Research Aid Award

Dr. Mohamed-Nur Abdallah, *University of Toronto*

Biography

Dr. Mohamed-Nur Abdallah is currently a third-year orthodontic resident at the University of Toronto. He obtained his dental degree from the University of Jordan in 2008. After working for approximately three years as a general dentist in Jordan and Cyprus, he joined McGill University where he earned his M.Sc. in Dental Sciences (2013) and Ph.D. in Craniofacial Health Sciences (2016) from McGill University with a focus on biomaterials and evidence-based dentistry. Dr. Abdallah also worked as a teaching assistant (for 5 years) and a postdoctoral fellow (6 months) at the Faculty of Dentistry/McGill University. So far, he has authored and co-authored 30 articles published in peer-reviewed journals and 6 book chapters as well as filed 3 patents.

Project Synopsis

Bone defects often result due to trauma, fracture, surgery, tumor resection, infections as well as congenital malformation. Clefts of the lip and palate are the most common craniofacial congenital defects. Several surgeries are often needed to treat these defects and such procedures usually involve extensive alveolar bone grafting. Alveolar bone grafting aims to establish maxillary arch continuity, stabilize the maxilla, and provide adequate bone for tooth eruption and/or for placement of dental implants to restore missing teeth. Currently, the gold standard treatment is autograft bone harvested from the iliac crest or ribs, which present several limitations in the clinical practice such as limited availability and donor site morbidity as well as inflammation and resorption of the implanted bone. To overcome these limitations, several bone graft materials have been investigated for treating alveolar bone defects.

The aim of the proposed project is to investigate whether a bone forming C3-conjugate drug in combination with monetite materials (dicalcium phosphate anhydrous) has the potential to regulate bone repair and formation in a bone defect in a rat jaw model. We hypothesize that monetite based synthetic graft material granules loaded with the C3 conjugate will result in a greater and more predictable de novo bone formation in the surgically created jaw defects when compared with the same grafts without the drug or with the commercially available bovine bone granules.

This research is expected to pave the way for developing clinical treatments with novel graft materials that provide improved bone regeneration which will ultimately benefit millions of patients undergoing treatment for bone defects in oral and maxillofacial surgery.

Importance of AAOF Funding

The AAOF RAA is an incredible resource for orthodontic residents to help with conducting their research. The funding and support of this award will be essential for the completion of this project and will be used to cover part of the budget required for characterizing the animal specimens. Furthermore, obtaining the AAOF funding has reinforced my career goal in becoming a clinician-scientist in academia.