



2025 Resident Aid Award Dr. Catherine Chou, University of Connecticut

Biography

Dr. Chou is an orthodontics resident at the University of Connecticut pursuing a certificate in orthodontics alongside a Master of Dental Science (MDentSc). She graduated with a DDS from New York University and a Bachelor of Science in Biomedical Engineering from the Georgia Institute of Technology. Dr. Chou's research interests have ranged from biomaterials for bone tissue engineering and regenerative medicine to pre-doctoral orthodontics education. Outside of academia, Dr. Chou is always looking to further public health initiatives and develop her skills in providing care for patients with special needs. She is very grateful to be receiving this Charles J. Burststone Research Aid Award from the AAOF and hopes to expand the boundaries of translational research in orthodontics through her work.

Project Description

Constriction of the maxilla is one of the most common craniofacial deformities, which can cause crowding and posterior crossbite and contribute to skeletal abnormalities. Maxillary expansion is a commonly used treatment approach that opens the mid-palatal suture, but it has demonstrated adverse effects such as buccal alveolar bone loss. Meanwhile, platelet-rich plasma (PRP) is a rich source of essential growth factors involved in the angiogenic cascade and has been shown to enhance both soft and hard tissue regeneration and accelerate wound healing in various surgical fields, including maxillofacial surgery, and thus may potentially reduce the loss associated with maxillary expansion. This project evaluates whether PRP can prevent bone loss in the posterior buccal region after maxillary expansion. If successful, PRP that can be derived from a small volume of the patient's blood may be used to regenerate bone in areas of loss post-orthodontic treatments, such as expansion. This autogenous method will limit any autoimmune reactions that may otherwise be experienced with allo- or synthetic grafting.

How Orthodontic Education Will Benefit

The clinical translation of basic science research is challenging yet foundational to evidence-based practice. Orthodontic education is the perfect ground to investigate new ideas, or in the case of this project, attempt and adapt applications that have already found merit in other medical specialties, increasing their chances of adoption in clinical use. In the process, orthodontic residents gain the ability to not only execute but also analyze, critique, and improve upon scientific trials, including their own. These critical thinking skills are essential in creating the evidence-based thinking that is the basis for providing the most reliable and effective treatments that benefit our patients.

Importance of the AAOF

As pre-eminent sources of guidance for many orthodontists in the Americas and around the world, the AAO and AAOF hold significant knowledge and inspiration for many clinicians while keeping a pulse on the status of our specialty. The AAOF especially serves as a vital source of support in

generating the high-quality research that strengthens the evidence base of our clinical practice and consequently promotes our specialty.

Dr. Chou is very grateful for this Charles J. Burstone Research Aid Award, as it serves both as a critical source of study funding as well as a personal inspiration to continue her research endeavours. In obtaining funding from the AAOF, Dr. Chou can execute this project and her master's thesis at a higher level and with potentially additional clinical impact as a result.

Personal Impact of AAOF Funding

Dr. Chou is excited to use this funding to better her patient care and further her vision of becoming an academic, notably combining clinical practice, teaching, and translational research. The AAOF is a generous and key supporter of many young researchers, residents, and faculty alike. Dr. Chou is very thankful for the AAOF's continued support in advancing the specialty and looks forward to working alongside it to progress patient outcomes in her academic career and beyond.