

Biomedical Research Award

Dr. Sumit Yadav, *University of Connecticut Health Center*

Dr. Yadav is an Assistant Professor in the Division of Orthodontics at University of Connecticut Health Center. He is a board certified orthodontist and currently acts as a research director for the orthodontic residents. He has published over 60 peer reviewed journal papers. Currently, working with musculoskeletal biologist at UCONN Health Center, he is expanding his research arena and has been devising novel therapeutic strategies for the treatment of degenerative diseases of the TMJ.



Project Synopsis:

Temporomandibular joint disorders (TMJDs) affect over 15 million Americans and it is estimated that the United States spends billions of dollars each year on the treatment of TMJDs. Current therapies for TMJDs are palliative and focus on decreasing pain and improving the mobility of the joint. Our proposal addresses a gap in our knowledge as to whether Intermittent Parathyroid Hormone can be used for the treatment of degenerative diseases of the Mandibular Condylar Cartilage of the Temporomandibular Joint (TMJ). We therefore hypothesize that Intermittent Parathyroid Hormone has a chondroprotective effect on the MCC of the TMJ.

The aims of this research are to evaluate the anabolic effects of I-PTH on the MCC in an adult and age related degeneration mouse models.

Benefit to Orthodontic Education:

The National Institute of Dental and Craniofacial Research reported that TMDs are the second most common musculoskeletal disease in the United States, with 5% to 12% of the population suffering from TMDs at any given time. The functional and psychological consequences of TMDs impair quality of life for affected individuals, making this group of disorders a leading cause of disability and a significant cost to the society. Currently there are no effective treatments for degenerative diseases in the MCC and total joint replacement becomes the only option. Accordingly, there is an unmet need for an effective approach to treat the degeneration of the MCC. Parathyroid Hormone plays a major role in the regulation of calcium and phosphate metabolism and is an FDA approved osteoanabolic drug therapy for the treatment of osteoporosis. However, the long-term effects of I-PTH on the MCC are yet unknown and whether I-PTH can be used to treat the degenerative diseases of the MCC is also unclear.

Importance of AAOF Funding:

The AAOF Biomedical grant will provide me the opportunity to publish preliminary data, which will be essential to launch my career as a funded NIH clinical orthodontist scientist with a focus on basic science questions related to clinical issues in orthodontics