The University of Iowa **Department of Orthodontics** "Advancing Orthodontics, One Smile at a Time"

## **IOWA** DENTISTRY

It is our pleasure to announce that Dr. Lina Moreno has been selected as the new Chair of the University of Iowa Department of Orthodontics.



Lina started her dental and orthodontic education in Colombia, South America. After receiving her dental education, she was accepted into a graduate program in genetics at The Ohio State University. She came to the University of Iowa with her mentor, Dr.

Andrew Lidral, where she received her PhD. She then entered and completed a residency in the Department of Orthodontics at the University of Iowa. In 2008 she was appointed to a position of Assistant Professor, and in 2016 she was appointed to her present position as Associate Professor.

Dr. Moreno Uribe is exceptionally well educated in the areas of Dentistry, Orthodontics and Craniofacial Genetics. This unique blend of training in various interrelated disciplines has allowed her to be an effective clinician-scientist.

Dr. Moreno spearheaded the transition of orthodontic care for craniofacial anomaly patients from UIHC to the College after Dean Johnsen suggested doing so. She provides oversite of orthodontic care for the vast majority of Iowa's craniofacial deformity patients as Director of Cleft and Craniofacial Anomalies Clinic in the Department and supervision of attending faculty and orthodontic residents providing this care. Dr. Moreno Uribe is a brilliant researcher and teacher. She served as mentor of two K award applications to NIH for trainees Drs. Brain Howe (KO8) and Aline Petrin (KO1). Both K awards were funded in 2018 and 2019. Under Lina's mentorship, Aline has secured an additional K boost grant just last year and was the winner of the Milo Hellman Orthodontic Award 2021, the most prestigious orthodontic award granted by the American Association of Orthodontics and the most prestigious orthodontic research award granted in the world.

Dr. Moreno is well respected by her genetics colleagues worldwide, has also received the Milo Hellman Award, and has given numerous national and international invited presentations.

She has published 59 peer-reviewed articles and 2 book chapters in the fields of genetics of cleft lip and palate, malocclusion, and facial variation. In addition to the two K awards described above, she received numerous NIH grants and American Association of Orthodontists Foundation Grants.

In recognition of her achievements, Dr. Moreno Uribe was awarded the Ross D. Christensen Family Professorship in Orthodontics in 2017. Lina encapsulates all the qualities of a top-tier leader, and we look forward to her serving as DEO.

Dr. Kyungsup Shin, Program Director

Dr. Tom Southard, Former DEO





## A Message from the Chair

The Department of Orthodontics at the University of Iowa is an internationally recognized top-tier orthodontic department possessing gifted faculty members, highly skilled staff, and brilliant residents. The Department has acquired the latest technology which will help propel us into the future and enhance our educational, clinical, and research missions. We are ready to meet current and future challenges facing our specialty and profession, and we will continue to lead in the education of future generations of orthodontists. My vision for the department includes:

- Service and support of our faculty, staff, residents, alumni, and patients
- Continue improvement in our residency and pre-doctoral educational programs
- Strengthen service to the University, state, and dental communities
- Enhance support for research and scholarly activity
- Bolster interdepartmental and collegiate interactions and collaborations.

It is my great honor to be the Department of Orthodontics Departmental Executive Officer. I pledge to do my very best, every day, to build on her many strengths and lead her forward on a continued path of success. I am here to serve her and you.

Lina Maria Moreno Uribe, DDS, PhD

### Dr. Aline Petrin Receives Highest Research Award in Orthodontics

#### January 22, 2021

The American Association of Orthodontics awarded Dr. Aline Petrin, associate research scientist in the Iowa Institute for Oral Health Research, the 2021 Milo Hellman Research Award. This award will be presented during the virtual AAO Excellence in Orthodontics Awards Luncheon at Annual Session.

Dr. Thomas Southard, DEO in the Department of Orthodontics, expressed his congratulations and said of Dr. Petrin receiving the award, "This is the top orthodontic research prize in the world!"

Dr. Petrin was chosen for this prestigious award based on her research project, "Epigenome-wide analysis of DNA methylation in monozygotic twins discordant for orofacial clefts." This project is part of her 5-year careerdevelopment K01 NIH grant and draws on a unique and powerful approach to genetic research that uses discordant twins to study key epigenetics factors, which play a causal role in orofacial clefts

"It is an honor to be the recipient of the Milo Hellman Award. This achievement would not have been possible without the support that I receive. I extend my sincere thanks to my mentors, Dr. Moreno, Dr. Murray and Dr. Marazita, to the Department of Orthodontics, to our Division of Biostatistics and Computational Biology, and the College of Dentistry leadership."





Dr. Lina Moreno





#### The College of Dentistry Welcomes World-Class Orthodontist and Humanitarian Dr. Michael Callan as a New Faculty Member by Dr. Tom Southard

Carlos, a 17 year old Haitian boy, awakens with his upper lip massively swollen and protruding to the tip of his nose. Having eaten sugarcane his entire life, his maxillary incisors are hopelessly decayed to the level of his gums. The teeth have abscessed, and purulence has eroded through the maxillary bone – exiting into his upper lip. As the hot morning sun blazes through the window of his parent's shack, his condition worsens. He tries to sit up but is unable. His mother brings him a bowl of watery soup but he refuses to eat. He grows weaker. His parents kneel next to his bed and pray that the American will soon arrive. Suddenly, the village becomes alive with excitement. Dr. Mike Callan has made his way through the winding, dust-caked roads leading from Port Au Prince to their impoverished village. Mike sets up the portable dental clinic, removes Carlos' hopeless teeth, places him on antibiotics, and gives the family his own money to have a maxillary denture made by a Haitian dentist once the swelling has subsided. Mike works tirelessly throughout the day and night caring for many other patients from that and surrounding villages. The next morning, sleepless, spent and hungry, Dr. Callan completes treatment on his final patient, loads his equipment, and moves on to the next village. As he passes Carlos's home, he smiles. Carlos waves from his front porch. Scenes similar to this have played out for decades in Haiti, Cambodia, and the Philippines where Mike travels yearly, often seeing one hundred patients each day.

