Orthodontic Faculty Development Fellowship Award

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I received my dental training in India from the Tamil Nadu Dr. MGR Medical University. Subsequently pursued PhD in Biomedical Sciences at the Texas A & M University Baylor College of Dentistry. During my PhD, I studied the transcriptional regulation of gene expression to understand the complex nature of genetic defects seen in Axenfeld Rieger Syndrome patients. After my doctoral training, I was accepted into Harvard School of Dental Medicine, where I received my Orthodontic Certificate and DMSc degree in Oral Biology. My research at Harvard focused on understanding the de–phosphorylation of enamel proteins in mineral crystal formation. I joined the UMKC School of Dentistry, Department of Orthodontics and Dentofacial Orthopedics in July 2014 as an Assistant Professor.

I thank the AAOF and the members of the committee for the *Robert E. Binder Teaching Award* and the funding for my project *"Genomic Analyses in Ameloblastoma"*. Recent studies have established a genetic basis for ameloblastomas. However, the major problems with these studies are (1) combining all the histological subtypes into one sample group, or (2) targeting a limited number of specific alleles, for example BRAF or SMO genes or (3) taking a candidate gene approach excluding the other genes. We hypothesize that there must be unique somatic variants that define the ameloblastoma subtypes and may have a distinct, yet to be identified, molecular signature amenable to personalized therapy. Therefore, we propose to identify the unique somatic variants in follicular and plexiform ameloblastomas using deep (400x) Whole-Exome Sequencing. In the era of personalized medicine, the results of this study has the potential to predict risk, diagnose early, reduce uncertainties in clinical decision making, and deliver customized therapy to patients with ameloblastoma. Advances in orthodontic appliances has enabled orthodontists to treat patients in wide range of age groups from adolescents to adults. Devastating diseases like ameloblastoma can be found in any orthodontic patient pool. Failure to detect and/or refer patient with ameloblastoma makes the clinicians liable and puts the patient at risk. The results of this study will benefit orthodontists and other clinicians who regularly examine the oral health of their patients.

AAOF recognizes the importance of supporting junior faculty in establishing their academic career and have played a key role. Funding from AAOF for my 2015 OFDFA has helped me start my research program at UMKC. This funding has enabled me to work towards gathering preliminary data for extra mural funding. I am grateful for the support that AAOF and its donors have provided in establishing my academic career.