutments. He serves as an editorial board member or reviewer for numerous international scientific journals. He currently serves as Academic Editor for PLOS ONE and Editorial Board Member for Scientific Reports.

Abstract:

Recent advances in proteomics have rapidly produced numerous protein biomarkers that may play a crucial role in disease diagnosis, disease progression, monitoring and treatment. While the emerging field of salivary proteomics is fast growing, we have just begun to understand the mechanisms of biomarkers and how dysregulation of their functioning results in disease. In addition to bioinformatics and systems biology, our research group attempts to explain the functional role and significance of biomarkers through proteomic analysis and structural biology. We will discuss the development of technologies and techniques for biomarker identification and monitoring in oral and systemic diseases including Sjogren syndrome, dental caries, and cancer. We will also explore the use of salivary proteomes to differentiate subjects with oral and systemic disease including Candida-associated Denture Stomatitis, HIV with oral candidiasis and salivary gland disease and Type 1 and 2 Diabetes Mellitus. Better understanding of these protein biomarkers, their effect on disease, and their structure and function may serve as a foundation for the development of innovative diagnostic tools and treatment modalities