



Dr. Keith L. Kirkwood

略歷

Dr. Keith L. Kirkwood is Professor and Founding Chair of the Department Oral Health Sciences at the College of Dental Medicine at Medical University of South Carolina (MUSC), Charleston, SC where he is also the current Associate Dean for Research and Director for the MUSC Center for Oral Health Research. Dr. Kirkwood completed his Certificate in Periodontology and earned his Ph.D. in Oral Biology at the State University of New York (SUNY) at Buffalo. Before moving to his current position in 2008, Dr. Kirkwood was a tenured Associate Professor at the University of Michigan in the Department of Periodontics and Oral Medicine. He is also a Diplomate of the American Board of Periodontology. He is principal investigator in several grants from the National Institutes of Health/National Institute of Dental Research (NIH/NIDCR) focused on understanding innate immune signaling involved inflammatory periodontal bone loss and oral cancer progression. He is also Co-Director for the NIDCR T32 training grant called "T-COHR: Training in Craniofacial and Oral Health Research."

Dr. Kirkwood has served on several NIH review panels and is currently serving as a permanent member for the Oral Dental Craniofacial Sciences review panel. Additionally, he has served as President of the International Association for Dental Research Pharmacology/Toxicology/Therapeutic Group. He has received numerous awards and honors throughout his career, including an National Research Service Award from the NIH/NIDCR, the Tarrson Fellowship Career Development Award from the American Academy of Periodontology Foundation, two-time recipient of the IADR/GSK Innovation in Oral Care Award, the IADR Distinguished Scientist Award for Pharmacology/Therapeutics/Toxicology Research, and the Sunstar Fellowship Research Award from the American Academy of Periodontology Foundation.

MAPK Signaling and RNA Stability in Osteoimmunology: Therapeutic Targets for Periodontitis Control

Department of Oral Health Sciences Medical University of South Carolina
Keith L. Kirkwood

Periodontal disease initiation and progression occurs as a consequence of the host immune inflammatory response to oral pathogens. Tristetraprolin (TTP) is a zinc finger protein that binds to the distinct elements of multiple cytokine mRNAs and enhances degradation of specific target cytokine mRNAs. TTP is phosphorylated by the intracellular signaling pathways p38-MK2 mitogen-activating protein kinases (MAPKs) and may serve as a general mechanism of cytokine mRNA regulation. The objective of this presentation is to provide experimental evidence on how TTP and the p38-MK2 pathways can modify periodontal disease initiation and progression providing novel therapeutic targets for adjunctive management of chronic periodontitis. In addition, other therapeutic targets including MAPK phosphatases (MKPs) that target the regulatory sites of MAPK kinases capable of negatively regulating MAPK activity to attenuate inflammatory cytokine response will be discussed. Both preclinical and in vitro data focused on how these pathways are specific for inflammatory bone loss and osteoclast formation will be discussed. Following this presentation, new foundation and translational significance of mRNA stability will be provided to the audience showing how insight of the functional nature of proteins to be targeted for future human studies that will modify innate immune cytokine expression for therapeutic benefit in the management of chronic periodontitis.