

Research Aid Award

Dr. Mary Cruz Contreras, *University of Pennsylvania*

Biography

Dr. Mary Cruz Contreras Salas received her DDS in Peru. She has over ten years of experience as a Dental Surgeon working in private and state-run clinics in Peru and US. She joined the International Dentist Program at Virginia Commonwealth University School of Dentistry and graduated in 2021. Dr. Contreras has been pursuing her Orthodontic training and Master of Science in Oral Biology from the University of Pennsylvania School of Dental Medicine. She wishes to share her passion for constant learning and self-development as an educator and private practitioner.



Description of Project

Orthodontic bone remodeling is a sterile inflammatory response induced by mechanical force, mediated by various inflammatory cytokines, RANKL, osteoprotegerin, and transcription factors such as RUNX2. The periodontal ligament contains mesenchymal stem cells (MSCs) supporting tissue turnover; however, little is known about how these MSCs regulate mechanical force-induced bone remodeling. In this study, we examine if the NF- κ B in MSC affects the orthodontic tooth movement by i) regulating the expression of the proinflammatory cytokines and affecting osteoclasts formation on the compression side and ii) regulating new bone formation on the tension side.

Statement of how orthodontic education will benefit from your award

Still, the complex cellular and molecular events induced during orthodontic tooth movement remain unanswered. Here, we use the transgenic mouse model to examine the role of NF- κ B in MSCs, clarifying the cause-and-effect relationships. Understanding the underlying mechanisms of orthodontic tooth movement would help develop new treatment modalities to expedite orthodontic treatment and/or prevent orthodontic relapse.

Why the Foundation is important to your project.

This AAOF Research Aid Award will be used mainly for Dr. Contreras' research, supporting the management of mice census, antibodies purchase, and publications. In addition, it supports Dr. Contreras' American Association for Dental, Oral, and Craniofacial Research (AADOCR) attendance, where she plans to present her findings in 2024.

How Foundation funding is expected to or has benefitted your career

This AAOF Research Aid Award promotes the career of passionate young researchers like Dr. Contreras, who wishes to start her career in academics. This award broadens her vision and encourages her to grow as a successful orthodontist, educator, and scientist.