

Biomedical Research Award

Dr. Carlos Flores-Mir, *University of Alberta*

Short biography:

Dr. Carlos Flores-Mir is a tenured Professor at the School of Dentistry, University of Alberta. He currently is the Orthodontic Program Director and Head of the Division of Orthodontics. He currently works in an extramural practice in the city of Edmonton, Alberta. He also serves as Assistant/Associate Editor of three orthodontic journals. Dr. Flores-Mir has provided more than 70 presentations about Clinical Orthodontics, Evidence-based Dentistry and Evidence-based Orthodontics throughout the world. He has published 5 book chapters about evidence-based decisions and almost 250 peer-reviewed publications. His current research interests are management of Class II malocclusion with Class II fixed correctors, clinical management of impacted canines and pediatric sleep disorder breathing from an orthodontist point of view.



Brief Project Description:

This 4-year project has two broad aims: to understand how changes in cartilage/bone remodeling lead to nasal airway obstruction and likely to pediatric obstructive sleep apnea (OSA), and to develop and validate novel, accessible diagnostics for OSA that can be used in clinical practice to screen for OSA. Bringing together scientists and clinicians, this project will pursue three goals: 1) Characterization of the molecular and cellular processes regulated by *Bmp7* that underlie cartilage/bone remodeling using *in vivo* and *in vitro* approaches. 2) Identification of systemic metabolic changes suitable for use as biomarkers in the diagnosis of OSA. 3) Retrospective and prospective clinical cohort studies with children with OSA to test the metabolic markers for their suitability as novel, accessible diagnostics.

Benefits to Orthodontic Education:

Dr. Flores-Mir is a tenured full-time faculty member in charge of an accredited graduate orthodontic program. As such he is expected to have a significant research portfolio while also fulfilling his teaching duties. He thrives to demonstrate to his students the applicability of knowledge translation into real world private practices. This project will exemplify how a journey from basic sciences and animal experiments followed up by application into human observational studies can lead to fundamental changes in the way we practice orthodontics. Although only a few pediatric orthodontic patients are likely to have significant sleep disorder breathing the impact of an early identification is paramount to avoid the major systematic consequences. Orthodontists are uniquely positioned to help our medical colleagues to screen for pediatric sleep disordered breathing.

AAOF Importance Overall and for the Recipient:

Projects as the one being funded are expensive endeavors. Major funding agencies expect preliminary/pilot data to justify major financial commitment. Funding from the AAOF allows the generation of such data. Simultaneously, orthodontic graduate students are exposed to the importance of research to support our beloved specialty. Dr. Flores-Mir was supported through two OFDA awards early in his academic career. More than 12 years later he is thriving in the academic environment and is still committed to our profession as a full time orthodontic faculty member. Orthodontic graduate students have continuously benefitted from his enthusiasm to merge clinical research into clinical practice. AAOF support has been a major part of his academic career.