

Expression of Cancer Stem Cell Marker Proteins in Pharynx (FaDu) and Tongue (CAL27) Cell Lines of Head and Neck Squamous Cell Cancer

Bach Nguyen

Faculty: William J. Hendry

Department of Biology, Fairmount College of Liberal Arts and Sciences

Head and neck cancer is the sixth most common cancer worldwide and its diagnostic rate is approximately 630,000 new patients a year with more than 350,000 deaths every year. The majority (approximately 90%) of head and neck cancers are squamous cell carcinomas (HNSCC) that arise from the stratified squamous epithelial cell lining of the upper aerodigestive tract. The five-year survival rates for HNSCC are relatively low because primary tumor detection at initial stages and relapse prevention has not improved. While some cancer stem cell (CSC) markers are recognized in HNSCC, a complete profile of such markers for possible prognosis and diagnostic purposes is not well established. Additionally, utilization of the hamster cheek pouch xenotransplantation model now appears to be particularly well suited to the analysis of HNSCC cells and tumor tissue samples. Thus, this project assessed the expression of particular cancer stem cell protein markers in two HNSCC cell lines utilizing Western blot and immunohistochemical analyses and then used the hamster cheek xenotransplantation model to examine the in vivo growth potential of those two cell lines. We did detect distinct expression patterns for cancer stem cell marker proteins: Cortactin, HSP60, and Oct-3/4. Furthermore, we did generate two viable xenotransplant masses from one of the HNSCC cell lines. We will next analyze those tissue masses at both the histomorphological and protein expression levels.