In Mike's own words: "During my first trip to Cambodia, I became aware of poverty that I never really knew existed. I lost 11 pounds during the two-week trip due to nausea (culture shock and anti-malaria prophylaxis.) I also became aware of the healing that comes from the Lord. At the end of the trip, during a church service held by orphans, I was healed of heart break and heart sickness. I came home and everything was better. The food tasted sweeter, carpet felt softer, my wife seemed more beautiful. My life was better, but I was "bitten." From then on I have no sooner arrived home than I am in the process of making plans for the next trip. What started out as a way to distract myself from my own problems became an encounter with a Living God. From there these trips have morphed from an adventure for Christ into an adventure with Christ!"



Dr. Mike Callan is a humanitarian and orthodontist extraordinaire. He is a son of Iowans, attended the University of Iowa, and earned his DDS from Iowa. He completed his orthodontic residency at the University of Michigan and maintained a practice in Clinton, Iowa for the past 30 years. We have been fortunate to have had Mike as a Visiting Clinical Professor in the University of Iowa Department of Orthodontics since 2009. He is a cornerstone in the department.

Dr. Mike Callan is the only orthodontist in the United States and Canada to have supervised orthodontic residents in the treatment of two winning cases in the College of Diplomates of the American Board of Orthodontics annual resident case competition. Mike is beloved by our students, staff, patients, and faculty. Recently, Dr. Callan has been awarded the 2021 American Association of Orthodontists Humanitarian Award which he will receive next spring at our annual meeting in Boston.

Perhaps once in a lifetime will we encounter an individual as compassionate as Dr. Callan. Perhaps once in a lifetime will we encounter an individual with the incisive intellect

and clinical skills possessed by Dr. Callan. Perhaps once in a lifetime will we encounter that one man or one women who epitomizes the best of what we were, the best of what we are, and the best of what we hope to become. That person is Mike Callan.





#### Dr. Shankar Rengasamy

**Venugopalan** has been elected as the Vice President of the IADR Craniofacial Biology Group. This is a group of extraordinary researchers, from all around the world, in the field of craniofacial development and genetics. Many researchers in this group also serve as reviewers in NIH study section.



Chad's first Friday in Resident Teaching Clinic, September 11, 2020

# ORTHO VIDEOS

There are 3 videos that we are working on for Resident Recruitment but they do a rather nice job of highlighting what is going on in the minds of the Faculty and Residents as well as demonstrates the features of the clinic it self.



About the program *https://youtu.be/v2jDNZ-Suek* 



Clinic Tour https://youtu.be/WCbn\_S57ijo



Meet the Residents https://youtu.be/-phw4v1q0VU

#### Dr. Shin Awarded Prestigious NIH Grant for Innovative Research in Regenerative Medicine

The National Institutes of Health awarded Dr. Kyungsup Shin, assistant professor in the Department of Orthodontics and director of Clinical Research, and his team a two-year \$300K+ R03 grant for their research on using exosomes derived from bone marrow stromal cells (BMSC-Exos) to regenerate condylar fibrocartilage in the temporomandibular joint (TMJ). This research lays the groundwork for new non-invasive treatments for degenerative joint disorders.

These kinds of degenerative joint disorders are some of the most challenging problems facing clinicians as their patients experience a great deal of pain and, in some cases, are unable to effectively chew.

Approximately 4 out of 5 people with the disorder have significant signs of joint disease and treatments costing \$4 billion per year in the US.

Rather than using surgical means to treat the condition, Dr. Shin and his team are developing less invasive tissue regeneration strategies as treatments of degenerative TMJ disorders.

This research is promising, and it uses endogenous progenitor cells at the damaged site to replace and repair damaged tissue. Progenitor cells function similarly to stem cells and can grow into a variety of different tissue types. One of the main complications for this research is getting these cells to multiply and develop into the right kind of cells at the damaged site.

Dr. Shin's team is addressing this challenge by using exosomes, specifically BMSC-Exos, to effectively direct and manage the progenitor cells. But the process can be streamlined even further if the specific miRNAs in BMSC-Exos are identified for delivery directly to the damaged tissue.



Thus, this project has two specific aims:

1. Characterize BMSC-Exo (including miRNA profiles) and determine the effects of BMSC-Exos on in vitro CPC migration and fibrocartilage differentiation.

2. Evaluate the effects of BMSC-Exos on in vivo fibrocartilage repair in a rabbit TMJ disc perforation model.

This project will enable Dr. Shin and his team to identify potential therapies for fibrocartilage repair and to identify specific miRNAs that regulate cell migration and new tissue formation. The ultimate aim is to be able to synthesize the specific miRNAs, load them in biologically engineered exosomes, and deliver the cells to the damaged tissue site, thus producing an efficient and effective minimally-invasive process for cartilage regeneration.

Dr. Shin's research team include: Dr. Xian Jin Xie, Dr. Dong Rim Seol and Mr. Douglas C. Fredericks.









Clint Wire, Class of 2019





Dr. Adlin Pabon taken off the coast of Italy with husband, Ramon Ansa. Photo was of their 25th wedding anniversary — Congrats!



We are doing well [Eric Bell, class of 2019]! 3 kids now so a growing family. Busy as ever attempting to buy into a practice within the next year. I hope you, Karen, and the dog are doing well! Here are a couple pictures of the family.

