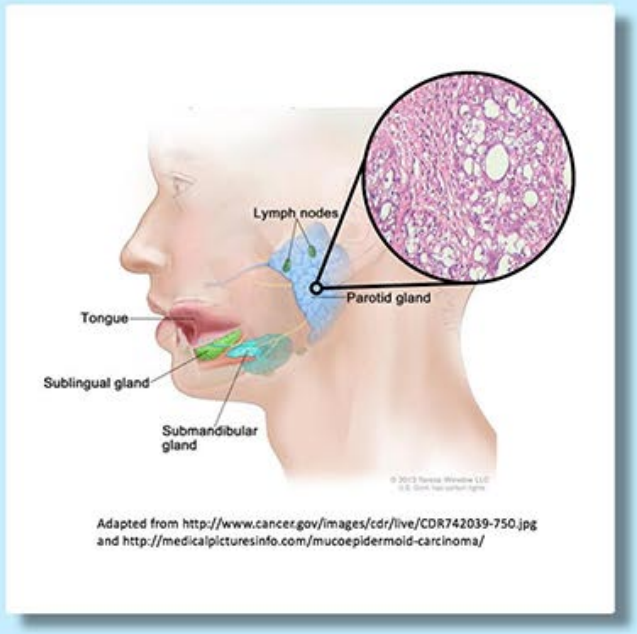

## SHAILY AGHERA

**Faculty Research Mentor: Dr. Antonio Amelio**
*Koury Oral Health Sciences (Dental School)*


**Mucoepidermoid carcinoma histology from the parotid gland**

## Inducible Expression of the CRTC1-MAML2 Fusion Oncogene for Modeling Mucoepidermoid


Among salivary gland cancers, mucoepidermoid carcinoma (MEC) is the most common malignant tumor type. MEC is frequently characterized by a recurrent chromosomal translocation that fuses chromosomes 11 and 19, resulting in a novel CRTC1/MAML2 (C1/M2) fusion product composed of the CREB-binding domain of CRTC1 and the transcriptional activation domain of MAML2. It is not known what the downstream targets of C1/M2 are past PGC-1α4 and IGF-1. To study the acute effects of C1/M2 induction on transcriptional and signal transduction circuits, we created a tool to express C1/M2 in an inducible manner. Through restriction enzyme cloning, we created a plasmid where the expression of C1/M2 is under the control of a doxycycline-inducible promoter. We then transduced this plasmid into a C1/M2-negative cell line and performed qPCR and Western blotting assays in the presence or absence of doxycycline to analyze C1/M2 expression. qPCR analyses demonstrated that doxycycline treatment increased C1/M2 transcript levels by approximately 15-fold in the doxycycline-inducible cells. This construct will first be used to determine how it affects the expression of known C1/M2 target genes, including PGC-1α4 and IGF-1. Long-term goals include the analysis of other C1/M2-regulated pathways and discovering what additional target genes are regulated by C1/M2 and testing whether they drive cancerous transformation in MEC.