Current research on diseases of the ear, nose, throat and related structures of the head and neck has experienced significant strides in areas including cancer, otology, rhinology and laryngology. Molecular diagnostics and advanced imaging modalities including positron emission tomography have facilitated diagnosis and patient outcomes. Collaborations between physicians and laboratory researchers working to identify key clinical issues and translating the biological insights into novel therapeutic approaches are crucial to significant progress in the field.

Tumors of the head and neck are the 6th most common cancer worldwide with high 5-year mortality rates. The most common type of head and neck cancer is squamous cell carcinoma (SCC). Although the incidence of the disease has been reducing possibly due to an increased awareness of the carcinogenic effects of tobacco, there has been a steady rise in human papilloma virus (HPV) associated oropharyngeal carcinoma. Mutations in the tumor suppressor gene p53 is observed in the majority of head and neck SCC patients [1]. Recently, two reports by independent teams comprising of an amalgamation of clinicians and basic scientists elucidated the whole-exome (protein coding genes) mutational profile of head and neck tumor-normal pairs [2,3]. In addition to p53 mutations, both groups reported mutations in genes involved in the differentiation pathway involving NOTCH1. Interestingly, tobacco exposure increased the number mutations compared to tumors with no tobacco exposure [3]. In addition, HPV expressing tumors had fewer mutations than HPV positive tumors. Further determinations of the function of these mutations in tumor growth and dissemination are necessary. These studies set the stage for further work in the areas of target identification and therapeutics pertaining to personalized medicine.

References